

## Symposium 1A

# CLUSTERS AND CLUSTER ASSEMBLED MATERIALS

**Marcela R Beltrán Sánchez** / México / Universidad Nacional Autónoma de México

**Shiv N. Khanna** / USA / Virginia Commonwealth University

**Ignacio L. Garzon** / México / Universidad Nacional Autónoma de México

ROOM: MEXICO  
MONDAY, AUGUST 17

 Session Chair: **MARCELA R BELTRAN SANCHEZ,**  
**IIM UNAM, MEXICO**

▶ **08:30 - 09:00 S1A-0001 *Invited Talk* FUNCTIONALITY OF SMALL METAL CLUSTERS: FROM BASICS TOWARDS SENSORS AND SELECTIVE CATALYSIS**

Vlasta Bonačić-Koutecký<sup>1,2</sup>

<sup>1</sup>Department of Chemistry, Humboldt-University Berlin, Germany. <sup>2</sup>Interdisciplinary Center for Advanced Science and Technology (ICAST), University of Split, Croatia.

▶ **09:00 - 09:30 S1A-0002 *Invited Talk* PRECISE SYNTHESIS AND SPECIFIC CATALYSIS OF SUPPORTED GOLD-BASED CLUSTERS**

T. Tsukuda<sup>1,2</sup>

<sup>1</sup>Department of Chemistry, School of Science, The University of Tokyo, Japan. <sup>2</sup>Elements Strategy Initiative for Catalysts and Batteries (ESICB), Kyoto University, Japan

▶ **09:30 - 10:00 S1A-0003 *Invited Talk* HOW MANY METAL ATOMS MAKE A METAL?**

Hannu Häkkinen<sup>1</sup>

<sup>1</sup>Nanoscience Center, University of Jyväskylä, Finland

▶ **10:00 - 10:30 S1A-0004 *Invited Talk* NEW PATHWAYS FOR THE SYNTHESIS OF MONODISPERSE AU CLUSTERS**


Massimo F. Bertino<sup>1</sup>, Patrick Woodworth<sup>1</sup>


<sup>1</sup> Department of Physics, Virginia Commonwealth University

▶ **10:30 - 11:00 S1A-0005 *Invited Talk* PHOSPHINE-COORDINATED ATOMICALLY PRECISE GOLD CLUSTERS: STRUCTURES, PROPERTIES AND FUNCTIONS**

K. Konishi<sup>1</sup>

<sup>1</sup>Graduate School of Environmental Science, Hokkaido University, Japan

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **SHIV N. KHANNA VCU, USA**

▶ **12:30 - 13:00 S1A-0006 *Invited Talk* DNA BASE PAIRING BY NOBLE METALS: STRUCTURE AND ELECTRONIC PROPERTIES FROM DENSITY FUNCTIONAL THEORY**

Olga Lopez-Acevedo<sup>1</sup>

<sup>1</sup>COMP Center of Excellence in Computational Nanoscience and Department of Applied Physics, Aalto University

▶ **13:00 - 13:30 S1A-0007 *Invited Talk* STRUCTURE DETERMINATION OF ISOLATED PLATINUM GROUP CLUSTERS USING AN INFRARED FREE ELECTRON LASER**

André Fielicke<sup>1</sup>

<sup>1</sup>Institut für Optik und Atomare Physik, Technische Universität Berlin, Germany



▶ **13:30 - 14:00 S1A-0008 *Invited Talk* VIBRATIONAL PROPERTIES OF METAL NANOPARTICLES AT FINITE TEMPERATURE: THE BREATHING MODE AND ITS INTRINSIC DAMPING**

H. E. Saucedá<sup>1</sup>, I. L. Garzón<sup>1</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México, México.



**14:00- 16:00 LUNCH**



Session Chair: **PATRIZIA CALAMINICI, CINVESTAV MEXICO**

■ **16:00 - 16:30 S1A-0009 SYNTHESIS AND DEPOSITION ON THE SUBSTRATE OF MASS-SELECTED BIMETALLIC CLUSTERS**

Atsushi Beniya<sup>1</sup>, Ryo Suzuki<sup>1</sup>, Noritake Isomura<sup>1</sup>, Yoshihide Watanabe<sup>1</sup>

<sup>1</sup>Toyota Central R&D Labs, Japan

▶ **16:30 - 17:00 S1A-0010 *Invited Talk* HYDROGEN ADSORPTION AND DISSOCIATION ON FREE AND GRAPHENE-SUPPORTED PALLADIUM CLUSTERS**

M.J. López<sup>1</sup>, A. Granja<sup>1</sup>, I. Cabria<sup>1</sup>, and J.A. Alonso<sup>1</sup>

<sup>1</sup>Departamento de Física Teórica, Atómica y Óptica, Universidad de Valladolid, Spain

▶ **17:00 - 17:30 S1A-0011 *Invited Talk* INTERACTION OF GRAPHENE WITH IRON CLUSTERS AND MOLECULES**

M. Castro<sup>1</sup>, P. Limón<sup>1</sup>, E. Chigo-Anota<sup>2</sup>

<sup>1</sup>Departamento de Física y Química Teórica, Facultad de Química, Universidad Nacional Autónoma de México, México. <sup>2</sup>Benemérita Universidad Autónoma de Puebla, Facultad de Ingeniería Química, Ciudad Universitaria, México.

▶ **17:30 - 18:00 S1A-0012 *Invited Talk* DFT SIMULATION OF C<sub>60</sub>/Au(111): FROM GEOMETRICAL PROPERTIES TO RAMAN SPECTROSCOPY**

L.O. Paz-Borbón<sup>1</sup>, C.J. Villagómez<sup>1</sup>, I.L. Garzón<sup>1</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México, México

ROOM: MEXICO  
TUESDAY, AUGUST 18



Session Chair: **IGNACIO GARZON, IF-UNAM, MEXICO**

▶ **08:30 - 09:00 S1A-0013 *Invited Talk* Au, Co, AND Cr ATOMS, DIMERS, AND CLUSTERS ON NaCl/Au(111) SURFACES**

Zhe Li<sup>1</sup>, Koen Schouteden<sup>1</sup>, Ewald Janssens<sup>1</sup>, Chris Van Haesendonck<sup>1</sup>, Peter Lievens<sup>1</sup>

<sup>1</sup>Laboratory of Solid State Physics and Magnetism, Department of Physics and Astronomy Belgium

▶ **09:00 - 09:30 S1A-0014 *Invited Talk* STRUCTURES AND STABILITIES OF C<sub>un</sub>V CLUSTERS**

Andreas M. Köster<sup>1</sup>, Patrizia Calaminici<sup>1</sup>, Gabriel U. Gamboa<sup>1</sup>, Luis López Sosa<sup>1</sup>

<sup>1</sup>Departamento de Química, Centro de Investigación y de Estudios Avanzados., México

▶ **09:30 - 10:00 S1A-0015 *Invited Talk* FORMATION OF BINARY SUPERATOM NANOCLUSTER MONOLAYER**

Atsushi Nakajima<sup>1,2,3</sup>

<sup>1</sup>Department of Chemistry, Faculty of Science and Technology, Keio University, Japan. <sup>2</sup>JST, ERATO, Nakajima Designer Nanocluster Assembly Project, 3-2-1 Sakado, Takatsu-ku, Kawasaki, Japan. <sup>3</sup>Keio institute of pure and applied science (KiPAS), Keio University, 3-14-1. Japan

▶ **10:00 - 10:30 S1A-0016 *Invited Talk* AL12CU AS STABLE BUILDING BLOCK OF IONIC SALTS**

J.Ulises Reveles<sup>1</sup>, Tunna Baruah<sup>2</sup>, and Rajendra R. Zope<sup>2</sup>

<sup>1</sup>Department of Physics, Virginia Commonwealth University United States. <sup>2</sup>Department of Physics, University of Texas El Paso, United States

▶ **10:30 - 11:00 S1A-0017 *Invited Talk* THEORETICAL STUDY OF GOLD-COPPER AND GOLD-IRIDIUM NANOALLOYS**

Luis A. Pérez<sup>1</sup>, Laura M. Jiménez-Díaz<sup>1</sup> and Moisés F. Ramírez<sup>1</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México, México.



**11:00 - 11:30 COFFEE BREAK**



**11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **GERALD GEUDTNER, CINVESTAV, MEXICO**

▶ **12:30 - 13:00 S1A-0018 *Invited Talk* THE COMPOSITION AND SIZE DEPENDENT REACTIVITY OF SMALL DOPED GOLD AND DOPED ALUMINUM CLUSTERS**

E. Janssens<sup>1</sup>, H.T. Le<sup>1</sup>, T. Höltzl<sup>2</sup>, J. Vanbuel<sup>1</sup>, P. Ferrari<sup>1</sup>, V. Kaydashev<sup>1</sup>, A. Fielicke<sup>3</sup>, P. Lievens<sup>1</sup>

<sup>1</sup>Laboratory of Solid State Physics and Magnetism, KU Leuven, Belgium, <sup>2</sup>Furukawa Electric, Budapest, Hungary, <sup>3</sup>Institut für Optik und Atomare Physik, Technische Universität Berlin, Germany

▶ **13:00 - 13:30 S1A-0019 *Invited Talk* ELECTRONIC STRUCTURE AND MAGNETIC PROPERTIES OF SMALL AL CLUSTERS**

Omar López-Estrada<sup>1</sup> and Emilio Orgaz<sup>1</sup>

<sup>1</sup>Departamento de Física y Química Teórica, Facultad de Química, Universidad Nacional Autónoma de México, México

▶ **13:30 - 14:00 S1A-0020 *Invited Talk* MAGNETISM IN Ni<sub>12-x</sub>M<sub>x</sub> (M=Mn,Fe) ALLOY CLUSTERS ENCAPSULATED IN ARSENIC CAGES**

Rajendra Zope<sup>1</sup>, Nabil Hoque<sup>1</sup>, and Tunna Baruah<sup>1</sup>

<sup>1</sup>Department of Physics, University of Texas at El Paso.



**14:00 - 16:00 LUNCH**

 Session Chair: **EMILIO ORGAZ, FQ-UNAM, MEXICO**

■ **16:00 - 16:30 S1A-0021 INTER-CRYSTAL SELF-ASSEMBLY FOR THE SYNTHESIS OF HIGH-QUALITY BINARY OXIDE NANOWIRES**

K. Saito<sup>1</sup>

<sup>1</sup>Ikarashi-2, Nishi-ku, Niigata, Japan

■ **16:30 - 17:00 S1A-0022 SYNTHESIS OF HETEROSTRUCTURED NANOPARTICLES WITH REGULATED STRUCTURE AND PROPERTIES BASED ON LAYERED POTASSIUM POLYTITANATES**

A.V. Gorokhovskiy<sup>1</sup>, E.V. Tretyachenko<sup>1</sup>, D.A. Zimnyakov<sup>1</sup>, V.G. Goffman<sup>1</sup>, M.A. Vikulova<sup>1</sup>, D.S. Kovaleva<sup>1</sup>

<sup>1</sup>Yuri Gagarin State Technical University of Saratov, Russia

■ **17:00 - 17:30 S1A-0023 ARCHITECTURES TOWARDS TUNGSTEN COPPER CLUSTER COMPLEX: SINGLE CRYSTAL TO SELF-ASSEMBLY**

Haiming Wu<sup>1</sup>, Cengqian Yuan<sup>1</sup>, and Zhixun Luo<sup>1</sup>

<sup>1</sup>Chinese Academy of Sciences

■ **17:30 - 18:00 S1A-0024 GROUP IV SEMICONDUCTOR ALLOY NANOCRYSTALS: BAND STRUCTURE EVOLUTION AND OPTOELECTRONIC PROPERTIES**

Richard J. Esteves<sup>1</sup> and Indika U. Arachchige<sup>1</sup>

<sup>1</sup>Department of Chemistry, Virginia Commonwealth University, United States

**ROOM: TERRACE  
TUESDAY, AUGUST 18**

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S1A-P001 TRANSITION STATES AND ELECTRONIC STRUCTURE IN SMALL-SIZED NICKEL CLUSTERS**

O. López-Estrada<sup>1</sup> and Emilio Orgaz<sup>1</sup>

<sup>1</sup>Departamento de Física y Química Teórica, Facultad de Química, Universidad Nacional Autónoma de México, México.

■ **S1A-P002 O<sub>2</sub> ADSORPTION ON Au<sub>n</sub>Ag<sub>m</sub> CLUSTERS (n=1-3, m=1-6)**

Fernando Buendía<sup>1</sup> and Marcela R. Beltrán<sup>1</sup>

<sup>1</sup>Universidad Nacional Autónoma de México, Instituto de Investigaciones en Materiales, México

■ **S1A-P003 THEORETICAL STUDY OF QUASI-FULLERENE NANOESTRUCTURES C<sub>n-q</sub> AND M@C<sub>n-q</sub> (M=S,Ti,V,Cr,Mn)**

Christian A. Celaya<sup>1</sup>, Enrique Sansores<sup>1</sup>, Jesus Muñiz<sup>2</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, UNAM, México, <sup>2</sup>Instituto de Energías Renovables, UNAM, Morelos, México.

■ **S1A-P004 CALCULATION OF THE SUPERCONDUCTING TRANSITION TEMPERATURE OF A TITANIUM CLUSTER**

L. F. Magaña<sup>1</sup>, G.J. Vázquez<sup>1</sup>, O. Salas-Torres<sup>1</sup>, E. Ragel<sup>2</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México, México. <sup>2</sup>Escuela Superior de Apan, Universidad Autónoma del Estado de Hidalgo.

■ **S1A-P005 REACTIVITY AND CONFORMATIONAL ANALYSIS OF 1-(1-HYDROXY-4-METHYL-2-PHENYLAZO)-2-NAPHTHOL-4-SULFONIC ACID: A DENSITY FUNCTIONAL THEORY STUDY**



**Z. N. Cisneros-García<sup>1</sup>, P. G. Nieto-Delgado<sup>1</sup> and J. G. Rodríguez-Zavala<sup>1</sup>**

<sup>1</sup>Departamento de Ciencias Exactas y Tecnología, Centro Universitario de los Lagos, Universidad de Guadalajara, Jalisco.

■ **S1A-P006 THEORETICAL STUDY OF HYDROGEN SPILLOVER ON NITROGEN DOPED GRAPHENE DECORATED WITH PALLADIUM CLUSTERS**

**E. Rangel<sup>1</sup>, G.J. Vázquez<sup>2</sup>, E. Sansores<sup>3</sup> and Citlalli Rios<sup>3</sup>**

<sup>1</sup>Escuela Superior de Apan, Universidad Autónoma del Estado de Hidalgo, Hgo., México. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México, México. <sup>3</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México.

■ **S1A-P007 STUDY OF THE ELECTRONIC STRUCTURE OF AG, AU, PT AND PD CLUSTERS ADSORPTION ON GRAFENE AND THEIR EFFECT ON THE CONDUCTIVITY**

**R. M. Del Castillo Vázquez<sup>1</sup>, L. E. Sansores Cuevas<sup>1</sup>**

<sup>1</sup>Instituto de Investigación en Materiales, Universidad Nacional Autónoma de México, México.

■ **S1A-P008 MECHANICAL-PHYSICAL ROUTE TO PREPARE CALCIUM CARBONATE NANOPARTICLES FROM EGGSHELL**

**D.S. Villareal-Lucio<sup>1</sup>, J.L. Rivera-Armenta<sup>1</sup>, I. A. Estrada-Moreno<sup>2</sup>, A. L. Martínez-Hernández<sup>3</sup>, C. Velazco-Santos<sup>3</sup>**

<sup>1</sup> Instituto Tecnológico de Ciudad Madero, <sup>2</sup> Centro de Investigación de materiales Avanzados Chihuahua, Chihuahua México. <sup>3</sup> División de Estudios de Posgrado e Investigación-Instituto Tecnológico de Querétaro, Querétaro.

■ **S1A-P009 ELECTRONIC CHARGE TRANSFER ANALYSIS IN THIOL-CAPPED Au15 CLUSTER**

**Esther Elena Hernández-Vázquez<sup>1</sup>, Juan Pedro Palomarez-Baez<sup>2</sup>, José Luis Ricardo-Chavez<sup>3</sup>, and José Luis Rodríguez-López<sup>1</sup>**

<sup>1</sup>Advanced Materials Institute-IPICYT. SLP, México. <sup>2</sup>Departamento di Fisica. Università degli Studi di Genova, Genova, Italia. <sup>3</sup>Institute of Physics- BUAP., Puebla, México.

■ **S1A-P010 CHANGES IN THE DIELECTRIC FUNCTION OF A LiNbO<sub>3</sub> CRYSTAL, WHEN IT IS DECORATED WITH A LAYER OF GRAPHENE**

**O. Salas<sup>1,2</sup>, E. Garcés, L.F. Magaña<sup>2</sup>**

<sup>1</sup> Instituto Politecnico Nacional, México. <sup>2</sup>Universidad Nacional Autonoma de México, México.

■ **S1A-P011 SELF-ASSEMBLY OF DEFORMABLE COLLOIDAL PARTICLES**

**Denisse Reyes<sup>1</sup>, Carlos I. Mendoza<sup>1</sup>**

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México

■ **S1A-P012 SEGREGATION AND MELTING TRANSITION IN Au-Cu NANOPARTICLES**

**H. R. Martínez-Muñoz<sup>1</sup>, S. Mejía-Rosales<sup>1</sup>**

<sup>1</sup>CICFIM-Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León. México

ROOM: MEXICO  
WEDNESDAY, AUGUST 19

👤 Session Chair: ANDREAS KOSTER, CINVESTAV, MEXICO

▶ **08:30 - 09:00 S1A-0025 Invited Talk MULTISCALE MODELING OF IN SITU OIL SANDS UPGRADING WITH MOLYBDENUM CARBIDE NANOPARTICLES**

**D.R. Salahub<sup>1</sup>, X.Liu<sup>1</sup>**

<sup>1</sup>Department of Chemistry, CMS - Centre for Molecular Simulation, IQST - Institute for Quantum Science and Technology, University of Calgary, Canada

▶ **09:00 - 09:30 S1A-0026 Invited Talk TRANSITION STATE SEARCH OF FINITE SYSTEMS**

**P. Calaminici<sup>1</sup>, D. Cruz-Olvera<sup>1</sup>, A. de la Trinidad<sup>1</sup>, J. M. Vásquez-Pérez<sup>1</sup>, G. Geudtner<sup>1</sup>, A. M. Köster<sup>1</sup>**

<sup>1</sup>Departamento de Química, Cinvestav, Mexico

▶ **09:30 - 10:00 S1A-0027 Invited Talk MICROSOLVATION OF HCL**

**Gabriel Merino<sup>1</sup>**

<sup>1</sup>Departamento de Química, Centro de Investigación y de Estudios Avanzados Unidad Mérida

▶ **10:00 - 10:30 S1A-0028 Invited Talk NOVEL WAY FOR EMBEDDING CLUSTERS USING THE CYCLIC CLUSTER MODEL**

**G. Geudtner<sup>1</sup>, A. Gourso<sup>2</sup>, P. Calaminici<sup>1</sup>, A.M. Köster<sup>1</sup>**

<sup>1</sup>Departamento de Química, CINVESTAV, Mexico. <sup>2</sup>Ecole Natl Super Chim Montpellier, France.

▶ **10:30 - 11:00 S1A-0029 Invited Talk USING SITE-SPECIFIC POLARIZABILITIES TO PROBE THE**

**SIZE EVOLUTION OF THE ELECTRIC RESPONSE OF CLUSTERS**K. A. Jackson<sup>1</sup><sup>1</sup>Physics Department, Central Michigan University, USA.

☑ 11:00 – 11:30 COFFEE BREAK

📖 11:30 – 12:30 PLENARY LECTURE

👤 Session Chair: **ANDRE FIELICKE, UNIV. TECNICA DE BERLIN, ALEMANIA**▶ **12:30 - 13:00 S1A-0030 Invited Talk ELECTRONIC STRUCTURE OF ORGANIC FULLERENE BASED COMPOUNDS**T. Baruah<sup>1</sup>, F. Amerikheirabadi<sup>1</sup>, L. Basurto<sup>1</sup>, R. R. Zope<sup>1</sup><sup>1</sup>University of Texas at El Paso▶ **13:00 - 13:30 S1A-0031 Invited Talk ELECTRON TRANSPORT CROSS MULTILAYER TWO-DIMENSIONAL CRYSTAL JUNCTIONS**Hai-Ping Cheng<sup>1,2</sup>, Yun-Peng Wang,<sup>1,2</sup> X.-G. Zhang,<sup>1,2</sup> and J. N. Fry<sup>1</sup><sup>1</sup>Department of Physics, University of Florida, USA<sup>2</sup>Quantum Theory Project, University of Florida, USA■ **13:30 - 13:45 S1A-0032 ADVENTURES IN ANION PHOTOELECTRON SPECTROSCOPY: CO<sub>2</sub> ACTIVATION, WATER SPLITTING, AND RARE EARTH MIMICS**K. H. Bowen<sup>1</sup><sup>1</sup>Dept. of Chemistry, Johns Hopkins University, Baltimore, USA■ **13:45- 14:00 S1A-0033 QUASI-XY MODEL OF SPIN ICE**V.Yu. Kapitan<sup>1</sup>, K.V. Nefedev<sup>1,2</sup>, A.G. Makarov<sup>3</sup><sup>1</sup>Department of the computer systems, The School of Natural Sciences, Far Eastern Federal University, Russian Federation. <sup>2</sup>Institute of Applied Mathematics, Far Eastern Branch Russian Academy of Science, Russian Federation. <sup>3</sup>National Chiao Tung University, Hsinchu, Taiwan, R.O.C.■ **14:00 - 14:15 S1A-0034 STUDY OF PROPERTIES AND STABILITIES OF SMALL ENDOHEDRAL FULLERENES X@C<sub>28</sub> (X= Ca, Sc, Ti, Zr, Hf, Ni, Pd, Pt, Si, Ge, Sn, Pb).**A. Miralrio<sup>1</sup>, L. E. Sansores<sup>1</sup><sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autonoma de Mexico. Mexico

## Symposium 1B

# CHARACTERISTICS, SYNTHESIS AND APPLICATIONS OF 2D NANOMATERIALS

**Jiyoung Kim** / USA / The University of Texas at Dallas

**Byoung Hun Lee** / KOREA / Gwangju Institute of Science and Technology

**Kyeongjae (KJ) Cho** / USA / The University of Texas at Dallas

**Francisco Servando Aguirre-Tostado** / MÉXICO / Advanced Materials Research Center (CIMA)

ROOM: UXMAL II  
MONDAY, AUGUST 17

Session Chair: **BYOUNGHUN LEE(GIST), OXANA KHARRISOVA (UANL)**

► **08:30 - 09:00 S1B-0001 *Invited Talk* TRANSITION METAL DICHALCOGENIDE HETEROSTRUCTURES GROWN BY MBE**

C. L. Hinkle<sup>1</sup>

■ **09:00 - 09:15 S1B-0002 GROWTH AND CHARACTERIZATION OF MOSE2 SINGLE CRYSTALS AND MOSE2-MOS2 HETEROSTRUCTURES**

Andres de-Luna-Bugallo<sup>1,2</sup>, Daniel Rubin<sup>2</sup>, Fangze Liu<sup>2</sup>, Estelle Cohen<sup>3</sup>, Swastik Kar<sup>2</sup>

<sup>1</sup>CINVESTAV-Unidad Queretaro, Mexico, <sup>2</sup>Department of Physics and Electronic Materials Research Institute, Northeastern University, Boston, <sup>3</sup>Harvard University School of Engineering and Applied Sciences,

■ **09:15 - 09:30 S1B-0003 WIDE BANDWIDTH GRAPHENE PHOTODETECTOR WITH ASYMMETRIC COCONTACTS**

Byoung Hun Lee<sup>1</sup>, Taejin Yoo<sup>1</sup>, Rino Choi<sup>2</sup>, Jinho Ahn<sup>3</sup>, Joonghwee Cho<sup>4</sup>

<sup>1</sup>Center for Emerging Electronic Devices and Systems, School of Material Science and Engineering, Gwangju Institute of Science and Technology, <sup>2</sup>Department of Material Science and Engineering, Inha University, <sup>3</sup>Department of Material Science and Engineering, Hanyang

University, <sup>4</sup>Department of embedded system engineering, Incheon University

■ **09:30 - 09:45 S1B-0004 STUDIES IN PHYSICAL PROPERTIES OF GRAPHENE/BN NANOSHEETS HETEROSTRUCTURES**

M. Sajjad<sup>1</sup>, F. Mandoza<sup>1</sup>, P. X. Feng<sup>1</sup>, G. Morel<sup>1,2</sup>, B. R. Weiner<sup>1,3</sup>

<sup>1</sup>Institute of Functional Nanomaterials, University of Puerto Rico, <sup>2</sup>Department of Physics, University of Puerto Rico, <sup>3</sup>Department of Chemistry, University of Puerto Rico

■ **09:45 - 10:00 S1B-0005 SIMULTANEOUS ELECTRON- AND HOLE- CURRENTS OVER THE GATE-CONTROLLED N P TRANSITION ACROSS THE NEUTRALITY POINT IN GRAPHENE**

R.G. Mani<sup>1</sup>

<sup>1</sup>Department of Physics & Astronomy, Georgia State University, USA

► **10:00 - 10:30 S1B-0006 *Invited Talk* HIGH-FIELD AND THERMAL TRANSPORT IN 2D MATERIALS AND DEVICES**

E. Pop<sup>1</sup>, C. English<sup>1</sup>, K. Smithe<sup>1</sup>, S. Suryavanshi<sup>1</sup>, M. Mleczko<sup>1</sup>, R. Xu<sup>1</sup>, Z. Li<sup>1</sup>, F. Xiong<sup>1</sup>


<sup>1</sup>Electrical Engineering, Stanford University, U.S.A

► **10:30 - 11:00 S1B-0007 *Invited Talk* TUNNEL FETS AND HIGH FREQUENCY CIRCUITS IN TMD AND GRAPHENE**

H.Mowa<sup>1</sup>, S.Kang<sup>1</sup>, A.Rai<sup>1</sup>, R.Ghosh<sup>1</sup>, L.F.Register<sup>1</sup> and S.K.Banerjee<sup>1</sup>



<sup>1</sup>Univ. of Texas at Austin

 **11:00 – 11:30 COFFEE BREAK**

 **11:30 – 12:30 PLENARY LECTURE**

 Session Chair: **MOONHO HAM (GIST)**

**▶ 13:00 - 13:30 S1B-0008 *Invited Talk* ENGINEERING GRAPHENE FOR TRANSISTORS AND SENSORS**

M.H. Ham<sup>1</sup>

<sup>1</sup>School of Materials Science and Engineering, Gwangju Institute of Science & Technology. Korea

**▶ 13:30 - 14:00 S1B-0009 *Invited Talk* ATOMICALLY THIN SEMICONDUCTING CHANNELS FOR FUTURE NANO-ELECTRONICS**

Kazuhito Tsukagoshi<sup>1</sup>

<sup>1</sup>WPI-MANA, NIMS, Tsukuba, Japan

 **14:00- 16:00 LUNCH**

 Session Chair: **CHADWIN YOUNG (UT-DALLAS)**

**■ 14:00 - 14:15 S1B-0010 HELIUM DIFFRACTION AND ACOUSTIC PHONONS OF GRAPHENE GROWN ON COPPER CATALYSTS**

Amjad Al Taleb<sup>1</sup>, Hak Ki Yu<sup>2,3</sup>, Gloria Anemone<sup>1</sup>, Alec M. Wodtke<sup>2,3</sup> and Daniel Farias<sup>1,4,5</sup>

<sup>1</sup>Departamento de Física de la Materia Condensada, Universidad Autónoma de Madrid, Spain. <sup>2</sup>Institute for Physical Chemistry, University of Göttingen, Germany. <sup>3</sup>Max Planck Institute for Biophysical Chemistry, Germany. <sup>4</sup>Instituto “Nicolás Cabrera”, Universidad Autónoma de Madrid, Spain. <sup>5</sup>Condensed Matter Physics Center (IFIMAC), Universidad Autónoma de Madrid, Spain

**▶ 16:00 - 16:30 S1B-0011 *Invited Talk* ELECTRICAL CHARACTERIZATION OF TOP-GATED MOLYBDENUM DISULFIDE CAPACITOR STRUCTURES WITH HIGH-K DIELECTRICS**

Chadwin D. Young<sup>1</sup>

<sup>1</sup>University of Texas at Dallas,

**■ 16:30 - 16:45 S1B-0012 THE REMARKABLE CATALYTIC ACTIVITY OF PALLADIUM NANOPARTICLES ON TWO-DIMENSIONAL CARBON SUPPORT SYSTEMS**

B. F. Gupton<sup>1</sup>, A. R. Siamaki<sup>1</sup>, Yuan Yang<sup>1</sup>, Mohammad El Shall<sup>1</sup>, Shiv Khanna<sup>1</sup>

<sup>1</sup>Department of Chemical and Life Science Engineering, Virginia Commonwealth University,

**■ 16:45 - 17:00 S1B-0013 THE EFFECT OF TEMPERATURE ON THE FUNCTIONALIZATION OF CARBON NANOTUBES**

B. Ortega García<sup>1</sup>, O. V. Kharissova<sup>1</sup>, B. Kharisov<sup>1</sup>, H.V. Rasika Dias<sup>2</sup>

<sup>1</sup> Universidad Autónoma de Nuevo León, Facultad de Ciencias Físico-Matemáticas, México, <sup>2</sup> The University of Texas at Arlington, Department of Chemistry & Biochemistry, USA

**▶ 17:00 - 17:30 S1B-0014 *Invited Talk* SPIN ORBIT COUPLING EFFECTS ON WS<sub>2</sub>-WSE<sub>2</sub> HETERO-BILAYER STRUCTURES: DFT-CALCULATIONS**

Florentino López-Urías<sup>1</sup>, Mauricio Terrones<sup>2,3,4</sup>, Humberto Terrones<sup>5</sup>

<sup>1</sup>Advanced Materials Department, IPICYT, México.

<sup>2</sup>Department of Physics and Center for 2-Dimensional and Layered Materials, The Pennsylvania State University, USA. <sup>3</sup>Department of Chemistry, Department of Materials Science and Engineering and Materials Research Institute, The Pennsylvania State University, USA. <sup>4</sup>Institute of Carbon Science and Technology, Shinshu University, Japan <sup>5</sup>Department of Physics, Applied Physics and Astronomy, USA.

**ROOM: TERRACE  
MONDAY, AUGUST 17**

**▶ 18:30 -20:30 POSTER SESSION & COFFEE BREAK**

**■ S1B-P001 PREPARATION AND PROPERTIES OF ZrO<sub>2</sub> AND TiO<sub>2</sub> FILMS AND THEIR NANOLAMINATES BY ATOMIC LAYER DEPOSITION**

Wei Ren, Wen Chen, <sup>1,2</sup>Yijun Zhang, <sup>1</sup>Ming Liu, <sup>1</sup> and Zuo-Guang Ye<sup>1,3</sup>

<sup>1</sup>Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, Xi'an Jiaotong University, China, <sup>2</sup>Xi'an University of Architecture and Technology, China, <sup>3</sup>Department of Chemistry and 4D LABS, Simon Fraser University, Canada

**■ S1B-P002 STUDY OF ELECTRICAL PROPERTIES AND MORPHOLOGY OF NANOCOMPOSITE OF CARBON NANOTUBES WITH CHITOSAN**



**A. Alanis<sup>1</sup>, O. Vasilievna-Kharissova<sup>1,2</sup>**

<sup>1</sup>Facultad de ciencias fisico matemáticas de la universidad autónoma de Nuevo Leon., <sup>2</sup>Centro de innovación, investigación y desarrollo en ingeniería y tecnología. México

■ **S1B-P003 LARGE AREA BILAYER GRAPHENE SYNTHESIS BY HFCVD FOR TRANSPARENT CONDUCTIVE ELECTRODE**

**Tej B. Limbu<sup>1,2</sup>, Frank Mendoza<sup>1</sup>, Oscar Resto<sup>2</sup>, Maried Rios<sup>1</sup>, Ernesto Espada<sup>1</sup>, Brad R. Weiner<sup>1,3</sup>, Gerardo Morell<sup>1,2</sup>**

<sup>1</sup>Institute for Functional Nanomaterials, San Juan, Puerto Rico, U. S. A. <sup>2</sup>Physics, University of Puerto Rico, U. S. A. <sup>3</sup>Chemistry, University of Puerto Rico, U. S. A.

■ **S1B-P004 SYNTHESIS AND CHARACTERIZATION OF REDUCED GRAPHENE FUNCTIONALIZED WITH ACIDS**

**Evelyn Nunes Simonetti<sup>1</sup>, Luciana de Simone Cividanes<sup>1</sup>, Wesley Francisco<sup>1</sup>, Tiago Moreira Bastos Campos<sup>1</sup>, Filipe Vargas Ferreira<sup>1</sup>, Gilmar Patrocínio Thim<sup>1</sup>**

<sup>1</sup>Instituto Tecnológico de Aeronáutica, Divisão de Física, Praça Mal. Brazil

■ **S1B-P005 DIVERSE PRECURSORS FOR NITROGEN DOPING OF GRAPHENE OXIDE**

**V.J. Cedeño-Garcidueñas<sup>1</sup>, R. Rangel-Segura<sup>2</sup>, P. Bartolo-Pérez<sup>3</sup>, J.J. Alvarado-Gil<sup>4</sup>, D.H. Galván-Martínez<sup>5</sup>, R. García-Gutiérrez<sup>6</sup>, T.A. Hurtado-Solórzano<sup>7</sup>**

<sup>1,2</sup> División de Estudios de Posgrado, Facultad de Ingeniería Química, Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>3,4</sup> Departamento de Física Aplicada, CINVESTAV-IPN, Mérida, Yucatán, México. <sup>5</sup> Departamento de Fisicoquímica de Nanomateriales, CNYN UNAM, México. <sup>6</sup> Departamento de Investigación en Física, Universidad de Sonora, México. <sup>7</sup> Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, México.

■ **S1B-P006 STRENGTHENING OF MECHANICAL PROPERTIES AND CHARACTERIZATION CELLULOSE FIBERS DOPED WITH CHITOSAN AND NANOPARTICLE TiO<sub>2</sub>, SiO<sub>2</sub>, ZrO<sub>2</sub>.**

**Blanca I. Montes Mejía<sup>1</sup>, Edgar de Casas Ortiz<sup>1</sup>, Oxana V. Kharissova<sup>1,2</sup>, Boris I. Kharisov<sup>1,2</sup>**

<sup>1</sup>FCFM UANL., <sup>2</sup>CIIDIT. México

■ **S1B-P007 RF SPUTTERING DEPOSITION OF TRANSITION METAL NITRIDES FOR ELECTRONICS APPLICATIONS**

**J. Gutierrez-Menchaca<sup>1</sup>, M. Quevedo-López<sup>3</sup>, R. Mayén-Mondragón<sup>2</sup>, E. Martínez-Guerra<sup>1</sup>, F.S. Aguirre-Tostado<sup>1</sup>**

<sup>1</sup>CIMAV-Monterrey, Mexico, <sup>2</sup>UNAM, Mexico, <sup>3</sup>MSE Department, UT-Dallas, USA

■ **S1B-P008 GALLIUM-NITRIDE MONOLAYERS AND NANOTUBES: HAECKELITE-LIKE STRUCTURES**

**Dulce C. Camacho-Mojica<sup>1</sup>, Florentino López-Urías<sup>1</sup>**

<sup>1</sup>Advanced Materials Department, IPICYT, México.

■ **S1B-P009 FIRST-PRINCIPLES CALCULATIONS OF BAs AND AlN HONEYCOMB HETEROJUNCTION STRUCTURES**

**Dulce C. Camacho-Mojica<sup>1</sup>, Florentino López-Urías<sup>1</sup>**

<sup>1</sup>Advanced Materials Department, IPICYT, México

■ **S1B-P010 CARBON DIOXIDE AND WATER ADSORPTION ON CuFe<sub>1-x</sub>GaXO<sub>2</sub> THIN FILM**

**S.D. Rojas<sup>1</sup>, T. Joshi<sup>2</sup>, P. Borisov<sup>2</sup>, R.A. Wheatley<sup>1</sup>, M.A. Sarabia-Vallejos<sup>1</sup>, D. Lederman<sup>2</sup>, A.L. Cabrera<sup>1</sup>**

<sup>1</sup>Physics Institute, Pontifical Catholic University of Chile, Chile. <sup>2</sup>Physics Department, West Virginia University, Morgantown, USA.

■ **S1B-P011 TUNABLE DICHROISM AND OPTICAL ABSORPTION OF GRAPHENE BY STRAIN ENGINEERING**

**M. Oliva-Leyva<sup>1</sup>, G. García Naumis<sup>1</sup>**

<sup>1</sup>Instituto de Física, Circuito de la Investigación Científica Ciudad Universitaria, México

■ **S1B-P012 SPECTRAL BUTTERFLY, MIXED DIRAC-SCHRÖDINGER FERMION BEHAVIOR AND TOPOLOGICAL STATES IN ARMCHAIR STRAINED GRAPHENE**

**Pedro Roman-Taboada<sup>1</sup> and Gerardo G. Naumis<sup>1</sup>**

<sup>1</sup>Departamento de Físico-Química, Instituto de Física, Universidad Nacional Autónoma de México (UNAM), México.

■ **S1B-P013 STUDY OF THE MAIN VARIABLES IN THE SYNTHESIS OF GRAPHENE AND ITS CHARACTERIZATION**

**A.K.S. Rocha Robledo<sup>1</sup>, J.F. Pérez Robles<sup>1</sup>, A. Moreno Bárcenas<sup>1</sup>**

<sup>1</sup>CINVESTAV-Querétaro, México.

■ **S1B-P014 STUDY OF P-TYPE ZNTE THIN FILMS DOPED WITH COPPER FOR DEVELOPMENT OF THIN FILM TRANSISTORS**



**A. Zazueta-Raynaud<sup>1</sup>, A. Ramos-Carrasco<sup>2,3</sup>, C. J. Pérez-Martínez<sup>4</sup>, D. Berman-Mendoza<sup>1,2</sup>, B.E. Gnade<sup>3</sup>, M. A. Quevedo-Lopez<sup>1,5</sup>**

<sup>1</sup>Departamento de Física, Universidad de Sonora, México. <sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, México. <sup>3</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Chihuahua, México. <sup>4</sup>Departamento de Ciencias Químico Biológicas, Universidad de Sonora, México. <sup>5</sup>Material Science and Engineering, The University of Texas at Dallas, USA.

■ **S1B-P015 PHOTOPHYSICAL INTERACTIONS OF PHTHALOCYANINES WITH GRAPHENE NANOSHEETS**

**L. Wibmer,<sup>a</sup> L. M. O. Lourenço,<sup>a,b</sup> A. Roth,<sup>a</sup> G. Katsukis,<sup>a</sup> T. Torres,<sup>c</sup> D. M. Guldi<sup>a</sup>**

<sup>a</sup>Department of Chemistry and Pharmacy and Interdisciplinary Center for Molecular Materials, Friedrich-Alexander-University Erlangen-Nuremberg, Germany. <sup>b</sup>QOPNA and Department of Chemistry, University of Aveiro, Portugal. <sup>c</sup>Department of Organic Chemistry, Autónoma University of Madrid, Madrid, Spain

■ **S1B-P016 SYNTHESIS OF MoS<sub>2</sub> TRIANGULAR MONOLAYERS ON SAPPHIRE USING ATMOSPHERIC PRESSURE CHEMICAL VAPOR DEPOSITION**

**E. M. Castro Zazueta<sup>1</sup>, Z. Lin<sup>2</sup>, A. L. Elías<sup>2</sup>, N. Perea López<sup>2</sup>, A. Castro Beltrán<sup>1</sup>, R. Corral Higuera<sup>1</sup>, J. L. Almaral Sánchez<sup>1</sup>, M. Terrones<sup>2</sup>**

<sup>1</sup>Facultad de Ingeniería Mochis (FIM), Universidad Autónoma de Sinaloa, México, <sup>2</sup>Department of Physics and Center for 2-Dimensional and Layered Materials, The Pennsylvania State University, United States.

■ **S1B-P017 ZNO NANOPARTICLES OBTAINED FROM WASTED BATTERIES BY SOL GEL METHOD USING DEXTROSE AND STARCH**

**C. Lopez Diaz de Leon<sup>1</sup>, I. Olivás Armendariz<sup>1</sup>, C.A. Rodriguez Gonzalez<sup>1</sup>**

Engineering and Technology Institute, Universidad Autónoma de Ciudad Juárez, Mexico

■ **S1B-P018 GROWTH OF GRAPHENE LAYERS ON SINTERED POLYCRYSTALLINE SIC BY USING CO<sub>2</sub> LASER IRRADIATION**

**N. K. A. M. Galvão<sup>1</sup>, G. Vasconcelos<sup>2</sup>, M. V. R. Santos<sup>2</sup>, T. M. B. Campos<sup>1</sup>, R. S. Pessoa<sup>1,3</sup>, M. Guerin<sup>1</sup>, M. A. Djouadi<sup>4</sup>, H. S. Maciel<sup>1,3</sup>**

<sup>1</sup>Plasma and Processes Laboratory, Technological Institute of Aeronautics (ITA), Brazil. <sup>2</sup>Institute of Advanced Studies - Photonics Division, Rodovia dos Tamoios,

Brazil. <sup>3</sup>Nanotechnology and Plasmas Processes Laboratory, University of Paraíba Valley, Brazil. <sup>4</sup>Institut des Matériaux Jean Rouxel IMN, Université de Nantes, France

■ **S1B-P019 EFFECT OF THE ADDITION OF NH<sub>4</sub>OH ON THE PHOTOLUMINESCENCE PROPERTIES OF ZnO THIN FILMS OBTAINED BY SILAR METHOD**

**M. R. Alfaro Cruz,<sup>1</sup> R. Garza-Hernández,<sup>1</sup> Eduardo Martínez-Guerra,<sup>1</sup> F. Servando Aguirre-Tostado.<sup>1</sup>**

<sup>1</sup>CIMAV-Monterrey, Mexico

■ **S1B-P020 SYNTHESIS AND CHARACTERIZATION OF MOS<sub>2</sub>- CARBON NANOFIBERS BY ELECTROSPINNING, FOR APPLICATIONS IN LITHIUM ION BATTERIES**

**N. Cruz-González<sup>2</sup>, Miguel Ángel Meléndez Lira<sup>2</sup>**

<sup>2</sup>Department of Physics, CINVESTAV-IPN, México.

■ **S1B-P021 ON THE ELECTRONIC TRANSMISSION AND THE OSCILLATIONS OF CONDUCTANCE IN A THYRISTOR BASED-GRAPHENE**

**R. A. Reyes-Villagrana, J. R. Suárez-López, J. Madrigal-Melchor, I. Rodríguez-Vargas**

Unidad Académica de Física, Universidad Autónoma de Zacatecas, México.

■ **S1B-P022 THERMODYNAMIC ANALYSIS AND EXPERIMENTAL SYNTHESIS OF GRAPHENE**

**A. Moreno-Bárceñas<sup>1</sup>, J. Francisco Pérez-Robles<sup>2</sup>, A. García-García<sup>3</sup>**

<sup>1,2</sup>CINVESTAV-Querétaro, México. <sup>3</sup>CIMAV-Monterrey, México.

■ **S1B-P023 X-RAY DIFFRACTION STUDY OF EXFOLIATION EFFECTS IN GRAPHENE OXIDE**

**Pilar Pérez-Martínez<sup>1</sup>, Jaime Ortiz-López<sup>1</sup>**

<sup>1</sup>Instituto Politécnico Nacional / Escuela Superior de Física y Matemáticas, U.P.A.L.M. México.

■ **S1B-P024 CALCULATION AND ANALYSIS OF INTERACTION POTENTIAL IN TWO-DIMENSIONAL ZIG-ZAG AND ARM CHAIR STRUCTURES**

**Jair Miguel Zarza Roque<sup>1</sup>, P. Rosendo Francisco<sup>1</sup>**

<sup>1</sup>Facultad de Ciencias, Universidad Autónoma del Estado de México, Mexico

■ **S1B-P025 THERMAL BEHAVIOUR OF A COMPOSITE MADE FROM FERROFLUID AND GRAPHITE UNDER A MAGNETIC FIELD**

**M.A. Zambrano-Arjona<sup>1</sup>, C. Vales-Pinzo<sup>1</sup>, R. A. Medina-Esquivel<sup>1</sup>, J. Tapia<sup>1</sup>, J. A. Mendez-Gamboa<sup>1</sup>**



<sup>1</sup>Facultad de Ingeniería de la Universidad Autónoma de Yucatán, México

■ **S1B-P026 SILVER GRATING FOR STRONG AND REPRODUCIBLE SERS RESPONSE**

Y. Kalachyova<sup>1</sup>, O. Lyutakov<sup>1</sup>, V. Svorcik<sup>1</sup>

<sup>1</sup>University of Chemistry and Technology, Department of Solid State Engineering, Czech Republic.

■ **S1B-P027 GROWTH AND CHARACTERIZATION OF TiO<sub>2</sub> FILMS GROWN BY ATOMIC LAYER DEPOSITION FOR PHOTOCATALYTIC APPLICATIONS**

M.M.M. Contreras Turrubiarres<sup>1</sup>, E. López Luna<sup>1</sup>, J.C. Salcedo Reyes<sup>2</sup>, A. Pedroza Rodriguez<sup>2</sup>, M.A. Vidal Borbolla<sup>1</sup>

<sup>1</sup>Coordinación para la Innovación y Aplicación de la Ciencia y Tecnología-Universidad Autónoma de San Luis Potosí, México <sup>2</sup> Pontificia Universidad Javeriana, Colombia

■ **S1B-P028 ATOMISTIC ANALYSIS ON MECHANICAL BEHAVIOR OF GRAPHENE UNDER EXTREME DYNAMIC CONDITIONS**

K. Yoon<sup>1</sup>, A. Ostadhossein<sup>1</sup>, A.C.T. van Duin<sup>1</sup>

<sup>1</sup> Department of Mechanical and Nuclear Engineering, The Pennsylvania State University, USA

■ **S1B-P029 DEVELOPMENT AND CHARACTERIZATION OF COPPER ALUMINATE AS A THERMOELECTRIC FOR THERMO-PHOTOVOLTAIC DEVICES**

G. Castillo Hernandez<sup>1</sup>, S. Carman Avendaño<sup>2</sup>, A. López Torrecillas<sup>2</sup>, S.A. Mayen Hernandez<sup>1</sup>, F. De Moure Flores<sup>1</sup>, J. Santos Cruz<sup>1</sup>

<sup>1</sup> Facultad de Química, Universidad Autónoma de Querétaro, México, <sup>2</sup> Escuela Superior de Ingeniería Mecánica y Eléctrica del Instituto Politécnico Nacional IPN, Mexico

■ **S1B-P030 SYNTHESIS, CHARACTERIZATION AND DISCOLORATION OF METHYLENE BLUE OF Bi<sub>2</sub>WO<sub>6</sub> Y Bi<sub>2</sub>MoO<sub>6</sub>**

S. Basurto-Cereceda<sup>1,2</sup>, H. Esteban-Benito<sup>3</sup>, F. Paraguay-Delgado<sup>2</sup>

<sup>1</sup>CIMAV Chihuahua, México. <sup>2</sup>ITSPR Veracruz, México. <sup>3</sup>ITCM Tamaulipas, México.

■ **S1B-P031 TUNING OF GRAPHITIC BASAL PLANE ON THE GLASSY CARBON SURFACE**

K. Sathish-Kumar<sup>1</sup>, S.V. Sheen Mers<sup>2</sup>, Sheela Berchmans<sup>2</sup>, V. Ganesh<sup>2</sup>

<sup>1</sup>Universidad Politécnica de Aguascalientes, México. <sup>2</sup>Electrodics and Electrocatalysts Division, Central

Electrochemical Research Institute (CECRI)-Council of Scientific and Industrial Research (CSIR), Tamilnadu, India.

■ **S1B-P032 THE SYNTHESIS, STRUCTURAL AND CHEMICAL STUDY OF TiO<sub>2</sub> FILMS DOPED WITH AU AND PT NANOPARTICLES**

Martin Trejo-Valdez<sup>1</sup>, Roberto Sánchez Gutiérrez<sup>1</sup>, Fernando López Rico<sup>1</sup>, Dayvis Fernández Valdés<sup>2</sup>

<sup>1</sup> ESIQIE, Instituto Politécnico Nacional, México. <sup>2</sup>Sección de Estudios de Posgrado e Investigación, ESIME ZAC, Instituto Politécnico Nacional, México.

■ **S1B-P033 MOLECULAR HYDROGEN ADSORPTION AT BN LAYER VACANCIES**

J. S. Arellano<sup>1</sup>

<sup>1</sup>Area de Física Atómica Molecular Aplicada, Universidad Autónoma Metropolitana-Azcapotzalco, México.

■ **S1B-P034 NANOBIOSENSORS BASED ON MODIFIED GRAPHENE MATERIAL**

S. Proa-Coronado<sup>3</sup>, J.R. Vargas-García<sup>b</sup>, S. Mendoza-Acevedo<sup>a</sup>, N. Muñoz-Aguirre<sup>c</sup>, M. A. Ramirez-Salinas<sup>a</sup>, L. A. Villa-Vargas<sup>a</sup>, A. Martinez-Rivas<sup>a</sup>

<sup>a</sup>MICROSE-CIC-Instituto Politécnico Nacional, Mexico. <sup>b</sup> ESIQIE-Instituto Politécnico Nacional, México D.F. <sup>c</sup> ESIME- Unidad Azcapotzalco Instituto Politécnico Nacional, México.

■ **S1B-P035 HYDROCRACKING REACTION WITH A MODEL MOLECULE**

M.G. Zariñán Jiménez<sup>1</sup>, J.M. Dominguez Esquivel<sup>2</sup>

<sup>1</sup>Universidad Autónoma Metropolitana - Azcapotzalco (UAM), México D.F. <sup>2</sup> Instituto Mexicano del Petróleo (IMP), Distrito Federal.

■ **S1B-P036 ELECTRICAL PROPERTIES OF SILVER SULFIDE THIN FILMS BY LOW COST SYSTHESIS**

M. Ortiz<sup>3</sup>, M. Ramos Murillo, A. Carrillo Castillo, J. Elizalde, C.A. Rodríguez Gozalez.

<sup>3</sup>Instituto de Ingeniería y Tecnología de la Universidad Autónoma de Ciudad Juárez. Mexico.

■ **S1B-P037 ELECTRONIC TRANSMISSION FOR A FINITE SUPERLATTICE OF MAGNETOELECTROSTATIC BARRIERS ON GRAPHENE WITH A PASCAL PROFILE IN THE WELLS WIDTH**

R. A. Reyes-Villagrana<sup>2</sup>, J. R. Suárez-López<sup>2</sup>, J. Madrigal-Melchor<sup>2</sup>, I. Rodríguez-Vargas<sup>1</sup>

<sup>1</sup>Unidad Académica de Física, Universidad Autónoma de Zacatecas, México.

■ **S1B-P038 STABILITY OF THE SILICENE-TITANIUM SYSTEM**

Gregorio Ruiz-Chavarria<sup>1</sup>

<sup>1</sup>Universidad Autonoma Chapingo

ROOM: UXMAL II  
TUESDAY, AUGUST 18

👤 Session Chair: **KJ CHO (UT-DALLAS), SERVANDO AGUIRRE-TOSTADO (CIMAV)**

▶ **08:30 - 09:00 S1B-0015 *Invited Talk* VARIATIONS OF INTERLAYER SPACING IN CARBON NANOTUBES**

Oxana Vasilievna Kharisova<sup>1</sup>

<sup>1</sup>Universidad Autonoma de Nuevo Leon, Mexico

■ **09:00 - 09:15 S1B-0016 STABILITY AND ELECTRONIC STRUCTURE OF 2D ALLOTROPES OF GROUP-IV MATERIALS**

Filipe Matusalem<sup>1</sup>, Marcelo Marques<sup>1</sup>, Lara K. Teles<sup>1</sup>, Friedhelm Bechstedt<sup>2</sup>

<sup>1</sup>Grupo de materiais semicondutores e nanotecnologia (GMSN), Instituto Tecnológico de Aeronautica (ITA), Brasil. <sup>2</sup>Institut für Festkörpertheorie und -optik, Friedrich-Schiller-Universität, Germany

■ **09:15 - 09:30 S1B-0017 RESISTIVELY DETECTED SPIN RESONANCE IN EPITAXIAL GRAPHENE**

R. G. Mani<sup>1</sup>, J. Hankinson<sup>2</sup>, C. Berger<sup>2</sup>, W. de Heer<sup>2</sup>

<sup>1</sup>Georgia State University, U.S.A., <sup>2</sup>Georgia Institute of Technology, U. S. A.

■ **09:30 - 09:45 S1B-0018 APPLICATION OF GENERALIZED QUASICHEMICAL APPROXIMATION ON 2D ALLOYS**

I.G.M. Rocha<sup>1</sup>, L. K. Teles<sup>1</sup>, R.R. Pelá<sup>1</sup>, M. Marques<sup>1</sup>, F. Bechstedt<sup>2</sup>

<sup>1</sup>Grupo de Materiais Semicondutores e Nanotecnologia, Instituto Tecnológico de Aeronautica, Brazil. <sup>2</sup>Institut für Festkörpertheorie und -optik, Friedrich-Schiller-Universität, Germany

▶ **09:45 - 10:15 S1B-0019 *Invited Talk* THEORETICAL STUDY OF GROWTH AND ELECTRONIC STRUCTURE OF 2D MATERIALS**

Suklyun Hong<sup>1</sup>

<sup>1</sup>Graphene Research Institute and Department of Physics, Sejong University, Korea

■ **10:15 - 10:30 S1B-0020 STRUCTURE, ELECTRONIC PROPERTIES, AND AGGREGATION BEHAVIOR OF HYDROXYLATED CARBON NANOTUBES**

J. Vicente-Santiago<sup>1</sup>, J.L. Cornejo-Jacob<sup>1</sup>, D. Valdez Perez<sup>2</sup>, J. Ruiz-Garcia<sup>1</sup>, and R. A. Guirado-López<sup>1</sup>

<sup>1</sup>Instituto de Física "Manuel Sandoval Vallarta", Universidad Autónoma de San Luis Potosí, México, <sup>2</sup>Depto. M. en C. en Ing. de Telecomunicaciones, UPALM, México

■ **10:30 - 10:45 S1B-0021 SULPHUR ADSORPTION BY VACANCIES ON GRAPHITE AND GRAPHENE LAYERS**

J. S. Arellano<sup>1</sup>

<sup>1</sup>Area de Física Atómica Molecular Aplicada. Universidad Autónoma Metropolitana -Azcapotzalco. México.

■ **10:45 - 11:00 S1B-0022 GRAPHENE OXIDE PAPERS CHEMICALLY-FUNCTIONALIZED WITH NITROXIDE GROUPS: TUNING THE MACROSCOPIC PROPERTIES**

U. Márquez-Lamas<sup>1</sup>, Alberto Toxqui-Terán<sup>1</sup>, S.A. Pérez-García<sup>1</sup> and José Bonilla-Cruz<sup>1</sup>

<sup>1</sup>Parque de Investigación e Innovación Tecnológica. México.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **CHRIS HINKLE (UT-DALLAS)**

▶ **13:00 - 13:30 S1B-0023 *Invited Talk* ABERRATION CORRECTED ELECTRON MICROSCOPY STUDY OF 2D TRANSITION METAL DICHALCOGENIDES (TMDS)**

Moon J. Kim<sup>1</sup>, Ning Lu<sup>1</sup>, Juan Pablo Oviedo<sup>1</sup>, Guoda Lian<sup>1</sup>, and Jinguo Wang<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, The University of Texas at Dallas, U.S.A.

▶ **13:30 - 14:00 S1B-0024 *Invited Talk* THERMOELECTRIC PROPERTY ENHANCEMENT OF EPITAXIAL OXIDE SUPERLATTICES**

H. N. Alshareef<sup>1</sup>, A. I. Abutaha<sup>1</sup>, and S.R. Sarath Kumar<sup>1</sup>

<sup>1</sup>King Abdullah University of Science and Technology (KAUST), Saudi Arabia.

■ **14:00 - 14:15 S1B-0025 TRANSITION METAL CHALCOGENIDES: ULTRATHIN MATERIALS WITH TUNABLE PROPERTIES**

T. Heine<sup>1</sup>

<sup>1</sup>Jacobs University Bremen, Germany



**14:00 - 16:00 LUNCH**



Session Chair: **MOON KIM (UT-DALLAS)**



**16:00 - 16:30 S1B-0026 Invited Talk 2D MATERIALS: CHALLENGES AND OPPORTUNITIES**

Robert M. Wallace<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, The University of Texas at Dallas, USA

■ **16:30 - 16:45 S1B-0027 BIOSYNTHESIS AND STRUCTURAL CHARACTERIZATION OF 2D GOLD NANOPARTICLES**

A. R. Vilchis-Nestor<sup>1</sup>, L. E. Silva-De-Hoyos<sup>1</sup>, V. Sánchez-Mendieta<sup>2</sup>, M. A. Camacho-López<sup>3</sup> and M. Avalos-Borja<sup>4,5</sup>.

■ **16:45 - 17:00 S1B-0028 Cd<sub>1-x</sub>Mn<sub>x</sub>Se THIN FILMS SYNTHESIS BY CHEMICAL BATH DEPOSITION AND STUDIES ON OPTICAL AND ELECTRICAL PROPERTIES**

J. S. Dargad<sup>1</sup>

<sup>1</sup>Dayanand Science College, Latur, MS, India

■ **17:00 - 17:15 S1B-0029 EVALUATION OF OPTICAL AND ELECTRICAL PROPERTIES OF ZINC OXIDE DEPOSITED BY SILAR ON SiO<sub>2</sub>, HfO<sub>2</sub>, GLASS, AND ITO SUBSTRATES**

M.I. Pintor-Monroy<sup>1</sup>, M.L. Higgins<sup>2</sup> and M.A. Quevedo-Lopez<sup>1,2</sup>

<sup>1</sup>Department of Materials Science and Engineering, The University of Texas at Dallas, USA. <sup>2</sup>Department of Chemistry, The University of Texas at Dallas, USA

## Symposium 1C

# NANO/MESO-STRUCTURED CARBON BULK MATERIALS - SYNTHESIS, FUNCTIONALIZATION, INTERFACIAL PROPERTIES AND APPLICATIONS

**Juergen Biener** / USA / Lawrence Livermore National Laboratory

**John J. Boeckl** / USA / Air Force Research Laboratory

**Jong-Sung Yu** / KOREA / Energy Material Lab, Department of Advanced Materials Chemistry

**Ana Karina Cuentas-Gallegos** / MÉXICO / Instituto de Energías Renovables - UNAM

ROOM: UXMAL II  
WEDNESDAY, AUGUST 19

 Session Chair: **JUERGEN BIENER**,

▶ **08:30 - 09:00 S1C-0001 *Invited Talk* TWO- AND THREE-DIMENSIONAL CARBON MATERIALS: FROM DOPED GRAPHENE TO GRAPHENE OXIDE FABRICS AND NANOTUBE JUNCTIONS**

Mauricio Terrones<sup>1</sup>

<sup>1</sup>Department of Physics, Department of Chemistry, Department of Materials Science and Engineering and Center for 2-Dimensional & Layered Materials. The Pennsylvania State University, USA & Institute of Carbon Science and Technology, Shinshu University, Japan

▶ **09:00 - 09:30 S1C-0002 *Invited Talk* MECHANICALLY ROBUST GRAPHENE MACRO ASSEMBLIES WITH HIERARCHICAL POROSITY: MORPHOLOGY CONTROL, FUNCTIONALIZATION, AND ENERGY STORAGE APPLICATIONS.**

P. G. Campbell<sup>1</sup>

<sup>1</sup>Materials Science Division, Lawrence Livermore National Laboratory, USA

▶ **09:30 - 10:00 S1C-0003 *Invited Talk* ENGINEERING CHEMICALLY MODIFIED GRAPHENE INTO 3D STRUCTURES**


V.G. Rocha<sup>1</sup>, E. García-Tuñón<sup>1</sup>, E. D'Elia<sup>1</sup>, C. Ferraro<sup>1</sup>, N.Ni<sup>1</sup>, S. Eslava<sup>3</sup>, S. Barg<sup>4</sup>, Olivier T Picot<sup>2</sup>, Mike J Reece<sup>2</sup>, Ton Peijs<sup>2</sup> & E. Saiz<sup>1</sup>

<sup>1</sup>Department of Materials, Centre for Advanced Structural Ceramics, Imperial College London, London <sup>2</sup> School of Engineering and Materials Science, Queen Mary University of London, UK. <sup>3</sup> Department of Chemical Engineering, University of Bath, UK. <sup>4</sup>Materials Science Centre, The University of Manchester. UK

▶ **10:00 - 10:30 S1C-0004 *Invited Talk* HYDROTHERMAL CARBONIZATION TO PRODUCE MATERIALS FOR ELECTROCHEMICAL CAPACITORS**

S. W. Donne<sup>1</sup>

Discipline of Chemistry, University of Newcastle, Australia<sup>1</sup>

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **ANA KARINA CUENTAS-GALLEGOS**

▶ **12:30 - 13:00 S1C-0005 *Invited Talk* CARBON NANOTUBES: FROM ORIGIN OF HELICITY TO APPLICATIONS**

A. R. Harutyunyan<sup>1</sup>

<sup>1</sup> Honda Research Institute. USA.

■ **13:00 - 13:15 S1C-0006 A STUDY ALONGSIDE THE REACTOR OF NITROGEN-DOPED MULTIWALLED CARBON NANOTUBES FABRICATED BY CHEMICAL VAPOR DEPOSITION METHOD**

R. Sánchez-Salas<sup>1</sup>, F. López-Urías<sup>1</sup>, and E. Muñoz-Sandoval<sup>1</sup>

<sup>1</sup>Advanced Materials Department, IPICYT, México.



▶ **13:15 - 13:45 S1C-0007 Invited Talk POWERFUL, GIANT-STROKE ARTIFICIAL MUSCLES FROM TWISTED AND COILED CARBON NANOTUBE YARNS AND POLYMER FIBERS**

Ray H. Baughman<sup>1</sup>

<sup>1</sup>Alan G. MacDiarmid NanoTech Institute, the University of Texas at Dallas, USA

■ **13:45 - 14:00 S1C-0008 ANCHORAGE OF CARBON NANOTUBES SYNTHESIZED ON RECOVERED/ RECYCLED CARBON FIBERS AS A REVALORIZATION PROCESS: RAMAN, SEM AND PSEUDO-MECHANICAL CHARACTERIZATION.**

R. Morales Ibarra<sup>1</sup>, S. M. García Montes<sup>1</sup>, L. Chávez-Guerrero<sup>1</sup>, A. F. García Loera<sup>1</sup>, S. M. López González<sup>1</sup>

<sup>1</sup> Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, México.

■ **14:00 - 14:15 S1C-0009 EVALUATION OF ACID TREATMENTS ON ARAMID FIBERS FOR THE DEPOSITION OF CARBON NANOTUBES**

Omar Rodríguez-Uicab<sup>1</sup>, Francis Avilés<sup>1</sup>, Gonzalo Canché-Escamilla<sup>1</sup>, Santiago Duarte-Aranda<sup>1</sup>, Pedro Iván González-Chi<sup>1</sup>, Patricio Toro<sup>2</sup>, Mehrdad Yazdani-Pedram<sup>3</sup>

<sup>1</sup>Centro de Investigación Científica de Yucatán A.C., Unidad de Materiales, México. <sup>2</sup> Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile, Chile. <sup>3</sup> Facultad de Ciencias Químicas y Farmacéuticas, Universidad de Chile, Chile.

✂ **14:00- 16:00 LUNCH**

👤 Session Chair: **YURY GOGOTSI**

▶ **16:00 - 16:30 S1C-0010 Invited Talk COVALENT MODIFICATION OF CARBON SURFACES BY DIRECT AND MEDIATED OXIDATION OF CARBOXYLATES**

F.J. González<sup>1</sup>, M. Galicia<sup>1</sup>, L.S. Hernández<sup>2</sup>, P.D. Astudillo<sup>1</sup>, M.A. González<sup>1</sup>, D. Morales<sup>1</sup>, D.M. Hernández<sup>1</sup>,

<sup>1</sup> Departamento de Química del Centro de Investigación y de Estudios Avanzados del IPN, Mexico.

■ **16:30 - 16:45 S1C-0011 LAYER BY LAYER DECORATION OF GRAPHENE AND CARBON NANOTUBES WITH MAGNETIC NANOPARTICLES**

Camilo Acuña<sup>1</sup>, Mikel Hurtado<sup>1</sup>, Paula Bercoff<sup>2</sup>, Yenny Hernandez<sup>1</sup>

<sup>1</sup>Universidad de los Andes, Physics Department, Bogotá, Colombia, <sup>2</sup>Universidad de Córdoba, Córdoba, Argentina

■ **16:45 - 17:00 S1C-0012 CADMIUM SULFIDE-DECORATED GRAPHENE CRUMPLES, A PRELIMINARY STUDY OF PHOTOCATALYTIC ACTIVITY**

Jesus Guerrero-Contreras<sup>1</sup>, R. García-Alamilla<sup>2</sup>, R. Silva-Rodrigo<sup>2</sup>, F. Chalé-Lara<sup>1</sup>, F Caballero-Briones<sup>1</sup>.

<sup>1</sup>Instituto Politécnico Nacional, Laboratorio de Materiales Fotovoltaicos, México. <sup>2</sup>Instituto Tecnológico de Ciudad Madero (ITCM), México.

■ **17:00 - 17:15 S1C-0013 ELECTRICAL AND CHEMICAL SURFACE PROPERTIES OF ULTRANANOCRYSTALLINE AND MICROCRYSTALLINE DIAMOND FILMS VIA HOT FILAMENT CHEMICAL VAPOR DEPOSITION**

Jesus J. Alcantar-Peña<sup>1,2</sup>, E. M. A. Fuentes-Fernandez<sup>1</sup>, Geunhee Lee<sup>1</sup>, D. Berman-Mendoza<sup>2</sup>, Ana Gabriela-Montaño<sup>1,3</sup>, Karime Ramos-Corella<sup>1,3</sup>, Pablo Gurman<sup>1</sup>, Manuel Quevedo<sup>1</sup>, and Orlando Auciello<sup>1,4</sup>

<sup>1</sup>Department of Materials Science and Engineering, University of Texas at Dallas, USA. <sup>2</sup> Departamento de Investigación en Física, Universidad de Sonora, Mexico. <sup>3</sup> Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora, Mexico. <sup>4</sup> Department of Bioengineering, University of Texas at Dallas, USA

**ROOM: TERRACE  
WEDNESDAY, AUGUST 19**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S1C-P001 PREPARATION AND CHARACTERIZATION OF ACTIVATED CMK-3 MODIFIED WITH VANADIUM APPLIED IN HYDROGEN STORAGE**

Juliana M. Juárez<sup>1</sup>, Marcos B. Gómez Costa<sup>1</sup>, Jorgelina Cussa<sup>1</sup> and Oscar A. Anunziata<sup>1</sup>

<sup>1</sup>NANOTEC (Centro de Investigación en Nanociencia y Nanotecnología), Facultad Regional Córdoba, Universidad Tecnológica Nacional, Argentina

■ **S1C-P002 SYNTHESIS OF CARBON NANOSTRUCTURES USING ULTRASONICATION TECHNIQUES**

Jesús Ivan Tapia<sup>1</sup>, C. Bittencourt<sup>2</sup>, M. Prato<sup>3</sup>, M. Quintana<sup>1</sup>

<sup>1</sup>Instituto de Física. Universidad Autónoma de San Luis Potosí. México. <sup>2</sup>Chemistry of Interaction Plasma Surface (ChiPS), University of Mons, Belgium. <sup>3</sup>CENMAT, INSTM



UdR di Trieste, Dipartimento di Scienze Chimiche e Farmaceutiche, University of Trieste, Italy.

■ **S1C-P003 PARAMETER OPTIMIZATION OF NITROGEN-DOPED CARBON NANOTUBES SYNTHESIS BY METHOD CVD**

I. Zeferino González<sup>1</sup>, A. M. Valenzuela Muñiz<sup>1</sup>, Y. Verde Gómez<sup>1</sup>

Instituto Tecnológico de Cancún, México.

■ **S1C-P004 GRAPHENE OXIDE NANORIBBONS REDUCTION AND STABILIZATION THROUGH THE USE OF GREEN REDUCING AGENTS**

H. Garrafa-Gálvez<sup>i</sup>, P.A. Luque<sup>ii</sup>, S. P. Arredondo<sup>j</sup>, R. Corrali<sup>k</sup>, J. L. Almaral-Sánchez<sup>l</sup>, W. De la Cruz<sup>m</sup>, S. Sepúlveda-Guzmán<sup>iv</sup>, A. Castro-Beltrán<sup>1</sup>, R. A. Vargas<sup>1</sup>, R. Cruz-Silva<sup>v</sup>

<sup>i</sup>Facultad de Ingeniería Mochis, UAS, México. <sup>ii</sup>Facultad de Ingeniería, Arquitectura y Diseño, UABC, México. <sup>iii</sup>Centro de Nanociencias y Nanotecnología, UNAM, Ensenada B.C., México. <sup>iv</sup>Facultad de Ingeniería Mecánica y Eléctrica, UANL, México. <sup>v</sup>Research Center for Exotic NanoCarbon, Shinshu University, Japan.

■ **S1C-P005 CARBON NANOMATERIALS DOPED WITH SULFUR**

E. Montiel Macías<sup>1</sup>, P. B. Balbuena<sup>2</sup>, J. Y. Verde Gómez<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Cancún, México. <sup>2</sup>Department of Chemical Engineering, Texas A&M University, USA.

■ **S1C-P006 EVALUATION OF THE EFFECTS OF MULTIWALLED CARBON NANOTUBES AND GRAPHENE OXIDE ON *Toxocara canis* EGGS**

A. M. Solano Sánchez<sup>1</sup>, J. J. Otero Negrete<sup>1</sup>, C. G. Sámano Salazar<sup>1</sup>, S. M. Vega Díaz<sup>2,3</sup>, F. Tristán López<sup>1</sup>

<sup>1</sup>Departamento de Ciencias Naturales-DCNI, Universidad Autónoma Metropolitana, México. <sup>2</sup>Technological Institute of Celaya, Department of Chemical Engineering México. <sup>3</sup>Consejo Nacional de Ciencia y Tecnología (CONACYT), Ciudad de México.

■ **S1C-P007 SYNTHESIS OF HYBRID SPONGES OF GRAPHENE OXIDE AND CARBON NANOTUBES DOPED WITH SULFUR**

C. A. García Maro<sup>1</sup>, C. Guerrero Bermea<sup>2,3</sup>, Y. Lei<sup>3</sup>, A. Dasgupta<sup>3</sup>, N. Perea López<sup>2</sup>, A. Castro Beltrán<sup>1</sup>, R. Corral Higuera<sup>1</sup>, R. Cruz Silva<sup>4</sup>, J. L. Almaral Sánchez<sup>1</sup>, M. Terrones<sup>3</sup>

<sup>1</sup>Facultad de Ingeniería Mochis (FIM), Universidad Autónoma de Sinaloa, México, <sup>2</sup>Facultad de Ingeniería Mecánica y Eléctrica (FIME), Universidad Autónoma de Nuevo León, México, <sup>3</sup>Department of Physics and

Center for 2-Dimensional and Layered Materials, The Pennsylvania State University, United States, <sup>4</sup>Research Center for Exotic Nanocarbons, Shinshu University, Japan.

■ **S1C-P008 MONOLITHIC GRAPHENE FOAMS: INTERFACIAL CHARGE INDUCED MACROSCOPIC PHENOMENA**

J. Biener<sup>1</sup>, M. A. Worsley<sup>1</sup>, J. R. I. Lee<sup>1</sup>, B. C. Wood<sup>1</sup>, P. G. Campbell<sup>1</sup>, M. Bagge-Hansen<sup>1</sup>, T. Ogitsu<sup>1</sup>, S. Dasgupta<sup>2</sup>, H. Hahn<sup>2</sup>, J. Weissmüller<sup>3</sup>, and T. F. Baumann<sup>1</sup>

<sup>1</sup>Lawrence Livermore National Laboratory, USA, <sup>2</sup>Karlsruhe Institute of Technology, Germany, <sup>3</sup>Technische Universität Hamburg-Harburg, Germany

■ **S1C-P009 ACTIVATED CARBON MODIFICATION FOR ENERGY STORAGE IMPROVEMENT**

N. Rayón-López<sup>2a,b</sup>, M. Adán-Benítez<sup>2</sup>, H. I. Villafán-Vidales<sup>2</sup>, E. C. Menchaca-Campos<sup>b</sup>, D. E. Pacheco-Catalán<sup>c</sup>, A. K. Cuentas-Gallegos<sup>d</sup>

<sup>a</sup>Instituto de Energía Renovable, Universidad Nacional Autónoma de México, México. <sup>b</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas (CIICAp), Universidad Autónoma del Estado de Morelos, Mexico. <sup>c</sup>Unidad de Energía Renovable, Centro de Investigación Científica de Yucatán A.C., México

■ **S1C-P010 BI-ENZYMATIC BIOSENSOR BASED ON SCREEN-PRINTED CARBON ELECTRODES (SPCEs) FOR DETERMINATION OF ORGANOPHOSPHORUS PESTICIDES**

KT Santos<sup>1</sup>, HBSuffredini<sup>1</sup>, PA Fiorito<sup>1</sup>

<sup>1</sup>Centro de Ciências Naturais e Humanas da Universidade Federal do ABC, Brasil

■ **S1C-P011 CARBON ELECTRODES MODIFIED WITH POLY (L-ARGININE) TO PROMOTE THE DETECTION OF TERBUTALINE IN PHYSIOLOGICAL MEDIA**

R.M.P da Silva<sup>1</sup>, P.V. F da Costa<sup>1</sup>, H.B Suffredini<sup>1</sup>, W.A Alves<sup>1</sup>

<sup>1</sup>Universidade Federal do ABC, Centro de Ciências Naturais e Humanas, Brazil.

■ **S1C-P012 SYNTHESIS OF MULTIWALLED CARBON NANOTUBES FUNCTIONALIZED WITH TiO<sub>2</sub>: RAMAN SPECTROSCOPY STUDY.**

Serrano Corrales L. I.<sup>1</sup>, González Martínez R.<sup>2</sup>, Gámez Corrales R.<sup>2</sup>, López Oyama A.<sup>3</sup>

<sup>1</sup>Posgrado en Ingeniería Química, Universidad de Sonora. <sup>2</sup>Departamento de Física, Universidad de Sonora. <sup>3</sup>CICATA, IPN, Tamaulipas



■ **S1C-P013 STUDY OF PHOTOTHEMAL PROPERTIES OF FUNCTIONALIZED AND NEAR-INFRARED LASER RADIATED MULTI-WALLED CARBON NANOTUBES AND THEIR EFFECTS IN CANCER CELLS**

A. V. Cárdenas-Muñoz<sup>1</sup>, R. Díaz-López<sup>3</sup>, H. Torres-Moreno<sup>3</sup>, E. León-Sarabia<sup>5</sup>, R. E. Robles-Zepeda<sup>3</sup>, C. I. Enriquez-Flores<sup>5</sup>, S. J. Castillo<sup>1</sup>, E. Muñoz-Sandoval<sup>4</sup>, J. C. Tánori-Córdova<sup>2</sup>

<sup>1</sup>Departamento de Investigación en Física, <sup>2</sup>Departamento de Investigación en Polímeros y Materiales <sup>3</sup>Departamento de Ciencias Químicas Biológicas, Universidad de Sonora. México; <sup>4</sup>Instituto Potosino de Investigación Científica y Tecnológica, Mexico; <sup>5</sup>Centro de Investigación y estudios avanzados-IPN, México.

■ **S1C-P014 ELECTRODE MANUFACTURING FROM MICROMETER-SIZE DIAMOND PARTICLES FOR WASTEWATER TREATMENT**

L.A. Cortés-Villegas<sup>1</sup>, J.C. Mixteco-Sánchez<sup>1</sup>, I. Guillén-Escamilla<sup>1</sup>, P.D. Astudillo<sup>2</sup>, R. Garibay-Alonso<sup>2</sup>

<sup>1</sup>Departamento de Ciencias Naturales y Exactas, CU Valles, Universidad de Guadalajara, México. <sup>2</sup>Departamento de Ingenierías CU Tonalá, Universidad de Guadalajara, México.

■ **S1C-P015 STUDY OF THE INTERACTION BETWEEN A H<sub>2</sub> MOLECULE AND A TI-DOPED GRAPHENE+SEMI-FULLERENE SURFACE**

M. Canales<sup>1</sup>, J.M. Ramírez-de-Arellano<sup>2</sup>, L.F. Magaña<sup>1</sup>

<sup>1</sup>Instituto de Física, UNAM, México. <sup>2</sup>Facultad de Ciencias, UNAM, México.

■ **S1C-P016 SYNTHESIS AND CHARACTERIZATION OF NANOCOMPOSITES OF AU@AG@RGO AND THEIR USE IN DEGRADATION OF METILENE ORANGE (MO) AND RODAMINE B (RB) DYES**

S. Castellanos<sup>1</sup>, R. Cabanzo<sup>1</sup>, E. Mejía-Ospino<sup>1</sup>

<sup>1</sup>Laboratorio de Espectroscopia Atómica y Molecular (LEAM), Centro de Materiales y Nanociencias CMN), Universidad Industrial de Santander, Bucaramanga, Colombia;

■ **S1C-P017 SYNTHESIS AND CHARACTERIZATION OF NITROGEN-DOPED REDUCED GRAPHENE OXIDE**

Rebeca Ortega Amaya<sup>1</sup>, Yasuhiro Matsumoto Kuwabara<sup>1,2</sup>, Juan Morales-Corona<sup>3</sup>, Manuel Alejandro Pérez Guzmán<sup>2</sup>, Mauricio Ortega López<sup>1,2</sup>

<sup>1</sup>Sección de Electrónica del Estado Sólido, Departamento de Ingeniería Eléctrica. <sup>2</sup>Programa de Doctorado en Nanociencias y Nanotecnología. Centro de Investigación y

de Estudios Avanzados del Instituto Politécnico Nacional. México. <sup>3</sup>Departamento de Física, Universidad Autónoma Metropolitana Iztapalapa, México

■ **S1C-P018 IODINE-TREATED HETEROATOM-DOPED CARBON: ELECTRICAL CONDUCTIVITY-DRIVEN ELECTROCATALYTIC ACTIVITY**

Kiran Pal Singh<sup>1</sup>, Min Young Song<sup>1</sup>, and Jong-Sung Yu<sup>1</sup>

<sup>1</sup>Department of Energy Systems Engineering, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Korea

■ **S1C-P019 SYNTHESIS OF GRAPHENE AND CARBON QUANTUM DOTS BY LASER IRRADIATION**

E. Jaimes<sup>1</sup>, E. Mejía-Ospino<sup>1</sup>, R. Cabanzo<sup>1</sup>

<sup>1</sup>Laboratorio de Espectroscopia Atómico y Molecular, Centro de Materiales y Nanociencias, Universidad Industrial de Santander, Bucaramanga, Colombia

■ **S1C-P020 EVALUATION OF ANTIOXIDANT AND CYTOTOXIC EFFECTS OF CARBON NANOSTRUCTURES WITH MODIFIED SURFACES IN CELL CULTURE**

A. M. Solano Sánchez<sup>1</sup>, C. G. Sámano Salazar<sup>1</sup>, J. J. Otero Negrete<sup>1</sup>, F. Tristán López<sup>1</sup>

<sup>1</sup>Departamento de Ciencias Naturales-DCNI, Universidad Autónoma Metropolitana, Unidad Cuajimalpa, México

ROOM: UXMAL II  
THURSDAY, AUGUST 20

👤 Session Chair: PATRICK CAMPBELL

▶ **08:30 - 09:00 S1C-0014 Invited Talk SURFACE FUNCTIONALITY AND INTERFACIAL BEHAVIOR OF CARBON ELECTRODES TO INCREASE PERFORMANCE IN ELECTRIC DOUBLE LAYER CAPACITORS**

Y. Gogotsi<sup>1</sup>, K. L. Van Aken<sup>1</sup>, B. Dyatkin<sup>1</sup>, M. Beidaghi<sup>1</sup>

<sup>1</sup>Materials Science and Engineering Department & A.J. Drexel Nanomaterials Institute, Drexel University, USA.

▶ **09:00 - 09:30 S1C-0015 Invited Talk SYNTHESIS AND CHARACTERIZATION OF MESOPOROUS CARBON FOR ELECTROCHEMICAL ENERGY CONVERSION DEVICES**

H. R. Corti<sup>1,2</sup>, M. M. Bruno<sup>1</sup>, E. Fuentes Quesada<sup>1</sup>, Gonzalo Montiel<sup>3</sup>, D. Martinez Casillas<sup>2</sup>, G. Horwitz<sup>2</sup>, F. A. Viva<sup>1</sup>, M. P. Longinotti<sup>2</sup>

<sup>1</sup>Departamento de Física de la Materia Condensada, Centro Atómico Constituyentes - Comisión Nacional de Energía Atómica, Argentina. <sup>2</sup>Instituto de Química Física de los Materiales, Medio Ambiente y Energía (INQUIMAE - CONICET), Facultad de Ciencias Exactas y Naturales - Universidad de Buenos Aires, Argentina. <sup>3</sup>Centro de Procesos Superficiales, PTM, Instituto Nacional de Tecnología Industrial (INTI), Argentina.

► **09:30 - 10:00 S1C-0016 *Invited Talk* TUNABLE ELECTRONIC TRANSPORT IN NANOPOROUS CARBON: A STEP TOWARDS BULK FIELD EFFECT DEVICES**

S. Dasgupta<sup>1</sup>, D. Wang<sup>1</sup>, H. Hahn<sup>1</sup>, T. F. Baumann<sup>2</sup>, J. Biener<sup>2</sup>

<sup>1</sup>Institute of nanotechnology (INT), Karlsruhe Institute of Technology (KIT) Germany. <sup>2</sup>Nanoscale Synthesis and Characterization Laboratory, Lawrence Livermore National Laboratory, USA

■ **10:00 - 10:15 S1C-0017 EXPERIMENTAL STUDY ON THERMAL TRANSPORT OF AN ARTIFICIALLY-DEFECTED MULTI-WALLED CARBON NANOTUBE**

M. Narasaki<sup>1</sup>, T. Ikuta<sup>1</sup>, T. Nishiyama<sup>1</sup>, K. Takahashi<sup>1,2</sup>

<sup>1</sup> Department of Aeronautics and Astronautics, Kyushu University, Japan. <sup>2</sup> International Institute for Carbon-Neutral Energy Research, Kyushu University, Japan

► **10:15 - 10:45 S1C-0018 *Invited Talk* DOING MORE WITH LESS: CHALLENGES FOR PEMFC CATALYST LAYER DESIGN**

J. Stumper<sup>1</sup>

<sup>1</sup>Automotive Fuel Cell Cooperation Corp. Canada.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

## Symposium 1D

# NANOSTRUCTURED MATERIALS AND NANOTECHNOLOGY

**José Luis Rodríguez-López** / MÉXICO / Instituto Potosino de Investigación Científica y Tecnológica, A.C.


**Claudia Gutiérrez-Wing** / MÉXICO / Instituto Nacional de Investigaciones Nucleares

**Olivia A. Graeve** / USA / University of California, San Diego

**Alma Gabriela Palestino-Escobedo** / MÉXICO / Universidad Autónoma de San Luis Potosí

**Miltón Muñoz-Navia** / MÉXICO / Universidad de La Cienega del Estado de Michoacan de Ocampo

ROOM: TULUM G  
MONDAY, AUGUST 17

 Session Chair: **JOSE LUIS RODRIGUEZ LOPEZ (DMAV-IPICYT, MEX)**

▶ **09:00 - 09:30 S1D-0001 *Invited Talk* SITE-SPECIFIC TARGETING OF ENTEROVIRUS CAPSID BY FUNCTIONALIZED MONODISPERSE GOLD NANOCCLUSERS**

**Hannu Häkkinen**<sup>1</sup>

<sup>1</sup>Nanoscience Center, University of Jyväskylä, Finland

■ **09:30 - 09:45 S1D-0002 TUNING THE BINDING ENERGY OF NEGATIVELY CHARGED IONS WITH MAGNETITE NANOPARTICLES FOR DRUG DELIVERY**

**L Herojit Singh**<sup>1</sup>, **Sudhanshu S. Pati**<sup>1</sup>, **Aderbal C. Oliveira**<sup>1</sup> and **Vijayendra K. Garg**<sup>1</sup>

<sup>1</sup>Institute of physics, University of Brasilia, Brazil

■ **09:45 - 10:00 S1D-0003 SILICA COATED, AMINOSILANE FUNCTIONALIZATION, UPCONVERSION EMISSION AND CYTOTOXICITY OF THE NANOPARTICLES Y<sub>2</sub>O<sub>3</sub> AND Gd<sub>2</sub>O<sub>3</sub> CO-DOPED WITH Yb<sup>3+</sup> and Er<sup>3+</sup>**

**D. Chávez**<sup>1</sup>, **G. A. Hirata**<sup>2</sup> and **K. Juárez-Moreno**<sup>2,3</sup>

<sup>1</sup>Posgrado en Física de Materiales, CICESE-UNAM. Centro de Nanociencias y Nanotecnología. México. <sup>2</sup>Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, México. <sup>3</sup>Investigador de Cátedras CONACYT, México.

■ **10:00 - 10:15 S1D-0004 SILVER DOPED TITANIUM DIOXIDE NANO-STRUCTURED MATERIALS. SYNTHESIS, CHARACTERIZATION, APPLICATIONS AND TOXICOLOGICAL EVALUATION**

**Iliana E. Medina-Ramírez**<sup>1</sup>, **Cristina Patricia Romo-Bernal**<sup>1</sup>, **Cristina Garcidueñas Piña**<sup>1</sup>, **Fernando Jaramillo Juárez**<sup>2</sup>, **José Luis Rodríguez López**<sup>3</sup>, **Jorge Eduardo Macías-Díaz**<sup>4</sup>

<sup>1</sup>Universidad Autónoma de Aguascalientes. Departamento de Química. <sup>2</sup>Universidad Autónoma de Aguascalientes. Departamento de Farmacología. <sup>3</sup>Instituto Potosino de Investigación Científica y Tecnológica. Materiales Avanzados. <sup>4</sup>Universidad Autónoma de Aguascalientes. departamento de Matemáticas

■ **10:15 - 10:30 S1D-0005 COVERT BARCODES BASED ON PHASE CHANGE NANOPARTICLES**

**M. Wang**<sup>1</sup>, **L. Ma**, **M. Su**<sup>1</sup>,

<sup>1</sup>Department of Chemical Engineering, Northeastern University, Boston,

▶ **10:30 - 11:00 S1D-0006 *Invited Talk* A COMPARTIVE STUDY OF CdTe QDs AND ZrO<sub>2</sub>:Yb<sup>3+</sup>-Er<sup>3+</sup> NANOCRYSTALS FOR LABELING ORAL EPITHELIAL AND He-La CELLS**

**Tzarara López-Luke**<sup>1</sup>, **Andrea Ceja-Fdez**<sup>1</sup>, **Elisa Cepeda**<sup>1</sup>, **Juan Vivero-Escoto**<sup>2</sup>, **Ana Lilia Gonzalez-Yebra**<sup>3</sup>, **Ruben A. Rodriguez Rojas**<sup>4</sup>, **Elder de la Rosa**<sup>1</sup>

<sup>1</sup>Centro de Investigaciones en Optica, México. <sup>2</sup>University of North Carolina at Charlotte, Department of Chemistry, United States. <sup>3</sup>Universidad de Guanajuato Campus León, Departamento de Medicina y Nutrición, División Ciencias

de la Salud, México. <sup>4</sup> Universidad de Guadalajara, Centro Universitario de los Lagos, México.

☑ 11:00 – 11:30 COFFEE BREAK

📖 11:30 – 12:30 PLENARY LECTURE

👤 Session Chair: **CLAUDIA GUTIERREZ WING (ININ-MEX)**

▶ **12:30 - 13:00 S1D-0007 Invited Talk GOLD ULTRATHIN NANORODS: SYNTHESIS, OPTICAL PROPERTIES, AND STABILITIES**

S. Takano,<sup>1</sup> R. Takahata,<sup>1</sup> S. Yamazoe,<sup>1,2</sup> K. Koyasu<sup>1,2</sup> T. Tsukuda<sup>1,2</sup>

<sup>1</sup>Department of Chemistry, School of Science, The University of Tokyo, Japan. <sup>2</sup>Elements Strategy Initiative for Catalysts and Batteries (ESICB), Kyoto University, Japan.

■ **13:00 - 13:15 S1D-0008 LARGE AREA ASSEMBLY AND ALIGNMENT OF FULL-SURFACE COVERAGE CARBON NANOTUBE ARRAYS FOR HIGH-PERFORMANCE FIELD-EFFECT TRANSISTORS**

Gerald J. Brady<sup>1</sup>, Harold T. Evensen<sup>2</sup>, Yongho Joo<sup>1</sup>, Alan J. Albrecht<sup>1</sup>, Meng-Yin Wu<sup>3</sup>, Matthew J. Shea<sup>1</sup>, Padma Gopalan<sup>1</sup>, and Michael S. Arnold<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, University of Wisconsin-Madison, United States, <sup>2</sup>Department of Engineering Physics, University of Wisconsin-Platteville, <sup>3</sup>Department of Electrical and Computer Engineering, University of Wisconsin-Madison

■ **13:15 - 13:30 S1D-0009 PERIODIC MODULATION OF SELF-ASSEMBLY NANOPARTICLES FILMS VIA DIP COATING LITHOGRAPHY**

J.L. Domínguez-Juárez<sup>1</sup>, R. Quintero-Torres<sup>2</sup>, R. M. Lima García<sup>2</sup>, Narro-García<sup>2</sup>, M.A. Ocampo<sup>2</sup> and J. L. Aragón<sup>2</sup>

<sup>1</sup>Cátedras CONACyT, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México. <sup>2</sup>Departamento de Nanotecnología, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

▶ **13:30 - 14:00 S1D-0010 Invited Talk SINGLE CHARGE ELECTRONICS WITH GOLD NANOPARTICLES AND ORGANIC MONOLAYERS**

O. Pluchery<sup>1</sup>, L. Caillard<sup>1,2</sup>, A-F. Lamic-Humblot<sup>3</sup>, E. Lacaze<sup>1</sup>, Y. Zhang<sup>4</sup>, M. Salmeron<sup>4</sup>, J. Chabal<sup>2</sup>

<sup>1</sup>Université Pierre et Marie Curie, Institut des NanoSciences de Paris, France, <sup>2</sup> University of Texas at Dallas, Lab. for Surf.

& Nanostructure Modifications, USA, <sup>3</sup>Université Pierre et Marie Curie, Laboratoire de Réactivité de Surface, France, <sup>4</sup> Lawrence Berkeley National Laboratory, University of California Berkeley, USA.

✕ 14:00- 16:00 LUNCH

👤 Session Chair: **GABRIELA PALESTINO ESCOBEDO (UASLP, MEX)**

▶ **16:00 - 16:30 S1D-0011 Invited Talk THE DEVELOPMENT OF PSEUDOCAPACITIVE ENERGY STORAGE IN NANOMATERIALS**

Hyungseok Kim<sup>1</sup>, Jesse Ko<sup>1</sup>, Bruce Dunn<sup>1</sup>

Department of Materials Science and Engineering, University of California, Los Angeles,

■ **16:30 - 16:45 S1D-0012 FABRICATION OF SUPERHYDROPHOBIC SURFACE BASED ON SILICA NANO-PARTICLES AND HALLOYSITE NANOTUBES**

M. Hernández<sup>2</sup>, M. Rodríguez<sup>2</sup>, A. Rodríguez<sup>2</sup>, D. Meza<sup>1</sup>, J. Amaro<sup>1</sup>, O. Martínez<sup>2</sup>, A. Elías<sup>2</sup>

<sup>1</sup>Universidad del Norte. Puerto Colombia. Colombia. <sup>2</sup> Tecnológico de Monterrey. México.

■ **16:45 - 17:00 S1D-0013 STIMULATED EMISSION FROM HIGH-QUALITY ZnO FILMS GROWN ON GRAPHENE LAYERS**

N.-J. Kim<sup>1,2</sup>, G.-C. Yi<sup>2</sup>

<sup>1</sup>Department of Physics and Chemistry, Korea Military Academy, Seoul, South Korea, <sup>2</sup>School of Physics, Seoul National University, Seoul, South Korea

■ **17:00 - 17:15 S1D-0014 CARBON COATED ANODE NANOPARTICLES WITH ENHANCED HIGH-RATE PERFORMANCE FOR LITHIUM-ION BATTERY**

Xiangcheng Sun<sup>1</sup>

<sup>1</sup>Department of Electrical and Computer Engineering and Waterloo Institute for Nanotechnology, University of Waterloo, Canada

■ **17:15 - 17:30 S1D-0015 POLYPHENOL AIDED MORPHOLOGY TUNING IN LUMINESCENT LANTHANIDE ORTHOVANADATES**

Vairapperumal Tamilmani<sup>1</sup>, M.S.Kiran<sup>1</sup>, Kalarical Janardhanan Sreeram<sup>1</sup> and Balachandran Unni Nair<sup>1</sup>

<sup>1</sup>Chemical Laboratory, CSIR-Central Leather Research Institute. India



■ **17:30 - 17:45 S1D-0016 ELABORATION OF MAGNETIC CHITOSAN FOR CONTROLLED MAGNETIC ASSISTED RELEASE OF 5-HYDROXYTRYPTOPHAN**

M. H. Sousa<sup>1</sup>, J. M. dos Santos<sup>1</sup>, J. A. Chaker<sup>1</sup>

<sup>1</sup>Universidade de Brasília, Faculdade de Ceilândia, Brazil

■ **17:45 - 18:00 S1D-0017 MAGNETITE NANOPARTICLES WITH HIGH SATURATION MAGNETIZATION**

S. Díaz-Castañón<sup>1,2</sup>, J. C. Faloh-Gandarilla<sup>1</sup>, D. Ríos-Jara<sup>2</sup>

<sup>1</sup>Lab. Magnetismo, Facultad Física- IMRE, Universidad de La Habana, Cuba. <sup>2</sup>División Materiales Avanzados, IPICyT, México.

▶ **18:00 - 18:30 S1D-0018 Invited Talk THERMAL AND MECHANICAL PROPERTIES OF SEMICONDUCTOR NANOWIRES AND POLYMER NANOFIBERS**

Renkun Chen<sup>1</sup>

<sup>1</sup>Department of Mechanical and Aerospace Engineering, Materials Science and Engineering Program, University of California, San Diego

ROOM: TERRACE  
MONDAY, AUGUST 17

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S1D-P001 MODIFICATION OF MELT ELECTROSPINNING WITH ULTRASONIC HORN FOR DEVELOPMENT**

Rafael Aguirre Flores<sup>1</sup>

<sup>1</sup>Centro de Investigación en Química Aplicada, Mexico

■ **S1D-P002 INFLUENCE OF ZINC ACETATE ON THE GLASS COATING FOR THE GROWTH OF ZINC OXIDE NANOWIRES BY HYDROTHERMAL METHOD**

Marco Alberto Ayala-Torres<sup>1</sup>, Concepción Mejía-García<sup>1</sup>, Josué Romero-Ibarra<sup>2</sup>

<sup>1</sup>Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, Mexico. <sup>2</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México

■ **S1D-P003 STUDY OF GLUCOSE OXIDATION PEAK AT CATHODIC SCAN ON Au-Ag NANOPARTICLES IN ALKALINE MEDIA**

N. G. García-Morales<sup>1</sup>, L. A. Garía-Cerda<sup>2</sup>, M. L. Blanco-Jerez<sup>3</sup>, R. Antaño-López<sup>1</sup>, F. Castañeda-Zaldivar<sup>1</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en electroquímica. Querétaro, México. <sup>2</sup> Centro de investigación en Química Aplicada. México. <sup>3</sup> Universidad Autónoma de Nuevo León, Laboratorio de Electroquímica, México.

■ **S1D-P004 SYNTHESIS AND EVALUATION OF NANOCRYSTALLINE Y<sub>2</sub>O<sub>3</sub>:CE FOR DOSIMETRY APPLICATIONS**

S. Contreras<sup>1,3</sup>, M. Sosa<sup>1</sup>, M. Vallejo<sup>1</sup>, C.R. Garcia<sup>2,3</sup>, L. A. Diaz-Torres<sup>3</sup>

<sup>1</sup> Departamento de Ingeniería Física, Campus León, Universidad de Guanajuato, Mexico. <sup>2</sup> Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Coahuila, México. <sup>3</sup> Grupo de Espectroscopia de Materiales Avanzados y Nanoestructurados (GEMANA), Centro de Investigaciones en Óptica, México.

■ **S1D-P005 NEW BIONANOFLUIDS CONTAINING MONODISPERSE AU NANOPARTICLES: PREPARATION AND THERMAL PROPERTIES**

M. Sánchez-Rivera<sup>1</sup>, L. Nolasco-Hernández<sup>2</sup>, V. E. López y López<sup>3</sup>, J. L. Jiménez-Pérez<sup>4</sup>, V. López-Gayou<sup>3</sup>, J. A. Fuentes-García<sup>4</sup>, J. F. Sánchez-Ramírez<sup>3</sup>

<sup>1</sup>Universidad Interamericana, Puebla, México. <sup>2</sup>CICATA – Instituto Politécnico Nacional, México. <sup>3</sup>CIBA-Instituto Politécnico Nacional, México. <sup>4</sup>UPIITA-Instituto Politécnico Nacional, México D.F.

■ **S1D-P006 IMMOBILIZED NANOPARTICLES ON THE SURFACE OF CHITOSAN FILMS AND THEIR ELECTRICAL PROPERTIES**

Jessica E. González Sevilla<sup>1</sup>, Jessica C. Ramírez de la Torre<sup>1</sup>, Álvaro R. Rodríguez Gonzalez<sup>1</sup>, Ramón E. Barajas Barraza<sup>1</sup>, Milton O. Vázquez Lepe<sup>2</sup>, Alejandra Carreón Alvarez<sup>3</sup>.

<sup>1</sup>Departamento de Matemáticas y Física, ITESO, <sup>2</sup>Departamento de Ingeniería de Proyectos, <sup>3</sup>Departamento de Ciencias Exactas y Naturales, <sup>2,3</sup>Universidad de Guadalajara, México.

■ **S1D-P007 SIZE CONTROL IN THE SYNTHESIS OF MAGNETIC NANOPARTICLES FOR BIOMEDICAL APPLICATIONS**

A. I. Hurtado-Arias<sup>1</sup>, J. J. Ibarra-Sánchez<sup>2</sup>, J. J. Bernal-Alvarado<sup>1</sup>, G de la Rosa<sup>2</sup>, T. Cordova-Fraga<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Física, División de Ciencias e Ingeniería, Campus León, Universidad de Guanajuato, México. <sup>2</sup>Departamento de Ingenierías Química,



Electrónica y Biomédica, División de Ciencias e Ingeniería, Campus León, Universidad de Guanajuato, México

■ **S1D-P008 SYNTHESIS OF POLYMER NANOCOMPOSITES PCL FIBERS WITH GOLD NANOPARTICLES**

Morales Montes<sup>1,2</sup>, J. Jiménez-Pérez<sup>1</sup>, Z. Correa Pacheco<sup>3</sup>, A. Cruz Orea<sup>4</sup>, J. A. Fuentes García<sup>1,5</sup>

<sup>1</sup>UPIITA-Instituto Politécnico Nacional, México D.F.

<sup>2</sup>Universidad Politécnica del Valle de Toluca (UPVT) México,

<sup>3</sup>Instituto Politécnico Nacional-Centro de Desarrollo de Productos Bióticos. México. <sup>4</sup>Departamento de Física, CINVESTAV-IPN. México. <sup>5</sup>Universidad Politécnica del Valle de México (UPVM). Estado de México

■ **S1D-P009 CHARACTERIZATION, MECHANICAL AND THERMOCHEMICAL PROPERTIES OF 2D CARBON-BASED NANOMATERIALS STUDIED BY CALORIMETRY AND THERMAL ANALYSIS**

K. Lilova<sup>1</sup>, L. Brown<sup>1</sup>

<sup>1</sup>SETARAM, USA

■ **S1D-P010 STUDY OF THE PHOTOLUMINESCENCE OF SILICON NANOPARTICLES MULTILAYERS EMBEDDED IN SILICA**

A. López-Suárez<sup>1</sup>, S. Sánchez-Escobar<sup>1</sup>, C.E. Valencia<sup>2</sup>

<sup>1</sup>Instituto de Física. Universidad Nacional Autónoma de México. México. <sup>2</sup>Departamento de Matemáticas, Centro de Investigación y de Estudios Avanzados del IPN, México

■ **S1D-P011 SYNTHESIS OF BaTiO<sub>3</sub> NANOFIBERS BY ELECTRO-SPINNING**

M.C. Maldonado-Orozco<sup>1</sup>, J. Sosa-Márquez<sup>1</sup>, M.T. Ochoa-Lara<sup>1</sup> and F. Espinosa-Magaña<sup>1</sup>

<sup>1</sup>Centro de Investigación de Materiales Avanzados, S.C., Laboratorio Nacional de Nanotecnología. México.

■ **S1D-P012 PREPARATION OF THE TITANATE NANOTUBES (Na<sub>2</sub>Ti<sub>3</sub>O<sub>7</sub>), CHARACTERIZATION AND STUDY OF ITS PROPERTIES AT HIGH PRESSURE**

H. J. Ojeda Galván<sup>1</sup>; A. G. Rodríguez Vázquez<sup>1</sup>; B. E. Handy<sup>2</sup>

<sup>1</sup>Coordinación para la Innovación y la Aplicación de la Ciencia y la Tecnología (CIACyT-UASLP), México.; <sup>2</sup>Facultad de Ciencias Químicas (FCQ-UASLP), México.

■ **S1D-P013 PLASMON RESONANCE IN SILVER NANOPARTICLES SYNTHETIZED BY MICROWAVE-ASSISTED TECHNIQUE**

Juan Sebastián Pelaez Garzon<sup>1</sup>, Ricardo Eulises Báez<sup>1</sup>, Carlos Vargas Hernández<sup>1</sup>

<sup>1</sup>Universidad Nacional de Colombia, sede Manizales Laboratorio de Propiedades Ópticas de Materiales (POM),

■ **S1D-P014 STUDY OF THE MORPHOLOGIC, OPTIC AND STRUCTURAL PROPERTIES OF NICKEL NANOPARTICLES SUPPORTED ON SiO<sub>2</sub> OPALS**

Martínez Miguel, Jessica<sup>1</sup>, Sánchez-Mora, Enrique<sup>2</sup>, Pérez-Rodríguez, Felipe<sup>2</sup> Gómez-Barojas Estela<sup>3</sup> and Efrain Rubio-Rosas<sup>4</sup>

<sup>1</sup>Facultad de Ingeniería Química, <sup>2</sup>Instituto de Física, <sup>3</sup>CIDS, Instituto de Ciencias, <sup>4</sup>Centro Universitario de Vinculación y Transferencia de Tecnología-CUTYT. Benemérita Universidad Autónoma de Puebla, México.

■ **S1D-P015 MAGNETIC-NANOMATERIAL OF CHLOROALUMINUM PHTHALOCYANINE AS TOOL FOR THE TREATMENT OF HUMAN GLIOBLASTOMA**

Leonardo Barcelos de Paula<sup>1,2</sup>, Fernando Lucas Primo<sup>1,3</sup>, Marcelo Rodrigues Pinto<sup>4</sup>, Paulo Cesar Morais<sup>5,6</sup> and Antonio Claudio Tedesco<sup>1</sup>

<sup>1</sup>Departamento de Química, Centro de Nanotecnologia e Engenharia Tecidual, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Universidade de São Paulo, Brazil; <sup>2</sup>Departamento de Genética, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Brazil; <sup>3</sup>Nanophoton<sup>®</sup> Company, Brazil; <sup>4</sup>Departamento de Química, Laboratório de Enzimologia, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Universidade de São Paulo, Brazil; <sup>5</sup>Instituto de Física, Universidade de Brasília, Brazil; <sup>6</sup>School of Automation, Huazhong University of Science and Technology, China.

■ **S1D-P016 GENERAL ONE-STEP OLEYLAMINE-MEDIATED SYNTHESIS TOWARD METAL CARBIDES (Fe, Co, Ni, W, and Mo) NANOPARTICLES**

Gustavo A. López<sup>1,2</sup>, João B. Souza Jr.<sup>1</sup>, Watson Beck Jr.<sup>1</sup>, Tiago L. Silva<sup>1</sup>, Daniely F. Queiroz<sup>1</sup>, Laudemir C. Varanda<sup>1</sup>

<sup>1</sup>Colloidal Materials Group, Chemistry Institute of São Carlos, University of São Paulo, Brazil, <sup>2</sup>Molecular Science Institute, University of Valencia, Spain

■ **S1D-P017 THEORETICAL STUDY OF SMART POLYMERIC MATERIALS**

María del Rosario Rodríguez-Hidalgo<sup>1</sup>, César Soto-Figueroa<sup>2</sup>, Luís Alberto Vicente-Hinestroza<sup>3</sup>

<sup>1</sup>Depto de Ciencias Químicas, Facultad de Estudios Superiores Cuautitlán, UNAM Campo 1. México. <sup>2</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Chihuahua. México. <sup>3</sup>Departamento de Física y Química



Teórica, Facultad de Química, Universidad Nacional Autónoma de México, México D.F.

■ **S1D-P018 EFFECT OF AN IN GAP INTERFACIAL LAYER ON BAND STRUCTURE OF INP/GAAS QUANTUM DOTS**  
J.L. Gonzalez-Arango<sup>1</sup>, P.D. Leal<sup>1</sup>, P. F. Gomes<sup>2</sup>

<sup>1</sup>Universidad de Pamplona, Colombia, <sup>2</sup>Campus de Jataí, Universidade Federal de Goiás, Jataí – Brazil.

■ **S1D-P019 UREA ELECTROCATALYTIC SENSOR BASED ON TWO DIMENSIONAL NICKEL NANOWIRE ARRAYS**  
Pablo Viramontes<sup>1</sup>, Yenni Velázquez<sup>1</sup>, Armando Encinas<sup>2</sup>

<sup>1</sup>Facultad de Ciencias, Universidad Autónoma de San Luis Potosí, México. <sup>2</sup>División de Materiales Avanzados, Instituto Potosino de Investigación Científica y Tecnológica.

■ **S1D-P020 DISSIPATIVE PARTICLE DYNAMICS SIMULATION OF SMART DENDRITIC MICELLES: THERMORESPONSIVE NANOCARRIER.**

César Soto-Figueroa<sup>1</sup>, María del Rosario Rodríguez-Hidalgo<sup>2</sup>, Luis-Alberto Vicente-Hinestroza<sup>3</sup>.

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Chihuahua, México. <sup>2</sup>Departamento de Ciencias Químicas, FES-Cuautitlán, UNAM, Estado de México. <sup>3</sup>Departamento de Física y Química Teórica, Facultad de Química, UNAM, México D.F.

■ **S1D-P021 STUDY OF THE ELECTRONIC CORRELATION IN GRAPHENE TYPE LATTICES WITHIN THE GENERALIZED HUBBARD MODEL**

J.R. Suárez-López<sup>1</sup>, E. Del Muro-Arteaga<sup>1</sup>, S. Molina-Valdovinos<sup>1</sup>, J. Madrigal-Melchor<sup>1</sup>, I. Rodríguez-Vargas<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Zacatecas, Unidad Académica de Física, México.

■ **S1D-P022 EFFECTS OF GLYCINE AND CITRATE ON THE MORPHOLOGICAL CHARACTERISTICS OF CALCIUM CARBONATE NANOPARTICLES SYNTHESIZED UNDER MICROWAVE IRRADIATION**

Gabriela Amor<sup>1</sup>, Alejandro Vázquez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, UANL, Facultad de Ciencias Químicas, México

■ **S1D-P023 NANOFIBERS SYNTHESIS OF POLYSTYRENE RECYCLING FOR APPLICATION IN THE CONSTRUCTION INDUSTRY**

A.L. Araya<sup>1,2</sup>, R.F. Vargas<sup>1</sup>, R. Cuevas<sup>1</sup>, C.M Segura<sup>1</sup> y J.S. Chaves<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Costa Rica, Laboratorio de Nanotecnología, Sede Central Cartago. <sup>2</sup>Universidad

Latina de Costa Rica, Lourdes de Montes de Oca, San José, Costa Rica.

■ **S1D-P024 FRABRICATION OF POLY (γ-GLUTAMIC ACID)/ CHITOSAN NANOPARTICLES LOADED WITH GIBBERELIC ACID**

A.E.S. Pereira<sup>1,2</sup>, I. S. Herrera<sup>2</sup>, A.S.L. Perez<sup>2</sup>, J.R. Garcia<sup>2</sup>, I. Moggio<sup>2</sup>, E.M.A. Marin<sup>2</sup> and L.F. Fraceto<sup>1,3</sup>

<sup>1</sup>Department of Biochemistry, Universidade Estadual de Campinas (UNICAMP), São Paulo – Brasil. <sup>2</sup>Departament of Advanced Material, Centro de Investigación en Química Aplicada (CIQA), Saltillo, Coahuilla- México. <sup>3</sup>Departament of Environmental Engineering, Universidade Estadual Paulista "Júlio de Mesquita" (UNESP), São Paulo - Brasil.

■ **S1D-P025 MORPHOLOGICAL TRANSITIONS OF MAGNETOLIPOSOMES INDUCED BY AC MAGNETIC FIELDS**

Elia Oliva<sup>1</sup>, Armando Encinas<sup>2</sup>, Mildred Quintana<sup>1</sup> and S. Aranda-Espinoza<sup>1</sup>

<sup>1</sup>Instituto de Física, Universidad Autónoma of San Luis Potosí, <sup>2</sup>División de Materiales Avanzados, Instituto Potosino de Investigación Científica y Tecnológica, México.

■ **S1D-P026 STUDY OF THE CAPILLARY FLOW IN TEXTURED PAPER: FLOW ANISOTROPY AND FLOW SPEED CONTROL**

Andrés Sandoval<sup>1</sup>, Armando Encinas<sup>2</sup>

<sup>1</sup>Instituto de Física, Universidad Autónoma de San Luis Potosí. <sup>2</sup>Division de Materiales Avanzados, Instituto Potosino de Investigación Científica y Tecnológica, México.

■ **S1D-P027 QUALITATIVE AND QUANTITATIVE DETERMINATION OF Pb LEACHING INTO CLAY POTTERY**

Jonathan Josué Elisea-Espinoza<sup>1</sup> and M. Muñoz-Navia<sup>1</sup>

<sup>1</sup>Nanotechnology Engineering, Universidad de La Ciénega del Estado de Michoacán de Ocampo, México.

■ **S1D-P028 EFFECT OF STIRRING SPEED IN THE STRUCTURAL PROPERTIES OF PbSe NANOPARTICLES OBTAINED BY COLLOIDAL SYNTHESIS**

E. Cabrera<sup>1</sup>, E. Rosendo<sup>1</sup>, R. Romano-Trujillo<sup>1</sup>, G. Nieto<sup>2</sup>, T. Díaz<sup>1</sup>, C. Morales<sup>1</sup>, H. Juárez<sup>1</sup>, M. Pacio<sup>1</sup> and G. García<sup>1</sup>

<sup>1</sup>PDS-ICUAP, Pue. México. <sup>2</sup>FCQ-BUAP, Puebla.

■ **S1D-P029 SYNTHESIS AND CHARACTERIZATION OF QDS ZNO BY COLLOIDAL METHOD**

E.Bravo-González<sup>1</sup>, A. I. Díaz-Cano<sup>1</sup>, Y. A. León-Nataret<sup>1</sup>, E. Rubio<sup>2</sup> and C.A. Camacho<sup>3</sup>

<sup>1</sup>Instituto Politécnico Nacional, UPIITA, México, <sup>2</sup>Benemérita Universidad Autónoma de Puebla, México, <sup>3</sup>Universidad Politécnica del Valle de México, México

■ **S1D-P030 EFFECT OF PRECURSOR CONCENTRATION ON THE PHYSIC-CHEMICAL AND OPTICAL PROPERTIES OF SYNTHESIZED ZnO NANOPARTICLES OBTAINED BY AIR-ASSISTED-USP**

G. Flores-Carrasco<sup>1</sup>, J. Carrillo-López<sup>1</sup>, J.A. Luna-López<sup>1</sup>, R. Martínez-Martínez<sup>2</sup>, S. Alcántara-Iniesta<sup>1</sup>, N.D. Espinosa-Torres<sup>1</sup>, L.S. Gomez-Villalba<sup>3</sup>, L. Muñoz-Fernández<sup>4</sup>, A. Sierra-Fernández<sup>3,4</sup>, O. Milosevic<sup>5</sup> and M.E. Rabanal<sup>4</sup>

<sup>1</sup>CIDS-ICUAP Benemérita Universidad Autónoma de Puebla, México, <sup>2</sup>Instituto de Física y Matemáticas, Universidad Tecnológica de la Mixteca, México, <sup>3</sup>Instituto de Geociencias (CSIC, UCM) Madrid, Spain, <sup>4</sup>University Carlos III of Madrid and IAAB, Dept. of Materials Science and Engineering and Chemical Engineering, Spain, <sup>5</sup>Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Serbia.

■ **S1D-P031 CHARACTERIZATION OF ZnSe THIN FILMS DEPOSITED BY THE METHOD DROP-COATING**

R. Hernández<sup>1</sup>, E. Rosendo<sup>1</sup>, R. Romano-Trujillo<sup>1</sup>, G. García<sup>1</sup>, M. Pacio<sup>1</sup>, G. Nieto<sup>2</sup>, T. Díaz<sup>1</sup>, C. Morales<sup>1</sup>, H. Juárez<sup>1</sup>, R. Galeazzi<sup>1</sup>.

<sup>1</sup>PDS, Instituto de Ciencias, Benemérita Universidad Autónoma de Puebla, Mexico, <sup>2</sup>Facultad de Ciencias Químicas, Benemérita Universidad Autónoma de Puebla, México.

■ **S1D-P032 SYNTHESIS OF ZnO POWDER BY PRECIPITATION CHEMISTRY WITH DIFFERENT ALKALI**

G. Herrera-Pérez<sup>1</sup>, J. N. Ortega-Aguilar<sup>1</sup>, C. E. Contreras-Villegas<sup>1</sup>, L. Béjar-Gómez<sup>2</sup>, A. Medina-Flores<sup>3</sup>

<sup>1</sup>Departamento de Ingeniería en Materiales, Instituto Tecnológico Superior de Irapuato, Carretera Irapuato-Silao México, <sup>2</sup>Facultad de Ingeniería Mecánica, Universidad Michoacana de San Nicolás Hidalgo, Ciudad Universitaria, México, <sup>3</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás Hidalgo, México.

■ **S1D-P033 TiO<sub>2</sub> INVERSE OPALS AS ACTIVE FILM IN CHEMICAL SENSORS**

B.Zenteno-Mateo<sup>1</sup>, G. Francisco Pérez-Sánchez<sup>2</sup>, B. Rebollo-Plata<sup>3</sup>, E.L. Juárez-Ruiz<sup>1</sup>, M. López-Fuentes<sup>5</sup>, G. Jimenez-Suarez<sup>1</sup> and M. P. Sampedro<sup>5</sup>

<sup>1</sup>Facultad de Ingeniería Benemérita Universidad Autónoma de Puebla, México, <sup>2</sup>Departamento De Físico Química

de Materiales del Instituto de Ciencias BUAP, México, <sup>3</sup>Tecnológico Superior de Irapuato, México, <sup>4</sup>Facultad de ciencias de la Electrónica, BUAP, México, <sup>5</sup>Facultad de Ingeniería Química Benemérita Universidad Autónoma de Puebla, México.

■ **S1D-P034 EVALUATION OF THERMAL AND MECHANICAL PROPERTIES OF POLYPROPYLENE REINFORCED WITH ZSM5 ZEOLITES**

G Ordoñez<sup>1</sup>, J.F Santa<sup>1</sup>, L.Y. Jaramillo<sup>1,2</sup>, E. Pabón-Gelvez<sup>3</sup>

<sup>1</sup>Grupo Materiales Avanzados y Energía, Instituto Tecnológico Metropolitano, Campus Fraternidad, Colombia, <sup>2</sup>Grupo Calidad, metrología y producción, Instituto Tecnológico Metropolitano, Campus Robledo, Colombia, <sup>3</sup> Grupo Ciencia de Materiales Avanzados, Facultad de Ciencias, Universidad Nacional de Colombia, Colombia.

■ **S1D-P035 NANOPOROUS MEMBRANES SYNTHESIS BY HYDROTHERMAL METHOD: EFFECT OF ZEOLITIC NATURE**

A.A. Flores-Díaz<sup>1</sup>, A. Medina-Ramírez<sup>1</sup>

<sup>1</sup>Ingeniería en Nanotecnología, Universidad de La Ciénega del Estado de Michoacán de Ocampo, México.

■ **S1D-P036 PIEZORESISTIVITY OF NANCOMPOSITES BASED ON NATURAL RUBBER/THERMALLY REDUCED GRAPHITE OXIDE/CARBON NANOTUBES**

Mehrdad Yazdani-Pedram<sup>1</sup>, Francis Avilés-Cetina<sup>2</sup>, Alejandro May-Pat<sup>2</sup>, Héctor Aguilar-Bolados<sup>1</sup>

<sup>1</sup> Facultad de Ciencias Químicas y Farmacéuticas, Universidad de Chile, Chile, <sup>2</sup> Centro de Investigación Científica de Yucatán, Unidad de Materiales, México.

■ **S1D-P037 HIGH PURITY ZnO QUANTUM DOTS FUNCTIONALIZED WITH 3-AMINOPROPYLTRIMETHOXYSILANE USING COLLOIDAL ROUTE**

R. Pérez-Cuapio<sup>1</sup>, H. Juárez<sup>1</sup>, M. Pacio<sup>1</sup>.

<sup>1</sup>Centro de Investigación en Dispositivos Semiconductores, Benemérita Universidad Autónoma de Puebla, México.

■ **S1D-P038 EFFECT OF SYNTHESIS CONDITIONS ON PROPERTIES OF ZnO NANOROD CORE / POLYPYRROLE-POLYANILINE DOUBLE SHELL ARRAYS**

A. Pruna<sup>1,2,3</sup>, Q. Shao<sup>2</sup>, A. Zapien<sup>4</sup>, A. Ruotolo<sup>2</sup>

<sup>1</sup>Faculty of Physics, University of Bucharest, Romania, <sup>2</sup>Department of Physics and Materials Science, City University of Hong Kong, Kowloon, Hong Kong SAR, China, <sup>3</sup>Universidad Politécnica de Valencia, Spain, <sup>4</sup>Center



of Super-Diamond and Advanced Films (COSDAF), City University of Hong Kong, China

■ **S1D-P039 SYNTHESIS AND CHARACTERIZATION OF ZNO THIN FILMS BY OF DEPOSIT BY ATOMIC LAYER DEPOSITION METHOD (ALD)**

F. Romo<sup>1</sup>, R. García<sup>1</sup>, R. Rodríguez<sup>1</sup>, E. Contreras<sup>2</sup>, H. Tiznado<sup>2</sup>

<sup>1</sup>Universidad de Sonora, México. <sup>2</sup>Centro de Nanociencias y Nanotecnología de la UNAM, México.

■ **S1D-P040 HYBRIDIZATION OF ELECTRONIC STATES OF LATERAL QUANTUM DOT MOLECULES**

E. Rodríguez<sup>1</sup>, J. H. Marín<sup>2</sup>, W. Gutiérrez<sup>1</sup>

<sup>1</sup>Escuela de Física, Universidad Industrial de Santander (UIS), Colombia, <sup>2</sup>Escuela de Física, Universidad Nacional de Colombia, Colombia

■ **S1D-P041 ADSORPTION STUDY IN AQUEOUS MEDIUM OF ARSENITE AND ARSENATE BY MAGNETITE NANOPARTICLES**

H. Viltres<sup>1</sup>, O. F. Odio<sup>1,2</sup>, Y. Aguilera<sup>3</sup>, E. Reguera<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología de Avanzada, IPN. México, DF. <sup>2</sup>Instituto de Ciencia y Tecnología de Materiales (IMRE), La Habana, Cuba.

<sup>3</sup>Instituto Superior de Tecnologías y Ciencias Aplicadas (InSTEC), La Habana, Cuba.

■ **S1D-P042 CRYSTALLIZATION PROCESSES OF PROTEINS AND SMALL ORGANIC MOLECULES**

Hérica Dias da Rocha<sup>1</sup>, María Andrelina O. de Sousa<sup>1</sup>, Adrielle A. de Almeida<sup>1</sup>, Jackeline B. Brito<sup>1</sup>, Douglas J.C. Gomes<sup>1</sup>, Odin Gabriel da Cunha Godinho<sup>1</sup>, Josmary R. Silva<sup>1</sup>, Nara C. de Souza<sup>1</sup>

<sup>1</sup>Grupo de Materiais Nanoestruturados/ Universidade Federal de Mato Grosso, Brazil

■ **S1D-P043 GROWTH AND CHARACTERIZATION OF TiO<sub>2</sub> FILMS GROWN BY ATOMIC LAYER DEPOSITION FOR PHOTOCATALYTIC APPLICATIONS**

M.M.M. Contreras Turrubiates<sup>1</sup>, E. López Luna<sup>1</sup>, J.C. Salcedo Reyes<sup>2</sup>, A. Pedroza Rodríguez<sup>2</sup>, M.A. Vidal Borbolla<sup>1</sup>

<sup>1</sup>Coordinación para la Innovación y Aplicación de la Ciencia y Tecnología-Universidad Autónoma de San Luis Potosí, México <sup>2</sup>Pontificia Universidad Javeriana, Colombia

■ **S1D-P044 SYNTHESIS OF 1,4-PHENYLENE PORPHYRIN DENDRIMERS AND ITS INTRAMOLECULAR ENERGY TRANSFER STUDIES**

A. Contreras-Cadena<sup>1</sup>, M. Martínez-García<sup>1</sup>

<sup>1</sup>Instituto de Química, Universidad Nacional Autónoma de México, México

■ **S1D-P045 STUDY ABOUT THE CHARGE TRANSFERENCE BETWEEN EUROPIUM IONS AND OXYGENS IN FUNCTION OF THE FOSTER-DEXTER MICROPARAMETERS FOR Y<sub>2</sub>O<sub>3</sub>:EU NANOCRYSTAL**

Susana Vargas Rodríguez<sup>1</sup>, Octavio Meza Espinoza<sup>2</sup>, María Luisa Ojeda Martínez<sup>1</sup>, Celso Velásquez Ordóñez<sup>1</sup>

<sup>1</sup>Centro de Investigación en Nanociencia y Nanotecnología Jalisco. <sup>2</sup>Instituto de Física "Ing. Luis Rivera Terrazas" Benemérita Universidad Autónoma de Puebla. México

■ **S1D-P046 NANOMECHANICAL PROPERTIES OF SONOVUE MICROBUBBLES AND HYSTERESIS BEHAVIOR**

I. Albaijan<sup>1</sup>, V. Sboros<sup>2,3</sup>, V. Koutsos<sup>1</sup>

<sup>1</sup>Institute for Materials and Processes, School of Engineering, The University of Edinburgh, UK. <sup>2</sup>Medical Physics, Centre for Cardiovascular Sciences, The University of Edinburgh, UK. <sup>3</sup>Department of Physics, Institute of Biological Chemistry Biophysics and Bioengineering, UK.

■ **S1D-P047 DESIGN AND SYNTHESIS OF NANOMATERIALS Cu(II)-PORPHYRIN ARRAYS**

M. Martínez-García<sup>1</sup>, V. Gómez-Vidales<sup>1</sup>, A. Borja-Miranda<sup>1</sup>, O. Amelines-Sarria<sup>2</sup>, M. Rivera<sup>2</sup>

<sup>1</sup>Instituto de Química, Universidad Nacional Autónoma de México, México. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México. México.

■ **S1D-P048 INFLUENCE OF THE SURFACTANT ON THE SYNTHESIS OF IRON OXIDE NANOPARTICLES BY SOL-GEL METHOD**

M. F. Márquez-Quintana<sup>1</sup>, G. Carbajal-Franco<sup>1</sup>, J. H. Pacheco-Sánchez<sup>1</sup>

<sup>1</sup>Postgraduate Studies and Research Division. Instituto Tecnológico de Toluca-SEP. México

■ **S1D-P049 SYNTHESIS AND CHARACTERIZATION OF MONODISPERSE SILVER NANOWIRES CATALYZED BY METALLIC CHLORIDES**

Renata Nome<sup>1</sup>, Fernando Ely<sup>1</sup>

<sup>1</sup>Electronic Packaging Lab., CTI - Center for Information Technology Renato Archer, Brazil.

■ **S1D-P050 STUDY ON EFFECT OF FILMS SRO RTA OBTAINED BY HFCVD**

A. Mena<sup>1</sup>, G. García<sup>1</sup>, T. Díaz<sup>1</sup>, C. Morales<sup>1</sup>, E. Rosendo<sup>1</sup>, H. Juárez<sup>1</sup>, M. Pacio<sup>1</sup>, R. Galeazzi<sup>1</sup>, F.G. Nieto<sup>1</sup>

<sup>1</sup>CIDS-ICUAP, BUAP, México

- **S1D-P051 CONFORMATIONAL AND MORPHOLOGICAL STUDY OF CHITOSAN NANOHIDROGELS BY MD SIMULATION AND SEM**  
M.G. Pineda-Pimentel<sup>1</sup>, S.R. Vásquez-García<sup>1</sup>, N. Flores-Ramírez<sup>2</sup>, J. C. Fariás-Sánchez<sup>1</sup>

<sup>1</sup> Department of Chemical Engineering, Universidad Michoacana de San Nicolas de Hidalgo (UMSNH), México, <sup>2</sup>Department of Wood Engineering and Technology, UMSNH, México

- **S1D-P052 CHARACTERIZATION OF POROUS SILICON DECORED WITH ZnO OBTAINED BY ANODIZING ELECTROCHEMICALLY USING HF-CH<sub>3</sub>CH<sub>2</sub>OH OF HF-CH<sub>2</sub>O**

R. Juárez<sup>1</sup>, G. García<sup>1</sup>, C. Morales<sup>1</sup>, T. Díaz<sup>1</sup>, E. Rosendo<sup>1</sup>, H. Juárez<sup>1</sup>, M. Pacio<sup>1</sup>, R. Galeazzi<sup>1</sup>, F. G. Nieto<sup>2</sup>, V. López<sup>3</sup>.

<sup>1</sup> Centro de Investigaciones en Dispositivos Semiconductores CIDS-ICUAP, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Facultad de ciencias químicas, Benemérita Universidad Autónoma de Puebla, México. <sup>3</sup>Centro de Investigación en Biotecnología Aplicada CIBA-IPN, México.

- **S1D-P053 RELAXATION TIME OF FERROELECTRIC STATES IN 2D DISTRIBUTIONS OF SEMICONDUCTOR QUANTUM DOTS**

C. M. Cortés<sup>1</sup>, R. Moctezuma<sup>2</sup>, L. Meza<sup>1</sup>, and J. L. Carrillo<sup>1</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, México, <sup>2</sup> Instituto de Física de la Universidad Autónoma de San Luis Potosí.

- **S1D-P054 BRANCHED-FePt AND Au NANOWIRES VIA OLEYLAMINE-MEDIATED SYNTHESIS.**

D. A. Moraes<sup>1</sup>, T. L. Silva<sup>1</sup>, L.C. Varanda<sup>1</sup>

<sup>1</sup>Materials Group, Chemistry Institute of São Carlos, University of São Paulo, Brazil.

- **S1D-P055 A NEW SERIES OF LAYERED SOLIDS: TRANSITION METAL NITROPRUSSIDES. THEIR PREPARATION, CRYSTAL STRUCTURE AND RELATED PROPERTIES.**

D. M. Gil<sup>1</sup>, H. Osiry<sup>2</sup>, A. Cano, E. Reguera<sup>2</sup>

<sup>1</sup>Instituto de Química Inorgánica, Facultad de Bioquímica, Química y Farmacia, Universidad Nacional de Tucumán, Argentina. <sup>2</sup>Centro de Investigación en Ciencia Aplicada y

Tecnología Avanzada, Unidad Legaria, Instituto Politécnico Nacional, México

- **S1D-P056 SENSITIVITY RESPONSE AND PROPERTIES OF THIN FILMS DERIVED BY SPRAY PYROLYSIS ONTO FLEXIBLE SUBSTRATES**

J.A. Jaramillo Gómez<sup>1</sup>, B. EL FILALI<sup>1</sup>, M. Salmeron Guzmán<sup>1</sup>

<sup>1</sup> Instituto Politécnico Nacional, México.

- **S1D-P057 ANTIBACTERIAL PROPERTIES INCORPORATED TO COTTON TEXTILES**

O. Zaca Moran<sup>1</sup>, R. Delgado Macuil<sup>1</sup>, A. Orduña Díaz<sup>1</sup>, M. Rojas López<sup>1</sup>, H. Martínez Gutiérrez<sup>2</sup>, J.F. Sánchez Ramírez<sup>1</sup>, V. López Gayou<sup>1</sup>.

<sup>1</sup>CIBA-IPN México. <sup>2</sup>Centro de Nanociencias y Micro y Nanotecnologías, Instituto Politécnico Nacional, México

- **S1D-P058 GREEN SYNTHESIS OF GOLD AND SILVER NANOPARTICLES USING MIMOSA TENUIFLORA**

R.A. Iñiguez-Palomares<sup>1</sup>, B. E. Rodríguez-Vázquez<sup>1</sup>, Rodríguez-León<sup>1</sup>, R. E. Navarro-Gautrín<sup>2</sup>, A. Maldonado<sup>1</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, México. <sup>2</sup>Departamento de Polímeros y Materiales, Universidad de Sonora, México.

- **S1D-P059 FexOy Ag-NANOPARTICLES AN ELECTROCHEMICAL AND SOL-GEL PROCESS**

<sup>1</sup>M. Soria Aguilar, <sup>1</sup>F. Carrillo-Pedroza, <sup>1</sup>M. González-Zamarripa, <sup>1</sup>G. González-Zamarripa, <sup>1</sup>J. Ramos-Cano, <sup>1</sup>A. Garza-Zúñiga

<sup>1</sup>Facultad de Metalurgia, Universidad Autónoma de Coahuila, México

- **S1D-P060 MICROENCAPSULATION OF LINALOOL BY COMPLEX COACERVATION WITH WPI-CMC: EFFECT OF ULTRASOUND**

M. R. Porras Godínez<sup>1</sup>, R. Pedroza Islas<sup>2</sup>, E. San Martín Martínez<sup>1</sup>, G. Franco Rodríguez<sup>3</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada IPN, México, <sup>2</sup>Universidad Iberoamericana Campus Ciudad de México, <sup>3</sup>Facultad de Estudios Superiores Cuautitlán UNAM, México.

- **S1D-P061 COMBINED EFFECTS OF INTENSE LASER FIELD, ELECTRIC AND MAGNETIC FIELDS ON THE NONLINEAR OPTICAL PROPERTIES OF THE ASYMMETRIC AlGaAs QUANTUM WELL**

R. L. Restrepo<sup>1</sup>, F. Ungan<sup>2</sup>, E. Kasapoglu<sup>2</sup>, A. L. Morales<sup>3</sup>, C. A. Duque<sup>3</sup>





<sup>1</sup>Escuela de Ingeniería de Antioquia –, Colombia,  
<sup>2</sup>Department of Physics, Cumhuriyet University, Turkey,  
<sup>3</sup>Grupo de Materia Condensada-UdeA, Instituto de Física,  
Facultad de Ciencias Exactas y Naturales, Universidad de  
Antioquia UdeA, Colombia

■ **S1D-P062 ULTRASOUND-ASSISTED METHOD FOR PREPARATION OF AgI/TiO<sub>2</sub>/ETHYLENE-CO-VINYL ACETATE COPOLYMER NANOCOMPOSITES**

J. M. Andreu-Díaz<sup>1</sup>, A. Estrada-Monje<sup>2</sup> and A. B. Rodríguez-Vela<sup>1</sup>

<sup>1</sup>Universidad Iberoamericana León, México. <sup>2</sup>CIATEC, A.C. México,

■ **S1D-P063 SINTERIZATION TEMPERATURE EFFECTS IN Dy<sup>3+</sup> DOPPED HAFMIUM OXIDE. SPECTROSCOPIC STUDIES.**

César Leonardo Ordoñez Romero<sup>1</sup>, Cristina Flores J.<sup>1</sup>, José Hernández A.<sup>1</sup>, Enrique Camarillo G.<sup>1</sup>, Enrique Cabrera<sup>1</sup>, Manuel García Hipólito<sup>2</sup> and Héctor Murrieta S.<sup>1</sup>

<sup>1</sup>Instituto de Física U.N.A.M. México. <sup>2</sup>Instituto de Investigación en Materiales. U.N.A.M. México

ROOM: TULUM G  
TUESDAY, AUGUST 18

👤 Session Chair: **OLIVIA GRAEVE (UCSD-USA)**

■ **09:30 - 09:45 S1D-0019 MODELING OF PHOTOCATALYTIC PERFORMANCE OF BISMUTH BASED MATERIALS FOR DEGRADATION OF DYES AND EMERGENT CONTAMINANTS**

A.B. Jasso-Salcedo<sup>1</sup>, V.A. Escobar-Barríos<sup>1</sup>

<sup>1</sup>Instituto Potosino de Investigación Científica y Tecnológica, S.L.P., México.

■ **09:45 - 10:00 S1D-0020 CORE/SHELL SEMICONDUCTOR SYSTEMS: OPTICAL AND ELECTROCHEMICAL PROPERTIES**

T. Serrno<sup>1</sup>, I. Gómez<sup>1</sup>, R. Colás<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, México. <sup>2</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, México.

■ **10:00 - 10:15 S1D-0021 DEVELOPMENT OF PRESSURE SENSING USING MAGNETOSTRICTIVE Fe-Ga/Cu NANOWIRE ARRAY**

J. Park<sup>1</sup>, S. Reddy<sup>2</sup>, B. Stadler<sup>2</sup>, A. Flatau<sup>1</sup>

<sup>1</sup>Department of Aerospace Engineering, University of Maryland, USA. <sup>2</sup>Department of Electrical and Computer Engineering, University of Minnesota, USA

■ **10:15 - 10:30 S1D-0022 BI-METALLIC NANO-ALLOYS: A THERMODYNAMIC INSIGHT!**

G. Guisbiers<sup>1</sup>, R. Mendoza<sup>1</sup>, R. Mendoza-Cruz<sup>1</sup>, L. Bazán-Díaz<sup>1</sup>, J. J. Velázquez-Salazar<sup>1</sup>, S. Khanal<sup>1</sup>, F. Ruiz-Zepeda<sup>1</sup>, S. Mejía-Rosales<sup>2</sup>, R. L. Whetten<sup>1</sup>, M. José-Yacamán<sup>1</sup>

<sup>1</sup> Department of Physics & Astronomy, University of Texas at San Antonio, United States of America. <sup>2</sup> Center for Innovation, Research and Development in Engineering and Technology (CIDIT), and CICEFIM-Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León, Mexico

▶ **10:30 - 11:00 S1D-0023 Invited Talk DEVELOPMENT OF SUPPORTS AND NANO-CATALYSTS FOR HYDROTREATING OF FUELS**

Trino Zepeda Partida<sup>1</sup>, Jorge Noe Díaz de León<sup>1</sup>, Elena Smolentseva<sup>1</sup>, Gabriel Alonso<sup>1</sup> y Sergio Fuentes<sup>1</sup>

<sup>1</sup>Departamento de Nanocatálisis, Centro de Nanociencias y Nanotecnología de la UNAM, Baja California.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **MILTON MUÑOZ - NAVIA INAT-UCIENEGAM, MEX**

▶ **12:30 - 13:00 S1D-0024 Invited Talk CONDUCTING POLYMER NANOSTRUCTURES AS PROMISING PHOTOCATALYSTS UNDER VISIBLE LIGHT**

H. Remita<sup>1</sup>, S. Ghosh<sup>1</sup>, N. Kouamé<sup>1</sup>, L. Ramos<sup>2</sup>, S. Remita<sup>1,3</sup>, A. Dazzi<sup>1</sup>, A. Deniset<sup>1</sup>, P. Beaunier<sup>4</sup>, F. Goubard<sup>5</sup>, P.-H. Aubert<sup>5</sup>

<sup>1</sup>Laboratoire de Chimie Physique, Université Paris - France. <sup>2</sup>Laboratoire Charles Coulomb France. <sup>3</sup>Conservatoire National des Arts et Métiers, CNAM, France. <sup>4</sup>CNRS, Laboratoire de Réactivité de Surface, France. <sup>5</sup>LPPI, Université de Cergy-Pontoise, France

■ **13:00 - 13:15 S1D-0025 ELECTRICAL AND MORPHOLOGY CHARACTERIZATION OF AuCu AND SiCu NANO-ALLOYS ON Si(100) SUBSTRATE**

E. Novelo<sup>a,c</sup>, R. D. Maldonado<sup>b</sup>, P. Amézaga-Madrid<sup>a</sup>, G. M. Alonzo-Medina<sup>b</sup>

<sup>a</sup> Centro de Investigación en Materiales Avanzados, S.C., México. <sup>b</sup> Universidad Anáhuac-Mayab, Yucatán México. <sup>c</sup> Universidad Tecnológica Metropolitana, Yucatán México.



■ **13:15 - 13:30 S1D-0026 TETRALIN HYDROGENATION OVER Ir-Pt/SBA-15. OPTIMIZATION BY EXPERIMENTAL DESIGN**

V. Valles<sup>1</sup>, B. Ledesma<sup>1</sup>, L. Rivoira<sup>1</sup>, J. Cussa<sup>1</sup>, O. Anunziata<sup>1</sup> and A. Beltramone<sup>1</sup>

<sup>1</sup>NANOTEQ (Centro de Investigación en Nanociencia y Nanotecnología) Facultad Regional Córdoba- Universidad Tecnológica Nacional, Córdoba, Argentina

▶ **13:30 - 14:00 S1D-0027 Invited Talk SURFACE PATTERNING BASED ON NANOSPHERE LITHOGRAPHY AND ELECTRODEPOSITION OF CONDUCTIVE POLYMERS AND OTHER ORGANIC MOLECULES**

D. Schaming<sup>1</sup>, V.-Q. Nguyen<sup>1</sup>, P. Martin<sup>1</sup>, J.-C. Lacroix<sup>1</sup>

<sup>1</sup>Université Paris Diderot, Sorbonne Paris Cité, ITODYS, France.

✂ **14:00- 16:00 LUNCH**

♣ Session Chair: JOSE LUIS RODRIGUEZ LOPEZ (DMAV-IPICYT, MEX)

▶ **16:00 - 16:30 S1D-0028 Invited Talk EXOTIC MOLECULAR SYSTEMS: MOLECULAR MACHINES TO MOLECULAR SUPERCONDUCTORS**

S.-W. Hla<sup>1,2</sup>

<sup>1</sup>Department of Physics & Astronomy, Ohio University, USA. <sup>2</sup>Nanoscience and Technology Division, Argonne National Laboratory, USA.

■ **16:30 - 16:45 S1D-0029 NEAR-FIELD ANALYSIS OF FANO RESONANCES IN SYMMETRIC MULTILAYERED GOLD NANOSHELLS**

Ovidio Peña Rodríguez,<sup>1</sup> Antonio Rivera,<sup>1</sup> and Umapada Pal<sup>2</sup>

<sup>1</sup>Instituto de Fusión Nuclear, Universidad Politécnica de Madrid, Spain. <sup>2</sup>Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Spain. <sup>3</sup>Instituto de Física, Universidad Autónoma de Puebla, Mexico

■ **16:45 - 17:00 S1D-0030 SCALING OF AUGER RATES IN SUPERCHARGED 'GIANT' NANOCRYSTAL QUANTUM DOTS**

Sid Sampat<sup>1</sup>, Niladri S. Karan<sup>2</sup>, Tianle Guo<sup>1</sup>, Han Htoon<sup>2</sup>, Jennifer A. Hollingsworth<sup>2</sup> and Anton V. Malko<sup>1</sup>

<sup>1</sup>Department of Physics, University of Texas at Dallas, Los Alamos, NM

■ **17:00 - 17:15 S1D-0031 IN-SITU SAXS, UV-VIS AND SEM STUDY OF EARLY STAGES OF GROWTH AND NUCLEATION OF GOLD NANOPARTICLES IN THE TURKEVICH METHOD**

J. L. Sánchez-García<sup>1,2</sup>, J. L. Rodríguez-López<sup>1</sup>

<sup>1</sup>Advanced Materials Department Instituto Potosino de Investigación Científica y Tecnológica, México. <sup>2</sup>Faculty of Chemistry Universidad Autónoma de San Luis Potosí, México

■ **17:15 - 17:30 S1D-0032 FABRICATION OF ZnO MULTIPOD NANOSTRUCTURES THROUGH SEED MEDIATED LOW-TEMPERATURE SOLUTION GROWTH PROCESS**

Alejandra López Vazquez<sup>1</sup>, José Luis Montaña Priede<sup>2</sup>, Eunice De Anda<sup>2</sup>, Umapada Pal<sup>2</sup>

<sup>1</sup>Facultad de Ciencias Fisicomatemáticas, Universidad Autónoma de Puebla, México. <sup>2</sup>Instituto de Física, Universidad Autónoma de Puebla, México.

■ **17:30 - 17:45 S1D-0033 UNPRECEDENTED GROWTH OF ROD-LIKE NANOSTRUCTURES IN IRRADIATED WINE CORKS**

Jennifer Nguyen<sup>1</sup>, Jack Neal<sup>2</sup>, T. Randall Lee<sup>3</sup>, Francisco C. Robles Hernández,<sup>1</sup>

<sup>1</sup>Department of Engineering Technology, Mechanical Engineering Technology, University of Houston, USA. <sup>2</sup>Conrad N. Hilton College of Hotel and Restaurant Management, University of Houston, USA. <sup>3</sup>Departments of Chemistry and Chemical Engineering and the Texas Center for Superconductivity, University of Houston, USA

■ **17:45 - 18:00 S1D-0034 AN IN SITU STUDY OF NON-CATALYTIC METAL OXIDE NANOWIRE GROWTH**

Simas Rackauskas<sup>1</sup>, Hua Jiang<sup>1</sup>, Jakob B. Wagner<sup>2</sup>, Sergey D. Shandakov<sup>3</sup>, Thomas W. Hansen<sup>2</sup>, Esko I. Kauppinen<sup>1</sup> and Albert G. Nasibulin<sup>1,4</sup>

<sup>1</sup>Department of Applied Physics, Aalto University School of Science, Finland. <sup>2</sup>Center for Electron Nanoscopy, Technical University of Denmark, Denmark. <sup>3</sup>Kemerovo State University, Russia. <sup>4</sup>Skolkovo Institute of Science and Technology, Russia

▶ **18:00 - 18:30 S1D-0035 Invited Talk PROBING THE GROWTH AND BIODEGRADATION OF NANOMATERIALS WITH LIQUID TRANSMISSION ELECTRON MICROSCOPY**



Damien Alloyeau,<sup>1</sup> Walid Dachraoui,<sup>1</sup> Yasir Javed,<sup>1</sup>  
Guillaume Wang,<sup>1</sup> Dan Elgrabli,<sup>2</sup> Florence Gazeau,<sup>2</sup>  
Christian Ricolleau.<sup>1</sup>

<sup>1</sup>Laboratoire Matériaux et Phénomènes Quantiques,  
France. <sup>2</sup>Laboratoire Matières et Systèmes Complexes,  
CNRS/Université Paris - Diderot, France.

ROOM: TERRACE  
TUESDAY, AUGUST 18

▶ 18:30 -20:30 POSTER SESSION & COFFEE BREAK

■ **S1D-P064 CELLULOSE NANOPARTICLES FROM PINEAPPLE COMESTIBLE FIBER**

L.V. Alvarez-Salgado<sup>1</sup>, D. Arriaga Rodríguez<sup>1</sup>, D. J. Flores-Tapia<sup>1</sup>, H. A. Salgado-Zagal<sup>1</sup>, Manuel Granados-Baeza<sup>1</sup>, A. Licea-Claverie<sup>2</sup>, A. Zizumbo<sup>2</sup>, A. Álvarez-Castillo<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Zacatepec, División de Estudios de Posgrado e Investigación y Departamento de Ingeniería Química y Bioquímica, México. <sup>2</sup>Centro de Graduados e Investigación, Instituto Tecnológico de Tijuana, México

■ **S1D-P065 SYNTHESIS AND CHARACTERIZATION OF FUNCTIONALIZED NANO MAGNETITE WITH PHTHALOCYANINES FOR USE IN PHOTODYNAMIC THERAPY**

M.A. Balcázar-Pérez<sup>1</sup>, G. Ramírez-García<sup>1</sup>, R. Galindo<sup>1,2</sup>

<sup>1</sup>División de Ciencias Naturales y Exactas, Campus Guanajuato, Universidad de Guanajuato, Mexico. <sup>2</sup>Consejo Nacional de Ciencia y Tecnología, México, D.F.

■ **S1D-P066 AMBIENT ATMOSPHERE-PROCESSABLE, PRINTABLE Cu ELECTRODES FOR FLEXIBLE DEVICE APPLICATIONS: STRUCTURAL WELDING ON A MILLISECOND TIMESCALE OF SURFACE OXIDE-FREE Cu NANOPARTICLES**

Sunho Jeong<sup>1</sup>, Youngmin Choi<sup>1</sup>

<sup>1</sup> Korea Research Institute of Chemical Technology (KRICT), Republic of Korea

■ **S1D-P067 MICROSCOPIC INVESTIGATIONS OF CARBON NANOTUBES DECORATED WITH NOBLE METAL NANOPARTICLES**

A.D. Dobrzańska-Danikiewicz<sup>1</sup>, D. Łukowiec<sup>1</sup>, W. Wolany<sup>1</sup>, D. Cichocki<sup>1</sup>

<sup>1</sup>Faculty of Mechanical Engineering, Silesian University of Technology, Poland

■ **S1D-P068 SINGLE STEP GROWTH OF Au-ZnO HETERO-NANOSTRUCTURES AND THEIR APPLICATION AS EFFICIENT COLD FIELD EMITTER: EXPERIMENTAL STUDY AND DFT SIMULATION**

A. Ghosh<sup>1</sup>, B. Raxit<sup>1</sup>, P. Guha<sup>1</sup> and P. V. Satyam<sup>1</sup>

<sup>1</sup>Institute of Physics, Sainik School, India

■ **S1D-P069 SYNTHESIS AND CHARACTERIZATION OF DIFFERENT TITANIA NANOSTRUCTURES**

P. Hernández- Hipólito<sup>1</sup>, T. E. Klimova Berestneva<sup>2</sup>, M. Martínez-García<sup>1</sup>

<sup>1</sup>Instituto de Química, Universidad Nacional Autónoma de México (UNAM), México. <sup>2</sup>Laboratorio de Nanocatálisis, Departamento de Ingeniería Química, Facultad de Química, Universidad Nacional Autónoma de México (UNAM), México.

■ **S1D-P070 SYNTHESIS OF ZnO HOLLOW NANOFIBERS FOR GAS SENSING APPLICATION**

Sung-Ho Hwang<sup>1</sup>, Sang Kyoo Lim<sup>1</sup>, Soo-Keun Lee<sup>1</sup>, Young Kwang Kim<sup>1</sup>, and Seong Hui Hong<sup>1</sup>

<sup>1</sup>Division of Nano and Energy Convergence Research, Daegu Gyeongbuk Institute of Science and Technology (DGLST), Republic of Korea

■ **S1D-P071 SINGLE-STEP AND ACID-FREE PRODUCTION OF SILVER DECORATED CARBON NANOTUBES**

José Alfredo Jiménez Rodríguez<sup>1,2</sup>, Gerd Reiband Schneider<sup>1</sup>, Jacobo Martínez<sup>1</sup>, Eduardo Palacios<sup>3</sup>, Oscar Pablo Mendieta<sup>2</sup>, Vanessa Arana Sosa<sup>2</sup>, Felipe Cervantes Sodi<sup>4</sup>

<sup>1</sup>Laboratorio de Nanotecnología, Proyectos Especiales, Estado de México, <sup>2</sup>Universidad Tecnológica Fidel Velázquez, Estado de México. <sup>3</sup>Instituto Mexicano del Petróleo, México. <sup>4</sup>Departamento de Física y Matemáticas, Universidad Iberoamericana, México

■ **S1D-P072 SYNTHESIS OF ZnO HOLLOW NANOFIBERS PHOTODEPOSITED WITH CuO NANOPARTICLES FOR GAS SENSOR APPLICATION**

Sang Kyoo Lim<sup>1</sup>, Sung-Ho Hwang<sup>1</sup>, Soo-Keun Lee<sup>1</sup>, Young Kwang Kim<sup>1</sup>, and Seong Hui Hong<sup>1</sup>

<sup>1</sup> Division of Nano and Energy Convergence Research, Daegu Gyeongbuk Institute of Science and Technology (DGLST), Republic of Korea

■ **S1D-P073 EFFECT OF THE LOW-TEMPERATURE OXIDATION ON THE STRUCTURAL AND MORPHOLOGICAL PROPERTIES OF ZINC NANODISKS**

**AND NANOWIRES PREPARED BY THERMAL EVAPORATION**

Roberto López<sup>1</sup>, Enrique Viguera<sup>1</sup>, Pedro Acuña<sup>1</sup>

<sup>1</sup>Laboratorio de Investigación y Desarrollo de Materiales Avanzados (LIDMA), Facultad de Química, Universidad Autónoma del Estado de México, México

**■ S1D-P074 SYNTHESIS AND CHARACTERIZATION OF Pd CATALYSTS SUPPORTED ON TiO<sub>2</sub> NANOTUBES**

M. E. Martínez-Klimov<sup>1</sup>, P. Hernández-Hipólito<sup>1</sup>, T. Klimova<sup>2</sup>, M. Martínez-García<sup>1</sup>

<sup>1</sup>Instituto de Química, Universidad Nacional Autónoma de México, México <sup>2</sup>Facultad de Química, Universidad Nacional Autónoma de México, México

**■ S1D-P075 ROLE OF THE INTERPHASE ON THE ELECTRICAL PROPERTIES OF SILICONE/SiO<sub>2</sub> NANOCOMPOSITES**

Myriam Paredes Olgún<sup>1,2</sup>, Chitral J. Angamma<sup>1</sup> and Shesha H. Jayaram<sup>1</sup>

<sup>1</sup>University of Waterloo, <sup>2</sup>Instituto Politécnico Nacional, México.

**■ S1D-P076 RAMAN MODES AND PLASMON RESONANCE PB NANOPARTICLES OBTAINED IN EXTRACT OF OPUNTIA FICUS-INDICA PLANT**

L.P. Ramirez-Rodríguez<sup>1</sup>, T. Mendivil-Reynoso<sup>2</sup>, S.J. Castillo<sup>2</sup>, M. Cortez-Valadez<sup>2</sup>, M. Flores-Acosta<sup>2</sup> and R. Ramirez-Bon<sup>3</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, México.

<sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, México. <sup>3</sup>Centro de Investigación y Estudios Avanzados del IPN, México.

**■ S1D-P077 ENHANCED RADIATION THERAPY WITH INTERNALIZED GOLD NANOPARTICLES**

Y. Qiao<sup>1</sup>, P. Zhang<sup>1</sup>, L. Ma<sup>1</sup>, M. Su<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering, Northeastern University, Boston,

**■ S1D-P078 ORGANIC ADDITIVES AS ANTIMICROBIAL AGENTS IN THERMOPLASTICS COMPOUNDS**

D. Tomacheski<sup>1,3</sup>, M. Pittol<sup>2,3</sup>, V. Ribeiro<sup>3</sup>, R. M. C. Santana<sup>1</sup>

<sup>1</sup>Universidade Federal do Rio Grande do Sul – UFRGS, Brasil, <sup>2</sup>Universidade do Vale do Rio dos Sinos - Unisinos, Brasil, <sup>3</sup>Softer Brasil Compostos Termoplásticos LTDA - Brasil

**■ S1D-P079 MORPHOLOGICAL AND SPECTROSCOPIC STUDIES OF CHITIN NANOWHISKERS**

V. Campos-Cornelio<sup>1</sup>, N. Flores-Ramírez<sup>2</sup>, S.R. Vasquez-García<sup>3</sup>, L. Domratheva-Lvova<sup>2</sup>, L. García-Gonzalez<sup>4</sup>

<sup>1</sup>Institutional Master in Biological Sciences, Universidad Michoacana de San Nicolás de Hidalgo (UMSNH), México.

<sup>2</sup>Department of Wood Engineering and Technology, UMSNH, México. <sup>3</sup>Department of Chemical Engineering, UMSNH, México. <sup>4</sup>Research Center for Micro and Nanotechnology, Universidad Veracruzana, Mexico

**■ S1D-P080 TREATMENT WITH WATER TO OBTAINING TiO<sub>2</sub> NANOTUBES WITH NANOPARTICLES ANATASE WALLS**

Ildefonso Zamudio-Torres<sup>1</sup>, José de Jesús Pérez-Bueno<sup>1</sup>, Yunny Meas-Vong<sup>1</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica, Parque Tecnológico Querétaro, Sanfandila,

**■ S1D-P081 SYNTHESIS AND CHARACTERIZATION OF MAGNESIUM NANOPARTICLES CONFINED IN CARBON CRYOGELS**

T.L. Mercado Castillo<sup>1</sup>, C.N. Vargas Hernández<sup>2</sup>, J.G. Cabañas Moreno<sup>2</sup> and O. Solorza Feria<sup>2</sup>

<sup>1</sup>Escuela Superior de Ingeniería Química e Industrias Extractivas, México D.F. <sup>2</sup>Centro de Investigación y Estudios Avanzados del IPN, México D.F.

**■ S1D-P082 SELF-SUPPORTED NICKEL NANOWIRE ARRAYS FOR NON-ENZYMATIC GLUCOSE DETECTION**

Olvera-Martínez J, A<sup>1</sup>; Velázquez-Galván Y<sup>1</sup>; Encinas A<sup>2</sup>

<sup>1</sup>Facultad de Ciencias, Universidad Autónoma de San Luis Potosí, México. <sup>2</sup>División de Materiales Avanzados, Instituto Potosino de Investigación Científica y Tecnológica.

**■ S1D-P083 STRUCTURAL AND COMPOSITIONAL ANALYSIS IN ZINC OXIDE-GRAPHENE OXIDE.**

Y. A. León-Nataret<sup>1</sup>, A. I. Díaz-Cano<sup>1</sup>, E. Bravo-González<sup>1</sup>, E. Rubio<sup>2</sup> and Carlos. A. Camacho O.<sup>3</sup>

<sup>1</sup>Instituto Politécnico Nacional, UPIITA, México.

<sup>2</sup>Benemérita Universidad Autónoma de Puebla, México.

<sup>3</sup>Universidad Politécnica del Valle de México, México

**■ S1D-P084 STRUCTURAL, HARDNESS AND TRIBOLOGICAL BEHAVIOR OF TiAlN COATINGS PREPARED BY SPUTTERING**

García González<sup>1</sup>, S. R. Vásquez García<sup>2</sup>, L. Zamora Peredo<sup>1</sup>, A. López Velázquez<sup>3</sup>, L. Domratheva Lvova<sup>4</sup>, N. Flores Ramírez<sup>4</sup>, M. G. Garnica Romo<sup>5</sup>, T. Hernández Quiroz<sup>1</sup> and J. Hernández Torres<sup>1</sup>



<sup>1</sup>Universidad Veracruzana, Centro de Investigación en Micro y Nanotecnología, México.<sup>2</sup> Universidad Michoacana de San Nicolás de Hidalgo, División de Estudios de Posgrado de la Facultad de Ingeniería Química, México.<sup>3</sup> Universidad Veracruzana, Facultad de Ingeniería Mecánica Eléctrica -, Xalapa, Veracruz, México.<sup>4</sup> Universidad Michoacana de San Nicolás de Hidalgo, Facultad de Ingeniería en Tecnología de la Madera, México.<sup>5</sup> Universidad Michoacana de San Nicolás Hidalgo, Facultad de Ingeniería Civil, México.

■ **S1D-P085 SYNTHESIS, FOTOLUMINESCENCE AND CATHODOLUMINESCENCE CHARACTERIZATION OF ZrO<sub>2</sub>:Er<sup>3+</sup> FILMS.**

Adan Martínez Hernández<sup>1</sup>, José Guzmán Mendoza<sup>2</sup>, Manuel García-Hipólito<sup>3</sup>, Ciro Falcony Guajardo<sup>4</sup>

<sup>1,2</sup> Centro de Investigación de Ciencia Aplicada y Tecnología Avanzada, IPN, México D. F. <sup>3</sup> Instituto de Investigaciones en Materiales, UNAM, México, D. F. <sup>4</sup> Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional, México.

■ **S1D-P086 NANOCOMPOSITES SILOXANE-POLYETHER SKIN FILM-FORMING SYSTEMS SEEKING APPLICATIONS AS DRUG DELIVERY DEVICES**

Mac-Kedson Medeiros Salviano Santos<sup>1</sup>, Marcelo Henrique Sousa<sup>1</sup>, Juliano Alexandre Chaker<sup>1</sup>

<sup>1</sup>Universidade de Brasília, Faculdade de Ceilândia, Brazil

■ **S1D-P087 NOVEL POLYELECTROLYTE WITH ARSONIC ACID GROUPS USEFUL TO FORM AND STABILIZE GOLD AND SILVER NANOPARTICLES**

J. V. García-González<sup>1</sup>, Ana M. Herrera-González<sup>2</sup>, J. García-Serrano<sup>2</sup>

<sup>1</sup>Área Académica de Química, Universidad Autónoma del Estado de Hidalgo, México. <sup>2</sup>Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, México.

■ **S1D-P088 CARBON NANOTUBES SYNTHESIS BY BUTANOL CATALYTIC PYROLYSIS**

C. J. Gutiérrez García<sup>1</sup>, F. G. Granados Martínez<sup>1</sup>, F. Paz Zavala<sup>1</sup>, L. Domratcheva Lvova<sup>1</sup>, U. Camacho Martínez<sup>1</sup>, M. R. Cisneros Magaña<sup>1</sup>, L. García González<sup>2</sup>, M. de L. Mondragón Sánchez<sup>3</sup>

<sup>1</sup>Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>2</sup>Centro de Investigaciones en Micro y Nanotecnología de la Universidad Veracruzana, México. <sup>3</sup>Instituto Tecnológico de Morelia, México

■ **S1D-P089 OPTICAL AND STRUCTURAL PROPERTIES CdSe:Ni<sup>2+</sup> NANOCRYSTALS**

Marcial Zamora Tototzintle<sup>1</sup>, Martin Lazcano Hernández<sup>1</sup>, M. Zamora Totzintle<sup>1</sup>, M. Chavez Portillo<sup>1</sup>, Miguel Hernández Hernández<sup>1</sup>, Oscar Portillo Moreno<sup>1</sup>

<sup>1</sup>Benemerita Universidad Autonoma de Puebla

■ **S1D-P090 INCREASED PORCENT REFLECTANCE OF POROUS SILICON MULTILAYERS IN THE ULTRAVIOLET AS A RESULT OF THERMAL OXIDATION**

R. Jiménez<sup>1</sup>, G. García, F. Morales, H. Juárez, T. Díaz, E. Rosendo, R. Galeazzi, G. Nieto, C. Morales, M. Pacio

<sup>1</sup>Centro de Investigación en Dispositivos Semiconductores, CIDS, ICUAP, BUAP, México.

■ **S1D-P091 INFLUENCE OF LANTHANUM DOPING IN FERROELECTRIC PROPERTIES OF LiNbO<sub>3</sub> NANOPARTICLES**

Carlos Diaz<sup>1</sup>, Jesús Heiras<sup>2</sup>, Jorge Portelles<sup>2,3,4</sup>, Moisés Hernández<sup>4</sup>, M.D. Durruthy<sup>4</sup>, Enrique Ramirez<sup>1</sup> and Jorge Lopez<sup>1</sup>.

<sup>1</sup>Department of Physics of University of Texas at El Paso, USA. <sup>2</sup>Universidad Nacional Autónoma de México, Centro de Nanociencias y nanotecnología, México. <sup>3</sup>Facultad de Física, Universidad de La Habana, Cuba. <sup>4</sup>Instituto de Matemática, Física aplicada y Cibernética, Cuba.

■ **S1D-P092 INTENSE LASER FIELD EFFECTS ON THE NONLINEAR OPTICAL RECTIFICATION AND SECOND-HARMONIC GENERATION IN A WOODS-SAXON QUANTUM WELL UNDER APPLIED ELECTRIC AND MAGNETIC FIELDS**

R. L. Restrepo<sup>1</sup>, J. C. Martínez-Orozco<sup>2</sup>, A. L. Morales<sup>3</sup>, C. A. Duque<sup>3</sup>

<sup>1</sup>Escuela de Ingeniería de Antioquia –EIA- Colombia, <sup>2</sup>Unidad Académica de Física, Universidad Autónoma de Zacatecas, México, <sup>3</sup>Grupo de Materia Condensada-UdeA, Instituto de Física, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia UdeA, Colombia

■ **S1D-P093 RHEOLOGY OF THE SPONGE PHASE OF THE SDS-HEXANOL-BRINE SYSTEM AND ITS TRANSITION TO A LAMELLAR PHASE**

Z.C. Briceño-Ahumada<sup>1</sup>, J.F.A. Soltero-Martínez<sup>2</sup>, A.D. Maldonado-Arce<sup>3</sup>

<sup>1</sup>Departamento de Investigación en Polímeros y Materiales de la Universidad de Sonora Blvd. México. <sup>2</sup>Departamento de Ingeniería Química de la Universidad de Guadalajara,

México. <sup>3</sup>Departamento de Física de la Universidad de Sonora México

■ **S1D-P094 SYNTHESIS AND CHARACTERIZATION OF MAGNETIC DRUG DELIVERY SYSTEMS: FERROGELS**

Lenin Roberto Contreras Morales<sup>1</sup>, Karla Baca Ramos<sup>1</sup>, Carlos Alberto Martínez Pérez<sup>1</sup>, Christian Chapa González<sup>1</sup> and Perla E. García Casillas<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología. Universidad Autónoma de Ciudad Juárez. México.

■ **S1D-P095 SYNTHESIS OF ZnO NANOPARTICLES BY A MICROEMULSION. OPTIMIZATION BY USING THE TAGUCHI'S METHOD**

Ana María Pineda Reyes<sup>1</sup>, M. de la L. Olvera Amador<sup>1,2</sup>

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, Centro de Investigación y de Estudios Avanzados del IPN, CINVESTAV-IPN, México.

<sup>2</sup>Departamento de Ingeniería Eléctrica-SEES, Centro de Investigación y de Estudios Avanzados del IPN, CINVESTAV-IPN, México.

■ **S1D-P096 SYNTHESIS OF PURE AND EUROPIUM DOPED Lu<sub>2</sub>O<sub>3</sub> BY SOL-GEL METHOD AND THEIR ANTIOXIDANT EVALUATION**

María Luz Carrera-Jota<sup>1</sup>, Margarita García-Hernández<sup>1</sup>, Perla Yolanda López-Camacho<sup>1</sup>, Arturo Olvera-Salazar<sup>2</sup>, Melchor Martínez-Herrera<sup>1</sup>, Angel de Jesús Morales-Ramírez<sup>3</sup>, Hiram Isaac Beltrán-Conde<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana, Unidad Cuajimalpa; México. <sup>2</sup>Universidad Del Valle de México Campus Lomas Verdes, Edo. Méx. <sup>3</sup>Instituto Politécnico Nacional, CIITEC, México

■ **S1D-P097 CO<sub>2</sub> ADSORPTION ON MEXICAN ERIONITE ZEOLITE WITH NANOPARTICLES OF CALCIUM**

L. Corona<sup>1</sup>, M. A. Hernández<sup>2</sup>

<sup>1,2</sup>Departamento de Investigación en zeolitas, Posgrado en Ciencias Ambientales. Instituto de Ciencias de la Benemérita Universidad Autónoma de Puebla. México.

■ **S1D-P098 INFLUENCE OF THE HEAT TREATMENT IN ARTISANAL HANDMADE TILES: EMPIRICAL KNOWLEDGE VS LABORATORY TECHNOLOGY**

J.D. Navarro-García<sup>1</sup>, M. Muñoz-Navia<sup>1</sup>

<sup>1</sup>Nanotechnology Engineering, Universidad de La Ciénega del Estado de Michoacán de Ocampo, México.

■ **S1D-P099 EFFECT OF STEARIC ACID ON CdSe AND CdTe QUANTUM DOTS COLLOIDAL SYNTHESIS**

A. Matsumoto<sup>1,2</sup>, M. O. da Silva<sup>1</sup>, R. M. Filho<sup>2</sup> and F. Ely<sup>1</sup>

<sup>1</sup>IC Packaging Lab., CTI - Center for Information Technology Renato Archer, Brazil. <sup>2</sup>Chemistry Engineering Faculty, UNICAMP, Brazil.

■ **S1D-P100 NEW BIONANOFLUIDS CONTAINING Au NANOPARTICLES: PREPARATION AND THERMAL PROPERTIES**

G. López Gamboa<sup>1,2</sup>, J. L. Jiménez-Pérez<sup>1</sup>, Z. N. Correa Pacheco<sup>3</sup>, J. F. Sánchez Ramírez<sup>4</sup>, S. Evangelista-Lozano<sup>3</sup>, S. Bautista-Baños<sup>3</sup>, M. Sánchez-Rivera<sup>5</sup>, V. E. López y López<sup>4</sup>, V. López-Gayou<sup>4</sup>

<sup>1</sup>UPIITA-Instituto Politécnico Nacional, México, <sup>2</sup>Universidad Politécnica del Valle de Toluca (UPVT) México, <sup>3</sup>Instituto Politécnico Nacional-Centro de Desarrollo de Productos Bióticos. México. <sup>4</sup>CIBA-Instituto Politécnico Nacional, México, <sup>5</sup>Universidad Interamericana, México.

■ **S1D-P101 EFFECT OF WETTING LAYER ON ELECTRONIC PROPERTIES OF NON-UNIFORM VOLCANO SHAPED QUANTUM RING**

Fredy Rodríguez-Prada<sup>1,2</sup>, Willian Gutiérrez<sup>1</sup>

<sup>1</sup>Escuela de Física, Universidad Industrial de Santander (UIS), Colombia. <sup>2</sup>Facultad de Ciencias Exactas, Físicas y Naturales, Universidad de Santander (UDES), Bucaramanga, Colombia

■ **S1D-P102 DESING AND SYNTHESIS OF NANOMATERIALS FROM Cu(II) PORPHYRIN ARRAYS**

Martínez-García<sup>1</sup>, V. Gómez-Vidales<sup>1</sup>, A. Borja-Miranda<sup>1</sup>, O. Amelines-Sarria<sup>2</sup> and M. Rivera<sup>2</sup>

<sup>1</sup>Instituto de Química, Universidad Nacional Autónoma de México, México. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México. México.

ROOM: TULUM C  
WEDNESDAY, AUGUST 19

👤 Session Chair: MILTON MUÑOZ - NAVIA  
INAT-UCIENEGAM, MEX

▶ **09:00 - 09:30 S1D-0036 Invited Talk HYBRID MAGNETIC HETEROSTRUCTURES**

Ivan K. Schuller<sup>1</sup>, A. Basaran<sup>1</sup>, I. Valmianski<sup>1</sup>, J. de la Venta<sup>2</sup>, J. G. Ramirez<sup>1</sup>, T. Saerbeck<sup>3</sup>, S. Wang<sup>3</sup>

<sup>1</sup>Physics Department, UCSD, USA. <sup>2</sup>Department of Physics, Colorado State University, Fort Collins, USA. <sup>3</sup>Institut Laue-Langevin, France. <sup>4</sup>Materials Science Division, Lawrence Berkeley National Laboratory, University of California, USA





■ **09:30 - 09:45 S1D-0037 MAGNETIZATION REVERSAL PROCESSES IN SMALL TRANSITION-METAL CLUSTERS FROM MULTIAXIAL MAGNETIC ANISOTROPY**

J. Dorantes-Davila<sup>1</sup>, Z. Sheikh-Abbasi<sup>2</sup>, D. Gallina<sup>2</sup>, G. M. Pastor<sup>2</sup>

<sup>1</sup>Instituto de Física, Universidad Autónoma de San Luis Potosí, Mexico, <sup>2</sup>Institut für Theoretische Physik, Universität Kassel, Germany.

■ **09:45 - 10:00 S1D-0038 PATTERNED MAGNETIC RECORDING MEDIA - ISSUES AND CHALLENGES**

H. Gavrilă<sup>1</sup>, D. E. Gavrilă<sup>1</sup>

<sup>1</sup>University "Politehnica" of Bucharest, Romania

■ **10:00 - 10:15 S1D-0039 THE ALUMINIUM MATRIX NANOCOMPOSITES WITH HALLOYSITE AND CARBON NANOTUBES**

Leszek A. Dobrzanski<sup>1</sup>, Błażej Tomiczek<sup>1</sup>, Mirosława Pawlyta<sup>1</sup>, Magdalena Kujawa<sup>1</sup>, Magdalena Macek<sup>1</sup>

<sup>1</sup>Silesian University of Technology, Poland

■ **10:15 - 10:30 S1D-0040 THE MIXED POTENTIAL THEORY IS THE MECHANISM RESPONSIBLE FOR THE FORMATION OF HOLLOW MAGNETIC NANOPARTICLES**

M.R. Reda<sup>1,2</sup>

<sup>1</sup>CanadElectrochim, Calgary AB Canada. <sup>2</sup>Chemical Engineering, Kuwait University, Kuwait

▶ **10:30 - 11:00 S1D-0041 *Invited Talk* GRAPHENE OXIDE INCORPORATED PSU MEMBRANE**

Taeseon Hwang<sup>1</sup>, Kwang J. Kim<sup>1</sup>, and Woosoon Yim<sup>1</sup>

<sup>1</sup>Mechanical Engineering Department, University of Nevada, Las Vegas (UNLV). USA

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **CLAUDIA GUTIERREZ WING (ININ-MEX)**

▶ **12:30 - 13:00 S1D-0042 *Invited Talk* BISMUTH NANOPARTICLES SYNTHESIZED BY LASER ABLATION OF SOLIDS IN LIQUIDS**

Enrique Camps<sup>1</sup>, Mariela Flores Castañeda<sup>1</sup>, Stephen Muhl<sup>2</sup>, Sandra E. Rodil<sup>2</sup>

<sup>1</sup>Departamento de Física, Instituto Nacional de Investigaciones Nucleares, México. <sup>2</sup>Instituto de

Investigaciones en Materiales, Universidad Nacional Autónoma de México, México.

■ **13:00 - 13:15 S1D-0043 STUDY OF FILM MECHANICAL PROPERTIES OF CORE-SHELL POLYMER AND COPOLYMER OF STYRENE AND BUTYL ACRYLATE.**

M. Puca-Pacheco<sup>1,2</sup>, E. Tacuri-Calanchi<sup>2</sup>, A.F. Figueroa-Tauquino<sup>2</sup>, M.G. Neira-Velázquez<sup>3</sup>, S. Duarte-Aranda<sup>4</sup>, G. Canche-Escamilla<sup>4</sup>.

<sup>1</sup>Universidad San Ignacio de Loyola (USIL) Av. Fontana N°550- La Molina –Lima –Perú. <sup>2</sup>Universidad Nacional Mayor de San Marcos (UNMSM) - Lima-Perú. <sup>3</sup>Centro de Investigación en Química Aplicada (CIQA)- México. <sup>4</sup>Centro de Investigación Científica de Yucatán, A.C. (CICY)- México.

■ **13:15 - 13:30 S1D-0044 SIMULATIONS ON NONTHERMAL MELTING AND PERIODIC NANOSTRUCTURING OF MATERIALS UPON FEMTOSECOND LASER EXCITATION**

Martin E. Garcia<sup>1</sup>

<sup>1</sup>Institute of Physics, FB10 and Center for Interdisciplinary Nanostructure Science and Technology, University of Kassel, Germany

▶ **13:30 - 14:00 S1D-0045 *Invited Talk* NON-THERMAL PLASMA SYNTHESIS OF NANOPOWDERS**

L. Mangolini<sup>1</sup>

Mechanical Engineering Department, Materials Science and Engineering Program, University of California, Riverside. USA.

☒ **14:00- 16:00 LUNCH**

👤 Session Chair: **OLIVIA GRAEVE (UCSD-USA)**

▶ **16:00 - 16:30 S1D-0046 *Invited Talk* ELECTROCATALYTIC POROUS NANOSTRUCTURES FOR LI-S BATTERY APPLICATIONS**

Leela Mohana Reddy Arava<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, Wayne State University, USA

■ **16:30 - 16:45 S1D-0047 SILICON NANOWIRE ELECTROLUMINESCENCE**

M. du Plessis<sup>1</sup> and T.H. Joubert<sup>1</sup>

<sup>1</sup>Carl and Emily Fuchs Institute for Microelectronics, Department of Electrical, Electronic and Computer Engineering, University of Pretoria, South Africa.



■ **16:45 - 17:00 S1D-0048 THERMOLUMINESCENCE OF GAMMA IRRADIATED GRAPHENE AND GRAPHITE SYNTHESIZED FOR USE IN DOSIMETRY (TL-D).**

A. Ortiz Morales<sup>1,3</sup>, G. L. Rueda Morales<sup>2</sup>, J. Ortiz Lopez<sup>2</sup>, B. Leal Acevedo<sup>3</sup>, G. Ortega Cervantes<sup>2</sup>, R. Gómez Aguilar<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, UPIITA, México. <sup>2</sup>Instituto Politécnico Nacional, ESFM, México, <sup>3</sup>Universidad Nacional Autónoma de México, Unidad de Irradiación y Seguridad Radiológica, Instituto de Ciencias Nucleares, México.

■ **17:00 - 17:15 S1D-0049 SYNTHESIS OF NYLON-6/ GRAPHENE NANOCOMPOSITES BY MICROWAVE- ASSISTED POLYMERIZATION**

M. Navarro-Rosales<sup>1</sup>, C. A. Ávila-Orta<sup>1</sup>, M.G. Neira-Velázquez<sup>1</sup>, P. González-Morones<sup>1</sup>, J. A. Valdez-Garza<sup>1</sup>, A. Yescas-Yescas<sup>1</sup>

<sup>1</sup>Centro de Investigación en Química Aplicada (CIQA), México.

■ **17:15 - 17:30 S1D-0050 MICROSTRUCTURAL AND MORPHOLOGY ANALISIS OF SILICON CARBIDE OBTAINED AT LOW TEMPERATURES**

R. Murrieta-Yescas<sup>1</sup>, L. G. Ceballos-Mendivil<sup>3</sup>, P. Zavala-Rivera<sup>2</sup>, R. E. Cabanillas López<sup>2</sup>, J. R. Herrera-Urbina<sup>2</sup>, J. C. Tánori-Córdova<sup>1</sup>

<sup>1</sup>Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora, México. <sup>2</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora, México. <sup>3</sup>Facultad de Ingeniería Mochis, Universidad Autónoma de Sinaloa, México.

■ **17:30 - 17:45 S1D-0051 CADMIUM SULFIDE THIN FILMS ONTO CARBON NANOTUBE/POLYMER SUBSTRATES BY CHEMICAL BATH DEPOSITION**

M. Moreno<sup>1</sup>, J.E. Corona<sup>2</sup>, A.I. Oliva<sup>2</sup>, A.I. Oliva-Avilés<sup>1</sup>

<sup>1</sup>Universidad Anáhuac Mayab, División de Ingeniería y Ciencias Exactas, México. <sup>2</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Mérida, Departamento de Física Aplicada, México

■ **17:45 - 18:00 S1D-0052 FORMATION AND ATOMIC STRUCTURE OF HIERARCHICAL BORON NITRIDE NANOSTRUCTURES**

R.A. Silva-Molina<sup>1</sup>, E. Muñoz-Sandoval<sup>2</sup>, R. Gámez-Corrales<sup>3</sup>, D. Valdéz-Pérez<sup>4</sup>, and R. A. Guirado-López<sup>1</sup>

<sup>1</sup>Instituto de Física “Manuel Sandoval Vallarta”, Universidad Autónoma de San Luis Potosí, México. <sup>2</sup>Advanced Materials Department, IPICYT, México. <sup>3</sup> Departamento de Física, Universidad de Sonora, México. <sup>4</sup> SEPI-ESIME Unidad

Zacatenco, Departamento de Telecomunicaciones, Instituto Politécnico Nacional, México

► **18:00 - 18:30 S1D-0053 Invited Talk THE CdS/CdTe SOLAR CELLS WITH REACTIVELY SPUTTERED  $\alpha$ -MoOx/ Mo BACK CONTACT**

Víctor Rejón<sup>1</sup>, R. Mis-Fernández<sup>1</sup>, E. Hernández-Rodríguez<sup>1</sup>, I. Riech<sup>2</sup> and Juan Luis Peña<sup>1</sup>

<sup>1</sup>Applied Physics Department, CINVESTAV-IPN, México, <sup>2</sup>Materials Science Laboratory, Faculty of Engineering, University of Yucatán, México

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

► **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S1D-P103 SYNTHESIS AND CHARACTERIZATION OF Au/SiO<sub>2</sub> CORE-SHELL NANOSTRUCTURES WITH A MODIFIED STÖBER METHOD**

I.N. Ávila-Hernández<sup>1</sup>, A.G. Palestino-Escobedo<sup>1</sup>, B.E. Handy<sup>1</sup>, M.J. Yacamán<sup>2</sup>, M.G. Cárdenas-Galindo<sup>1</sup>

<sup>1</sup>CIEP-Facultad de Ciencias Químicas, Universidad Autónoma de San Luis Potosí (UASLP), México, <sup>2</sup>Department of Physics and Astronomy, The University of Texas at San Antonio (UTSA), United States.

■ **S1D-P104 SIZE AND SHAPE-CONTROLLED WÜSTITE AND Co-WÜSTITE MAGNETIC NANOPARTICLES OBTAINED BY BOTTOM-UP METHOD**

W. Beck Jr.<sup>1</sup>, D. A. Moraes<sup>1</sup>, H. R. Neves<sup>1</sup>, L. C. Varanda<sup>1</sup>

<sup>1</sup>University of São Paulo

■ **S1D-P105 INCORPORATION AND STABILIZATION OF GOLD NANOPARTICLES ON ALUMINA, USING A PSEUDOBOEHMITE GEL AS SUPPORTING MATERIAL**

F.D. Cortés-Vega<sup>1</sup>, P.G. Martínez-Torres<sup>2</sup>, J. Zárate-Medina<sup>1</sup>, F.C. Robles-Hernandez<sup>3</sup>

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo. <sup>2</sup>Instituto de Físico Matemáticas, Universidad Michoacana de San Nicolás de Hidalgo. <sup>3</sup>Universidad de Houston, College of Engineering Technology,

■ **S1D-P106 NANO-PHOSPHORS BASED ON MANGANESE-DOPED ZINC ALUMINATE: SYNTHESIS AND PHOTOLUMINESCENCE PROPERTIES.**

A. Fernández-Osorio<sup>1</sup>, A. Flores-Gonzalez<sup>1</sup>, Julián Chávez<sup>1</sup>.



<sup>1</sup>Universidad Nacional Autónoma de México, Facultad de Estudios Superiores Cuautitlán, México.

■ **S1D-P107 PREPARATION AND CHARACTERIZATION OF ANTIMICROBIAL SILVER/FUMED SILICA NANOPARTICLES**

R. Gómez-Reynoso<sup>1</sup>, P. Gamero-Melo<sup>1</sup>, G. Vargas-Gutierrez<sup>1</sup>  
<sup>1</sup>CINVESTAV-Saltitillo, México.

■ **S1D-P108 GOLD NANOPARTICLES FUNCTIONALIZED WITH AMPHIPATHIC ANTIGENS - TOWARDS THE EXPLOITATION OF NEGLECTED BIOREAGENTS THROUGH NANOTECHNOLOGY**

A. Higuera<sup>1</sup>, L. M. López-Marín<sup>2</sup>, P. Salas<sup>2</sup>  
<sup>1</sup>Licenciatura en Tecnología. <sup>2</sup>Departamento de Nanotecnología, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México

■ **S1D-P109 PREPARATION AND ENHANCEMENT OF THERMAL DIFFUSIVITY OF BIODIESEL FROM JATROPHA OIL FILLED WITH Ag NANOPARTICLES**

J. L. Jiménez-Pérez<sup>1</sup>, G. López Gamboa<sup>1,2</sup>, Z. N. Correa Pacheco<sup>3</sup>, M. Sánchez-Rivera<sup>4</sup>, L. Nolasco-Hernández<sup>5</sup>, J. F. Sánchez-Ramírez<sup>6</sup>

<sup>1</sup>UPIITA-Instituto Politécnico Nacional, México.  
<sup>2</sup>Universidad Politécnica del Valle de Toluca (UPVT) México.  
<sup>3</sup>Instituto Politécnico Nacional-Centro de Desarrollo de Productos Bióticos. México.  
<sup>4</sup>Universidad Interamericana, México.  
<sup>5</sup>CICATA Legaria – Instituto Politécnico Nacional, México  
<sup>6</sup>CIBA-Instituto Politécnico Nacional, México.

■ **S1D-P110 1D, 2D AND 3D NANOSTRUCTURED TITANIA-CONTAINING MATERIALS AS SUPPORTS FOR NIMO HDS CATALYSTS**

T.E. Klimova<sup>1</sup>, J.C. Morales-Ortuño<sup>1</sup>, R.A. Ortega-Domínguez<sup>2</sup>, P. Hernández-Hipólito<sup>1</sup>, I. Puente-Lee<sup>1</sup>, C. Salcedo-Luna<sup>1</sup>, X. Bokhimi<sup>2</sup>

<sup>1</sup>Laboratorio de Nanocatálisis, Departamento de Ingeniería Química, Facultad de Química, Universidad Nacional Autónoma de México (UNAM), México. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México (UNAM), México

■ **S1D-P111 STUDY OF THE OPTICAL, MORPHOLOGICAL AND PHYSICO-CHEMICAL PROPERTIES IN DIELECTRIC NANOLAMINATE FILMS BASED ON Al<sub>2</sub>O<sub>3</sub> - Y<sub>2</sub>O<sub>3</sub> - Al<sub>2</sub>O<sub>3</sub> AND ZrO<sub>2</sub> - Al<sub>2</sub>O<sub>3</sub> - ZrO<sub>2</sub> PREPARED BY THERMAL ATOMIC LAYER DEPOSITION**

J. López<sup>1</sup>, J. Martínez<sup>1</sup>, D. Domínguez<sup>1</sup>, R. Machorro<sup>1</sup>, M. Farías<sup>1</sup>, H. Tiznado<sup>1</sup>

<sup>1</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, México.

■ **S1D-P112 DESIGN OF SILICON NANOPARTICLES FOR IMPROVE THE BARRIER EFFECT ON HARDENED PORTLAND CEMENT-BASED MATERIALS**

J.R. Madrigales Ubaldo<sup>1</sup>, A. Cruz López<sup>1</sup>, G. Fajardo<sup>1</sup>, P. Valdez<sup>1</sup>, R. Zanella<sup>2</sup>.

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil, México. <sup>2</sup>Centro de Ciencias Aplicadas y Desarrollo de Tecnología, UNAM, México

■ **S1D-P113 THERMAL IMPROVEMENT IN SILICON OIL LOADED WITH CARBON NANOFIBERS**

R. A. Medina-Esquivel<sup>1</sup>, C. Vales-Pinzon<sup>1</sup>, J. Tapia<sup>1</sup>, M. A. Zambrano-Arjona<sup>1</sup>, J. A. Mendez-Gamboa<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería de la Universidad Autónoma de Yucatán, México

■ **S1D-P114 SYNTHESIS OF RESORCINAREN-PAMAM DENDRIMERS**

L. D. Pedro Hernández<sup>1</sup>, M. Martínez García<sup>1</sup>

<sup>1</sup>Instituto de Química, Universidad Nacional Autónoma de México, Ciudad Universitaria, México.

■ **S1D-P115 STRUCTURAL AND OPTICAL PROPERTIES OF CO-DOPED HfO<sub>2</sub> MULTILAYER THIN FILMS DEPOSITED BY SPRAY PYROLYSIS TECHNIQUE**

R. Reynoso Manríquez<sup>1</sup>, J. Guzmán Mendoza<sup>1</sup>, J. I. Díaz Góngora<sup>1</sup>, C Falcony<sup>2</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional, Unidad Legaria, México, <sup>2</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, México.

■ **S1D-P116 NANOPARTICLE INDUCED DNA DAMAGE**

Y. Ma<sup>1</sup>, M. Su<sup>1</sup>, Y. Qiao<sup>1</sup>,  
<sup>1</sup>Department of Chemical Engineering, Northeastern University, Boston

■ **S1D-P117 SELF-ASSEMBLED REGULAR STRUCTURES OF GOLD NANORODS FROM EMULSION SYSTEMS**

Torigoe<sup>1</sup>, R. Matsushima<sup>1</sup>, T. Endo<sup>1</sup>, K. Sakai<sup>1,2</sup>, H. Sakai<sup>1,2</sup>, M. Abe<sup>2</sup>

<sup>1</sup>Department of Pure and Applied Chemistry, Tokyo University of Science, Japan. <sup>2</sup>Research Institute for Science and Technology, Tokyo University of Science, Japan

■ **S1D-P118 ULTRASONIC SYNTHESIS OF STARCH NANOPARTICLES**

Velázquez<sup>1</sup>, A. Luría<sup>1</sup>, B.E. Reyes<sup>1</sup>, E.A. Ramírez<sup>2</sup>, M.L. Berlanga<sup>1</sup>, A.E. García<sup>1</sup>, C.J. Espinoza<sup>1</sup>, L.E. Elizalde<sup>1</sup>, M.E. Treviño<sup>1</sup>

<sup>1</sup> Centro de Investigación en Química Aplicada, México. <sup>2</sup> Universidad Veracruzana, Facultad de Ciencias Químicas, México. <sup>3</sup> Nanoingredientes Bioactivos, S.A. de C.V., México

■ **S1D-P119 EVALUATION OF BARRIER EFFECT IN CEMENT MATRICES WITH NANO SILICA (NS) USING ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY (EIS)**

G.J. Ziga<sup>1</sup>, G. Fajardo<sup>1</sup>, A. Cruz-López<sup>1</sup>, Héctor Herrera H<sup>2</sup>, P. Valdez<sup>1</sup>

<sup>1</sup> Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil. México. <sup>2</sup> Universidad Autónoma del Estado de México, México.

■ **S1D-P120 ELECTRONIC STRUCTURE FOR A GaAs/Al<sub>x</sub>Ga<sub>1-x</sub>As MULTILAYER SPHERICAL QUANTUM DOT**

K. A. Rodríguez-Magdaleno<sup>1</sup>, R. Pérez Álvarez<sup>1</sup>, and J. C. Martínez-Orozco<sup>2</sup>

<sup>1</sup> Centro de Investigación en Ciencias, Instituto de Investigación en Ciencias Básicas y Aplicadas, Universidad Autónoma del Estado de Morelos, México. <sup>2</sup> Unidad Académica de Física, Universidad Autónoma de Zacatecas, México.

■ **S1D-P121 OPTICAL AND PHOTOTHERMAL CHARACTERIZATION IN N-TYPE AND P-TYPE POROUS SILICON**

U. Nogal<sup>1</sup>, A. Calderón<sup>1</sup>, A.M. Mansanares<sup>2</sup>, B. Rojas<sup>1</sup>, G. Juárez<sup>1</sup> and E. Marín<sup>1</sup>

<sup>1</sup> Instituto Politécnico Nacional, CICATA Unidad Legaria, México. <sup>2</sup> Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, UNICAMP, Brasil.

■ **S1D-P122 RADAR ABSORBING MATERIALS (RAM) BASED ON ITO THIN FILMS**

R.V. Mendonça<sup>1</sup>, V.L. Soeth<sup>2</sup>

<sup>1</sup> Universidade Federal de Santa Catarina, Brazil. <sup>2</sup> Universidade Federal de Santa Catarina, Brazil

■ **S1D-P123 PREPARATION AND CHARACTERIZATION OF COMPOSITES OF POLYINDOLE NANOWIRES WITHIN SBA-15 AND ALSA-15**

Juliana M. Juárez<sup>1</sup>, Marcos B. Gómez Costa<sup>1</sup>, Oscar A. Anunziata<sup>1</sup>

<sup>1</sup>NANOTEC (Centro de Investigación en Nanociencia y Nanotecnología), Facultad Regional Córdoba, Universidad Tecnológica Nacional, Argentina

■ **S1D-P124 PREPARATION OF Pbs NANOPARTICLES THIN FILMS BY CHEMICAL BATH**

Martin Lazcano Hernandez<sup>1</sup>, Hilda Lima Lima<sup>1</sup>, M. Zamora Tototzintle<sup>1</sup>, Miguel Hernández Hernández<sup>1</sup>, M. Chavez Portillo<sup>1</sup>, O. Portillo Moreno<sup>1</sup>

<sup>1</sup> Benemerita Universidad Autonoma de Puebla

■ **S1D-P125 POLYURETHANE UREA NANOCOMPOSITES: SYNTHESIS AND CHARACTERIZATION**

A. Cuellar-Burgos<sup>1</sup>, F.A. Mesa-Rueda<sup>1</sup>

<sup>1</sup> Laboratorio de Polímeros y Materiales Compuestos, Universidad Nacional de Colombia, Colombia.

■ **S1D-P126 SYNTHESIS AND CHARACTERIZATION Pt/WO<sub>3</sub> SUPPORT ON NTC FOR OXYGEN REDUCTION REACTION**

E. Oseguera<sup>1</sup>, C. Cortés-Escobedo<sup>1</sup>, R. de G González-Huerta<sup>2</sup>

<sup>1</sup> Centro de Investigación e Innovación Tecnológica del Instituto Politécnico Nacional, Mexico. <sup>2</sup> ESIQIE-Instituto Politécnico Nacional, Laboratorio de Foto-Electrocatalisis, UPALM, Mexico

■ **S1D-P127 CARBON NANOTUBES SYNTHESIS FROM THREE DIFFERENT ORGANIC PRECURSORS BY CVD**

F. G. Granados Martínez<sup>1</sup>, J. J. Contreras Navarrete<sup>1</sup>, D. L. García Ruiz<sup>1</sup>, A. Duran Navarro<sup>1</sup>, E. Huipe Nava<sup>1</sup>, L. García González<sup>2</sup>, M. de L. Mondragón Sánchez<sup>3</sup>, L. Domratcheva Lvova<sup>1</sup>

<sup>1</sup> Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>2</sup> Centro de Investigaciones en Micro y Nanotecnología de la Universidad Veracruzana, México. <sup>3</sup> Instituto Tecnológico de Morelia, México

■ **S1D-P128 SHALLOW-IMPURITY RELATED OPTICAL ABSORPTION IN GaAs QUANTUM DOTS UNDER APPLIED ELECTRIC FIELD**

R. L. Restrepo<sup>1</sup>, Simon A. A. Kohl<sup>2</sup>, A. L. Morales<sup>3</sup>, C. A. Duque<sup>4</sup>

<sup>1</sup> Escuela de Ingeniería de Antioquia –EIA, Colombia, <sup>2</sup> Department of Physics, Karlsruhe Institute of Technology, Germany, <sup>3</sup> Grupo de Materia Condensada-UdeA, Instituto de Física, Facultad de Ciencias Exactas y Naturales, <sup>4</sup> Universidad de Antioquia UdeA, Colombia

■ **S1D-P129 DIRECT EXFOLIATION OF GRAPHENE IN AQUEOUS-ALCOHOLIC SOLUTION AND**



**FUNCTIONALIZATION WITH METALLIC PHTHALOCYANINES BEARING SUBSTITUENTS WITH DIFFERENT ALKYL CHAIN LENGTHS**

M. Martínez-Herrera<sup>1</sup>, M. L. Carrera-Jota<sup>1</sup>, H. Beltran-Conde<sup>1</sup>, M. García-Hernandez<sup>1</sup>, P. Y. López-Camacho, A. Rojas-Aguilar<sup>2</sup>.

<sup>1</sup>Universidad Autónoma Metropolitana, DCNI, Departamento de Ciencias Naturales, México, <sup>2</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, México,

■ **S1D-P130 CHARACTERIZATION OF LOW-COST CD LASER ENGRAVING OF GRAPHITE AND GRAPHENE OXIDE**

Y. Ruiz-Hernandez<sup>1</sup>, M. Reyes-Gallegos<sup>1</sup>, M. Hautefeuille<sup>1</sup>

<sup>1</sup>Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México, México

■ **S1D-P131 GRAPHENE FILMS OBTAINED BY SPRAY PYROLYSIS METHOD**

S.D. Torres-Landa<sup>1</sup>, Diego Seuret Jiménez<sup>1</sup>, C. Menchaca<sup>1</sup>, J. Uruchurchu<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas (CIICAP)- Universidad Autónoma del Estado de Morelos (UAEM), México.

■ **S1D-P132 SYNTHESIS OF GRAPHENE AEROGELS USING NATURAL GELLING AGENTS**

G. Zumbardo-Bacelis<sup>1</sup>, M. A. García-Zuñiga<sup>1</sup>, F. Tristán-López<sup>2</sup>, S. M. Vega-Díaz<sup>1,2</sup>

<sup>1</sup>Technological Institute of Celaya, Department of Chemical Engineering, México, <sup>2</sup>Consejo Nacional de Ciencia y Tecnología (CONACYT), México. <sup>3</sup>Universidad Autónoma Metropolitana, México

■ **S1D-P133 SYNTHESIS OF SBA-15/MCM-41 HYBRID MESOPOROUS SILICA**

W.A. Henao<sup>1</sup>, L.Y. Jaramillo<sup>1,2</sup>, E. Pabón-Gelvez<sup>2</sup>

<sup>1</sup>Grupo Calidad, Metrología y Producción, Instituto Tecnológico Metropolitano, Colombia. <sup>2</sup>Grupo Ciencia de Materiales Avanzados, Facultad de Ciencias, Universidad Nacional de Colombia, Colombia.

■ **S1D-P134 EVALUATION OF THERMAL AND MECHANICAL PROPERTIES OF POLYPROPYLENE / SBA15 NANOCOMPOSITES**

L.M. Marín<sup>1</sup>, L.Y. Jaramillo<sup>1,2</sup>, W.A. Henao<sup>2</sup>

<sup>1</sup>Grupo Ciencia de Materiales Avanzados, Facultad de Ciencias, Universidad Nacional de Colombia, Colombia.

<sup>2</sup>Grupo Calidad, metrología y producción, Instituto Tecnológico Metropolitano, Colombia.

■ **S1D-P135 STUDY ON NOVEL METHODOLOGY POROUS DIAMETER CONTROL IN POROUS SILICON MONOLAYERS BASED ON THERMAL OXIDATION**

N. Zapata<sup>2</sup>, S. Pérez<sup>1</sup>, M. E. Calixto<sup>1</sup>, A. Méndez-Blas<sup>1</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Facultad de Ciencias Físico-Matemáticas, Benemérita Universidad Autónoma de Puebla, México

■ **S1D-P136 TiO<sub>2</sub>-ZrO<sub>2</sub> MIXED SYSTEM MESOPOROUS FIBERS FOR CO<sub>2</sub> CAPTION.**

V. Toral Rangel<sup>(1)</sup>, H. Peiffer Perea<sup>(2)</sup>, M. J. Ramírez Moreno<sup>(2)</sup>, M. E. Contreras García<sup>(1)</sup>, J. O. Landeros<sup>(3)</sup>.

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>2</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Departamento de Materiales Metálicos y Cerámicos, Ciudad Univesitaria, México, <sup>3</sup>ESIQUE, Instituto Politecnico Nacional, Departamento de Metalurgia y Materiales

■ **S1D-P137 PHOTOPATTERNING OF A SUPRAMOLECULAR HYDROGEL USING A LIGHT TRIGGERED CATALYST**

C. Maity<sup>1</sup>, J. H. van Esch<sup>1</sup>, R. Eelkema<sup>1</sup>

<sup>1</sup>Advanced Soft Matter Group, Department of Chemical Engineering, Delft University of Technology, Julianalaan

■ **S1D-P138 IN SITU CHARACTERIZATION BY PULSED LASER PHOTOACOUSTIC TECHNIQUE OF GOLD NANOPARTICLE GROWTH**

R Castañeda Guzmán<sup>1</sup>, F A Álvarez del Castillo Manzanos<sup>2</sup>, A. Crespo Sosa<sup>3</sup>

<sup>1</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, UNAM. México. <sup>2</sup>Facultad de Ciencias, UNAM. México. <sup>3</sup>Instituto de Física, UNAM.

■ **S1D-P139 GOLD AS INTRUDER IN ZnO NW**

José M. Méndez-Reyes<sup>1</sup>, B. Marel Monroy<sup>1</sup>, Monserrat Bizarro<sup>1</sup>, Frank Güell<sup>2</sup>, Ana Martínez<sup>1</sup>, Estrella Ramos<sup>1</sup>.

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. Mexico. <sup>2</sup>Departament d'Electrònica, Universitat de Barcelona, Spain.

■ **S1D-P140 FREQUENCY SPECTRUM OF A ONE-DIMENSIONAL PHOTONIC CRYSTAL UNDER HYDROSTATIC PRESSURE**

A. Sánchez<sup>1,2</sup>, S. Orozco<sup>1</sup>, A. V. Porta<sup>1</sup>

<sup>1</sup>Departamento de Física, Facultad de Ciencias, UNAM. México. <sup>2</sup>Posgrado en Ciencia e Ingeniería de Materiales, UNAM.

■ **S1D-P141 RADIAL BREATHING MODES IN CU AMORPHOUS QUANTUM DOTS OBTAINED IN OPUNTIA EXTRACT**

M. Cortez-Valadez<sup>1</sup>, J.-G. Bocarando-Chacon<sup>2</sup>, R. Britto Hurtado<sup>1</sup>, Ramón A. B. Alvarez<sup>1</sup>, H. Arizpe-Chávez<sup>1</sup>, And M. Flores-Acosta<sup>1</sup>

<sup>1</sup>Universidad de Sonora, <sup>2</sup>Universidad Tecnológica de Querétaro

■ **S1D-P142 THEORETICAL STUDY OF ADSORPTION OF MOLECULAR HYDROGEN ON GRAPHITE-SUPPORTED AuCore-Pdshell and PdCore-Aushell NANOPARTICLES**

A. García-Monjaraz<sup>1</sup>, C. Fernández-Navarro<sup>2</sup>, S. Mejía-Rosales<sup>2</sup>

<sup>1</sup>Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León, México. <sup>2</sup>Center for Innovation, Research and Development in Engineering and Technology, and CICFIM Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León, México

■ **S1D-P143 SYNTHESIS OF PORPHYRIN p-CONJUGATED MESO-SUBSTITUTED**

Organista-Mateos<sup>1</sup>, M. Martínez-García<sup>1</sup>

<sup>1</sup>Instituto de Química, Universidad Nacional Autónoma de México, Ciudad Universitaria, México.

■ **S1D-P144 PYRENE-BASED LAYERS ON GOLD NANOSTRUCTURES: PHYSICO-CHEMICAL EVALUATION.**

E. Vargas<sup>1,2</sup>, L. Lemus<sup>3</sup>, M. Soler<sup>1</sup>

<sup>1</sup>Departamento de Ciencia de Materiales. Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile. <sup>2</sup>Center for the Development of Nanoscience and Nanotechnology (CEDENNA). Santiago, Chile. <sup>3</sup>Facultad de Química y Biología. Universidad de Santiago de Chile.

■ **S1D-P145 STUDY OF THE APPLICATION OF RAMAN SPECTROSCOPY FOR THE EARLY DETECTION OF MAMMARY CANCER**

A.C. Hernandez Artega<sup>1</sup>; H.R. Navarro Contreras<sup>1</sup>; M.J. Yacaman<sup>2</sup>

<sup>1</sup>Coordinación para la Innovación y la Aplicación de la Ciencia y la Tecnología (CIACyT-UASLP), México. <sup>2</sup>Department of Physics and Astronomy, University of Texas at San Antonio, USA.

■ **S1D-P146 LIQUID CRYSTALLINE NANOSYSTEMS BASED ON CHITOSAN AND POLYETHYLENEIMINE FOR SKIN ADMINISTRATION: DEVELOPMENT AND BIOADHESIVE CHARACTERIZATION**

Marlus Chorilli<sup>1</sup>, Giovana Calixto<sup>1</sup>, Francesca Victorelli<sup>1</sup>

<sup>1</sup> School of Pharmaceutical Sciences, Department of Drugs and Medicines – Sao Paulo State University, UNESP. Brazil.

■ **S1D-P147 SONOCHEMICAL SYNTHESIS OF HYDROPHOBIC IRON OXIDE NANOPARTICLES**

A.E. Icea-Lugo<sup>1</sup>, A. De J. Rosas-Durazo<sup>2</sup>, A. Lucero-Acuña<sup>1</sup>, J. C. Tanori-Cordova<sup>3</sup>, P. Zavala-Rivera<sup>1,2</sup>

<sup>1</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora. Hermosillo, México. <sup>2</sup>Laboratorios NICDET, Rubio Pharma y Asociados S.A. de C.V., México. <sup>3</sup>Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora. México.

■ **S1D-P148 EFFECT THE SOLUTION CONCENTRATION IN THE FORMATION OF POLYACRYLONITRILE NANOFIBERS BY ELECTROSPINNING**

J. A. Fuentes García<sup>1,3</sup>, V. López-Gayou<sup>2</sup>, J. Díaz-Reyes<sup>2</sup>, J. F. Sánchez-Ramírez<sup>2</sup>

<sup>1</sup>UPIITA-Instituto Politécnico Nacional, México <sup>2</sup>CIBA-Instituto Politécnico Nacional, México. <sup>3</sup>Universidad Politécnica del Valle de México, Estado de México

■ **S1D-P149 SYNTHESIS AND CHARACTERIZATION OF OLED's METALLODENDRIMERS**

S. Cortez-Maya<sup>1</sup>, R.A. Vázquez García<sup>1</sup>, D. A. Contreras-Cadena<sup>2</sup>, M. Martínez-García<sup>2</sup>

<sup>1</sup>Química Orgánica, Universidad Autónoma del Estado de Hidalgo <sup>2</sup>Química Orgánica, Instituto de Química, Universidad Nacional Autónoma de México. México.

■ **S1D-P150 THE GROWTH OF NANOSTRUCTURED TUNGSTEN OXIDE WITH BUNDLES-, FLOWERS- AND NANOWIRES-LIKE MORFOLOGIES**

M. Cruz-Leal<sup>1</sup>, C. Felipe<sup>1</sup>, O. Goiz<sup>2</sup>, L. Meraz<sup>1</sup>, F. Chávez<sup>3</sup>, P. Zaca<sup>3</sup>, G. F. Pérez-Sánchez<sup>3</sup>

<sup>1</sup>Departamento de Biociencias e Ingeniería, CIIEMAD-IPN, México. <sup>2</sup>Departamento de Territorio y Ambiente, CIIEMAD-IPN, México. <sup>3</sup>Departamento de Físicoquímica de Materiales, ICUAP-BUAP, México

■ **S1D-P151 COMPARATIVE RESPONSE IN FERROMAGNETIC RESONANCE OF YTTRIUM IRON GARNET FILMS GROW BY PULSED LASER DEPOSITION (PLD) AND SOL-GEL/SPIN-COATING**





J.F Barrón-López<sup>1</sup>, H. Montiel<sup>1</sup>, R. Castañeda<sup>1</sup> and G. Alvarez<sup>2,3</sup>

<sup>1</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico-UNAM, México. <sup>2</sup>Escuela Superior de Física y Matemáticas-IPN, México. <sup>3</sup>Departamento de Física, CINVESTAV-IPN, México. <sup>3</sup>Escuela Superior de Física y Matemáticas del Instituto Politécnico Nacional, U.P.A.L.M, México.

■ **S1D-P152 CONTRACTION OF NANOCOMPOSITES USED RAPID PROTOTYPING**

N.N Garcia<sup>1</sup>, R. Aguirre<sup>2</sup>

<sup>1</sup>Centro de Investigación en Química Aplicada. Unidad de Diseño y Prototipado. <sup>2</sup>Centro de Investigación en Química Aplicada. Departamento de Procesos de Transformación

■ **S1D-P153 NANOMAGNETIC MATERIAL FOR ROTATIONAL MOLDING**

F.J Lopez<sup>1</sup>, R.Aguirre<sup>2</sup>

<sup>1</sup>Centro de Investigación en Química Aplicada. Unidad de Diseño y Prototipado. <sup>2</sup>Centro de Investigación en Química Aplicada. Departamento de Procesos de Transformación.

■ **S1D-P154 NITROGEN-DOPED TITANATE NANOTUBES SENSITIZED WITH COPPER PHTHALOCYANINE: SYNTHESIS, CHARACTERIZATION AND APPLICATION IN CATALYSIS**

J. S. Souza<sup>1</sup>, W. A. Alves<sup>1</sup>

<sup>1</sup>Centro de Ciências Naturais e Humanas, Universidade Federal do ABC, Brasil

■ **S1D-P155 CORE-SHELL NANOPARTICLES FOR CANCER TREATMENT BY HYPERTHERMIA**

Jezyel Andre Martínez García<sup>1</sup>, Carlos Alberto Martínez Pérez<sup>1</sup>, Christian Chapa González<sup>1</sup>, Perla E. García Casillas<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Ciudad Juárez

■ **S1D-P156 ABSORPTION COEFFICIENT IN A DOUBLE DELTA-DOPED QUANTUM WELL STRUCTURE WITH SCHOTTKY BARRIERS**

J. C. Martínez-Orozco<sup>1</sup>, C. A. Duque<sup>2</sup> and R. L. Restrepo<sup>3</sup>

<sup>1</sup>Unidad Académica de Física, Universidad Autónoma de Zacatecas, México. <sup>2</sup>Grupo de Materia Condensada-UdeA, Instituto de Física, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia UdeA, Colombia. <sup>3</sup>Escuela de Ingeniería de Antioquia-EIA, Colombia.

■ **S1D-P157 ELECTROPHORETIC DEPOSITION OF SILVER PARTICLES BY USING NANOTEXTURIZED ELECTRODES FOR SURFACE ENHANCED RAMAN SPECTROSCOPY**

E. Guzmán<sup>1</sup>, M. Ceballos<sup>1</sup>, I. López<sup>1</sup>, A. Vázquez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, UANL. Facultad de Ciencias Químicas. México

■ **S1D-P158 MAGNETIC COUPLING IN [Co/Pt] 3/IrMn MULTILAYERS**

E. Romero-Tela<sup>1</sup>, M. A. de-Sousa<sup>1</sup>, I. L. Castro-Merino<sup>1</sup>, E. M. Baggio-Saitovitch<sup>1</sup>, J. R. Suárez-López<sup>2</sup>.

<sup>1</sup> Centro Brasileiro de Pesquisas Físicas, Brasil. <sup>2</sup> Unidad Académica de Física, Universidad Autónoma de Zacatecas, México.

■ **S1D-P159 SYNTHESIS OF NANO/MESO-STRUCTURED SILICON FILMS BY PLASMA DEPOSITION**

William W. Hernández-Montero<sup>1</sup>, Carlos Zúñiga<sup>1</sup>, Adrián Itzmoyotl<sup>1</sup>, Wilfrido Calleja<sup>1</sup>, Mario Moreno<sup>1</sup>, Javier De la Hidalga<sup>1</sup>

<sup>1</sup>Instituto Nacional de Astrofísica, Óptica y Electrónica, México (INAOE), Departamento de Electrónica, México

■ **S1D-P160 ANTIFUNGAL PAINTS CONTAINING NANOPARTICLES**

C. Dominguez Wong<sup>1</sup>, Facundo Ruiz<sup>1</sup>, C. Deyá<sup>2</sup>, N. Bellotti<sup>2</sup>

<sup>1</sup>Facultad de Ciencias, Universidad Autónoma de San Luis Potosí, México. <sup>2</sup>CIDEPINT (Centro de Investigación y Desarrollo en Tecnología de Pinturas), UNLP (Universidad Nacional de La Plata). Buenos Aires Argentina

■ **S1D-P161 INFLUENCE OF MWCNTs AND A GLYCIDYL METHACRYLATE COMPATIBILIZER ON THE MORPHOLOGY AND PROPERTIES OF PP/PA6 BLENDS MELT COMPOUNDED**

Díaz-Arriaga Carlos Bellaner<sup>1</sup>, Uribe-Calderón Jorge Alonso<sup>1</sup>

<sup>1</sup>Unidad de Materiales, Centro de Investigación Científica de Yucatán, México.

■ **S1D-P162 SYNTHESIS AND CHARACTERIZATION OF SUPERPARAMAGNETIC COBALT FERRITE NANOPARTICLES**

Pérez-Guzmán, M. A.<sup>1</sup>, Santoyo-Salazar, J.<sup>1,2</sup>, Ortega Amaya, R.<sup>3</sup>, Matsumoto, Y.<sup>1,3</sup>, Espinoza-Rivas, A. M. Ortega-López M.<sup>1,3</sup>

<sup>1</sup>Programa de Nanociencias y Nanotecnología, <sup>2</sup>Departamento de Física, <sup>3</sup>Departamento de Ingeniería Eléctrica. Centro de Investigación y de Estudios Avanzados del IPN. México

■ **S1D-P163 SOME PROPERTIES OF THE ENHANCED TRANSMISSION PHENOMENON ON NANOSLITS**

J. Sumaya-Martinez<sup>1</sup>, G. Montiel-Gonzalez<sup>1</sup> and V.M. Galvan-Franco<sup>2</sup>

<sup>1</sup>Facultad de Ciencias, Universidad Autónoma del Estado de México. <sup>2</sup>Instituto Literario 100, Estado de México,

■ **S1D-P164 DEPOSITION AND PHOTOCATALYTIC PERFORMANCE OF Ag:V<sub>2</sub>O<sub>5</sub> THIN FILMS**

González-Zavala<sup>1,2,3</sup>, L. Escobar-Alarcón<sup>1</sup>, D. A. Solís-Casados<sup>2</sup>, D. Arroyo Rebollar<sup>2</sup>, R. Basurto<sup>4</sup>, E. Haro-Poniatowski<sup>5</sup>

<sup>1</sup>Departamento de Física, Instituto Nacional de Investigaciones Nucleares, México. <sup>2</sup>Centro Conjunto de Investigación en Química Sustentable UAEM-UNAM, México. <sup>3</sup>Programa de Posgrado en Ciencia de Materiales, Universidad Autónoma del Estado de México, México. <sup>4</sup>Departamento de Química, Instituto Nacional de Investigaciones Nucleares, México. <sup>5</sup>Departamento de Física, Universidad Autónoma Metropolitana Iztapalapa, México.

■ **S1D-P165 IMMOBILIZATION IN LBL FILMS OF CHLOROPHYLL ENCAPSULATED IN LIPOSOMES - DRUG RELEASE AND PHOTODYNAMIC INACTIVATION**

Filipe D.S. Gorza<sup>1</sup>, Maria Andreolina O. de Sousa<sup>1</sup>, Romário J. da Silva<sup>1</sup>, Tarquin F. Trescher<sup>1</sup>, Graciela C. Pedro<sup>1</sup>, Hérica Dias da Rocha<sup>1</sup>, Paula C.S. Souto<sup>1</sup>, Josmary R. Silva<sup>1</sup>, Nara C. de Souza<sup>1</sup>

<sup>1</sup>Grupo de Materials Nanoestruturados/ Universidade Federal de Mato Grosso, Brazil

■ **S1D-P166 FUNCTIONAL GOLD NANOPARTICLES AS POTENTIAL TRANSFECTION SYSTEM FOR MAMMALIAN CELLS**

Alejandro Mendez-Mancilla,<sup>1,2</sup> Mariana Salgado-Bustamante,<sup>2</sup> Gabriela Palestino<sup>1</sup>

<sup>1</sup>Biopolymers and Nanostructures Laboratory, Faculty of Chemical Sciences. <sup>2</sup>Biochemical Department, Faculty of Medicine, Universidad Autónoma de San Luis Potosí, México

■ **S1D-P167 ASSISTED EXFOLIATION PROCESS OF 2D NANOSTRUCTURES FOR THEIR FUTURE INCORPORATION TO POLYMER MATRICES**

E. M. Hernández-Torres<sup>1,2</sup>, S. Vazquez-Rodriguez<sup>1,2</sup>, S. Sepulveda-Guzman<sup>1,2</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, México. <sup>2</sup>Universidad Autónoma de Nuevo León, Centro de Innovación,

Investigación y Desarrollo en Ingeniería y Tecnología, México

■ **S1D-P168 STRUCTURE AND DYNAMICS OF SIMPLE LIQUIDS CONFINED BY CARBON NANOTUBES**

J. Treviño-López<sup>1</sup>, S. Mejía-Rosales<sup>1</sup>

<sup>1</sup>CICFIM-Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León, México

■ **S1D-P169 DISTRIBUTION OF THE ELECTRONIC CHARGE IN THE SURFACE OF AMORPHOUS SILICE**

G. Lopez Laurabaquio<sup>1</sup>, J.M. Montejano-Carrizales<sup>2</sup>, Alberto Hernandez Garcia<sup>3</sup>

<sup>1</sup> Departamento de Física, Instituto Nacional de Investigaciones Nucleares, Ocoyoacac, Mexico. <sup>2</sup> Instituto de Física, Universidad Autónoma de San Luis Potosí, <sup>3</sup>S.L.P. Instituto Potosino de Investigación Científica y Tecnológica, San Luis Potosí,

■ **S1D-P170 α- ALUMINA CERAMIC SUPPORT FROM ALUMINUM FORMATE**

Simón Y. Reyes López<sup>1</sup>, Erick A. Cabrera Ontiveros<sup>1</sup>

<sup>1</sup>Instituto de Ciencias Biomédicas-ICB, Universidad Autónoma de Ciudad Juárez, Chihuahua

■ **S1D-P171 A SIMPLE METHOD OF SYNTHESIS OF ALPHA ALUMINA NANOPOWDERS USING A METALOGANIC PRECURSOR AND UREA**

Simón Yobanny Reyes-López<sup>1</sup> and Fabiola Alejandra Mejía Reyes<sup>1</sup>.

<sup>1</sup>Departamento de Ciencias Químico Biológicas, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez. México.

■ **S1D-P172 DOCKING OF CHITOSAN-PVP WITH DENV-E PROTEIN**

Aldo Yair Tenorio-Barajas<sup>1</sup>, Alejandra Hernandez-Santoyo<sup>2</sup>, Víctor Altuzar<sup>3</sup>, Ma. de la Luz Olvera<sup>4</sup>, Claudia Mendoza-Barrera<sup>3</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Doctorado en Nanociencias y Nanotecnología. México. <sup>2</sup>Universidad Nacional Autónoma de México, Instituto de Química, Departamento de Biomacromoléculas. México. <sup>3</sup>Universidad Veracruzana, Centro de Investigación en Micro y Nanotecnología, Laboratorio de Nanobiotecnología. <sup>4</sup>Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional, Departamento de Ingeniería Eléctrica, Sección de Electrónica del Estado Sólido. México, D.F.



- **S1D-P173 MICROWAVE ASSISTED POLYMERIZATION OF NYLON-6. THE EFFECT OF TiO<sub>2</sub> AND Ag NANOPARTICLES ON THE PROCESSING VARIABLES.**  
Asunción Yescas-Yescas<sup>1</sup>, Carlos Ávila-Orta<sup>1</sup>, Pablo González-Morones<sup>1</sup>, Gregorio Cadenas-Pliego<sup>1</sup>, Silvia Torres-Rincón, Maribel Navarro-Rosales<sup>1</sup>  
<sup>1</sup>Centro de Investigación en Química Aplicada, Saltillo Coahuila México.
- **S1D-P174 OPTICAL PROPERTIES AND STRUCTURE OF SILICON NITRIDE THIN FILMS WITH EMBEDDED SILICON NANOCCLUSERS DEPOSITED BY RPECVD**  
M. A. Serrano-Núñez<sup>1</sup>, J. C. Alonso<sup>1</sup>  
<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. Mexico
- **S1D-P175 EFFECT OF THE SODIUM CITRATE ON THE MICROWAVE-ASSISTED SYNTHESIS OF NICKEL OXIDE NANOPARTICLES**  
A. Rodríguez<sup>1</sup>, A. Vázquez<sup>1</sup>.  
<sup>1</sup>Universidad Autónoma de Nuevo León, UANL. Facultad de Ciencias Químicas. México
- **S1D-P176 STUDY OF THE EFFECT OF THE PRECURSORS CONCENTRATION ON THE PROPERTIES OF THE CHITOSAN MAGNETITE NANOCOMPOSITE**  
S. Marín-Silva<sup>1</sup>, R. Salas-Cepeda<sup>1</sup>, C. I. Rodríguez-Rodríguez, J. T. Elizalde-Galindo<sup>2</sup>, P. E. García-Casillas<sup>2</sup>, C. Chapa-González<sup>2</sup>  
<sup>1</sup>Universidad Tecnológica de Ciudad Juárez, México.  
<sup>2</sup> Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, México.
- **S1D-P177 SYNTHESIS OF CERAMIC NANOTUBES BY ATOMIC LAYER DEPOSITION USING CARBON NANOTUBES AS REMOVABLE TEMPLATE**  
F. Muñoz-Muñoz<sup>1</sup>, G. Soto<sup>1</sup>, H. Tiznado<sup>1</sup>, D. Domínguez<sup>1</sup>, J. Romo-Herrera<sup>1</sup>  
<sup>1</sup>Centro de Nanociencias y Nanotecnología. Universidad Nacional Autónoma de México, UNAM, México
- **S1D-P178 TEMPERATURE EFFECTS OF PHOTONIC STRUCTURES BASED ON POROUS SILICON**  
G. García<sup>1</sup>, M. R Jiménez<sup>1</sup>, F. Morales<sup>1</sup>, H. Juárez<sup>1</sup>, T. Díaz<sup>1</sup>, E. Rosendo<sup>1</sup>, R. Galeazzi<sup>1</sup>, G. Nieto<sup>1</sup>, C. Morales<sup>1</sup>, M. Pació<sup>1</sup>.  
<sup>1</sup>Centro de Investigación en Dispositivos Semiconductores, CIDS, ICUAP, BUAP, México.
- **S1D-P179 CORE SHELL TECHNIQUE FOR THE SYNTHESIS OF GOLD-SILVER NANOPARTICLES WITH POLYPHENOLS LIKE REDUCTOR**  
E. Rodríguez-León<sup>1</sup>, R.E. Navarro-Gautrín<sup>2</sup>, E. Larios-Rodríguez<sup>3</sup>, L. Armenta-Villegas<sup>2</sup>, R. Iñiguez-Palomares<sup>1</sup>  
<sup>1</sup>Departamento de Física, Universidad de Sonora, México.  
<sup>2</sup>Departamento de Polímeros y Materiales, Universidad de Sonora, México.  
<sup>3</sup>Departamento de Ingeniería Química, Universidad de Sonora, México.
- **S1D-P180 TiO<sub>2</sub>/LDPE AND TiO<sub>2</sub>/HDPE NANOCOMPOSITES FOR VISIBLE LIGHT DEGRADATION OF ORGANIC POLLUTANTS**  
L.Y. Jaramillo<sup>1,2</sup>, M. Romero-Sáez<sup>3</sup>, R. Saravanan<sup>3,4</sup>, E. Pabón-Gelvez<sup>2</sup>, E. Mosquera<sup>4</sup>, F. Gracia<sup>3</sup>  
<sup>1</sup>Laboratorio de Materiales Poliméricos, Instituto Tecnológico Metropolitano, Colombia.  
<sup>2</sup>Grupo Ciencia de Materiales Avanzados, Facultad de Ciencias, Universidad Nacional de Colombia, Colombia.  
<sup>3</sup>Departamento de Ingeniería Química y Biotecnología, Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile, Chile.  
<sup>4</sup>Laboratorio de Materiales a Nanoescala, Departamento de Ciencia de los Materiales, Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile, Chile.
- **S1D-P181 INTERMEDIATE SYNTHESIS PRODUCTS OF GOLD NANOPARTICLES MEDIATED BY DESIGNING PEPTIDE**  
Aryane Tofanello<sup>1</sup>, Maria A. Juliano<sup>2</sup>, Alexandre J. C. Lanfredi<sup>3</sup> and Iseli L. Nantes<sup>1</sup>  
<sup>1</sup>Centro de Ciências Naturais e Humanas (CCNH), Universidade Federal do ABC - UFABC, São Paulo, Brazil.  
<sup>2</sup>Departamento de Biofísica, Universidade Federal de São Paulo (UNIFESP), São Paulo, Brazil.  
<sup>3</sup>Centro de Engenharia, Modelagem e Ciências Sociais Aplicadas (CECS), Universidade Federal do ABC - UFABC, São Paulo, Brazil
- **S1D-P182 NONLINEAR OPTICAL PROPERTIES IN A DOUBLE ZINC-BLENDE AlGa<sub>N</sub>/Ga<sub>N</sub> SQUARE QUANTUM WELL CONSIDERING DEPENDENT-POSITION MASS**  
J. G. Rojas-Briseño<sup>1</sup>, M. E. Mora-Ramos<sup>1</sup>, and J. C. Martínez-Orozco<sup>2</sup>  
<sup>1</sup>Centro de Investigación en Ciencias, Instituto de Investigación en Ciencias Básicas y Aplicadas, Universidad Autónoma del Estado de Morelos, México.  
<sup>2</sup>Unidad Académica de Física, Universidad Autónoma de Zacatecas, México.

■ **S1D-P183 SYNTHESIS AND CHARACTERIZATION OF MoS<sub>2</sub> THIN FILMS BY PULSED LASER DEPOSITION FOR ELECTRONIC APPLICATIONS**

M.I Serna<sup>1</sup>, Y. Xi<sup>1</sup>, J. A. Avila Avendaño<sup>1</sup>, S Yoo<sup>2</sup>, L. Delmar<sup>1</sup>, H. Choi<sup>2</sup>, M Quevedo-López<sup>1</sup>, M. Minary<sup>3</sup>

<sup>1</sup>Materials Science and Engineering Department, The University of Texas at Dallas <sup>2</sup>Department of Advanced Materials Engineering, Kookmin University, Seoul, Korea. Advanced Materials Engineering and Institute of Technology (공과대학). Kookmin University., Korea. <sup>3</sup>Mechanical Engineering Department, The University of Texas at Dallas.

■ **S1D-P184 LASER ABLATIVE DEPOSITION OF GRAPHENE BASED POLYMER NANOCOMPOSITES**

J.Blazhevaska-Gilev<sup>1</sup>, R.Tomovska<sup>2</sup>, R.Fajgar<sup>3</sup>

<sup>1</sup>Faculty of Technology and Metallurgy (FTM), University St.Cyril and Methodius, Macedonia. <sup>2</sup>POLYMAT and Departamento de Química Aplicada, Facultad de Ciencias Químicas, University of the Basque Country UPV/EHU, Spain. <sup>3</sup>IKERBASQUE, Basque Foundation for Science, Spain. <sup>4</sup>Institute of Chemical Process Fundamentals of the ASCzech Republic

■ **S1D-P185 SYNTHESIS AND OPTOELECTRONIC PROPERTIES OF P-CONJUGATED PORPHYRIN CYCLIC DIMER**

E. Corral-Rascón<sup>1</sup>, M. Martínez-García<sup>1</sup>

<sup>1</sup>Universidad Nacional Autonoma de México

■ **S1D-P186 BOLOMETERS BASED ON MULTIWALLED NANOTUBES (MWNTs)**

G. García-Valdivieso<sup>1</sup>, H. R. Navarro-Contreras<sup>1</sup>, F. J. González<sup>1</sup>, M. Quintana-Ruiz<sup>2</sup>, G. Vera-Reveles<sup>1</sup>.

<sup>1</sup>Coordinación para la Innovación y la Aplicación de la Ciencia y la Tecnología (CIACyT-UASLP) México.; <sup>2</sup> Instituto de Física (IF-UASLP), México.

■ **S1D-P187 FUNCTIONAL INORGANIC NANOPARTICLES SYNTHESIZED BY WET METHOD INTO HONEYCOMB PATTERNED POROUS FILMS PREPARED VIA BREATH FIGURE (BF) THROUGH THE USE OF WELL-DEFINED AMPHIPHILIC DIBLOCK COPOLYMERS.**

G. del C. Pizarro<sup>1</sup>, O. G. Marambio<sup>1</sup>, M. Jeria-Orell<sup>1</sup>, C. M. González-Henríquez<sup>1</sup>, M. Sarabia-Vallejos<sup>2</sup>

<sup>1</sup>Chemistry Department, Metropolitan Technological University, Santiago, Chile. <sup>2</sup>Physics Institute, Pontifical Catholic University of Chile, Santiago, Chile.

■ **S1D-P188 SYNTHESIS AND CHARACTERIZATION OF MAGNESIUM NANOPARTICLES BY SOLUTION REDUCTION METHOD INCORPORATED IN CARBON CRYOGELS**

J.C. García Mayorga<sup>1</sup>, C.N. Vargas Hernández<sup>2</sup>, J.G. Cabañas Moreno<sup>2</sup> and O. Solorza Feria<sup>2</sup>

<sup>1</sup>Universidad Tecnológica De Tecámac, México. <sup>2</sup>Centro de Investigación y Estudios Avanzados del IPN, México D.F.

■ **S1D-P189 THEORETICAL STUDY OF STRUCTURAL AND THERMODYNAMIC PROPERTIES OF GRAPHITE-SUPPORTED Au-Cu NANOCCLUSERS**

A. García-Monjaraz<sup>1</sup>, C. Fernández-Navarro<sup>2</sup>, S. Mejía-Rosales<sup>2</sup>

<sup>1</sup>Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León, México. <sup>2</sup>Center for Innovation, Research and Development in Engineering and Technology, and CICFIM Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León, México

■ **S1D-P190 STUDY OF THE MORPHOLOGY, STRUCTURE AND CHEMICAL COMPOSITION OF CARBON/ GRAPHENE QUANTUM DOTS SYNTHESIZED VIA GREEN CHEMISTRY**

Y. Sánchez-Arrieta<sup>1</sup>, S. Fernández-Tavizón<sup>2</sup>, P. González-Morones<sup>2</sup>, U. Baños-Rodríguez<sup>1</sup>, E. Hernández-Hernández<sup>2</sup>, S. Torres-Rincon<sup>2</sup>, M. G. Mendez-Padilla<sup>2</sup>.

<sup>1</sup>Universidad Politécnica de Pachuca, México. <sup>2</sup>Centro de Investigación en Química Aplicada, México.

ROOM: TULUM G  
THURSDAY, AUGUST 20

👤 Session Chair: GABRIELA PALESTINO ESCOBEDO (UASLP, MEX)

▶ **09:00 - 09:30 S1D-0054 *Invited Talk* THERES PLENTY OF ROOM AT THE BOTTOM.. FOR NANOSTRUCTURED MAGNESIUM ALLOYS**

Suveen Mathaudhu<sup>1</sup>

<sup>1</sup>University of California, Riverside

■ **09:30 - 09:45 S1D-0055 GUIDED GROWTH OF HORIZONTAL NANOWIRES: A GENERAL APPROACH TO STRUCTURAL CONTROL AND LARGE-SCALE INTEGRATION**

Ernesto Joselevich<sup>1</sup>



<sup>1</sup>Department of Materials and Interfaces, Weizmann  
Institute of Science, Israel

■ **09:45 - 10:00 S1D-0056 THERMAL AND  
MECHANICAL PROPERTIES OF NANOCOMPOSITES  
BASED ON POLYETHYLENE AND Mg/Al HYDROTALCITE**

L.Y. Jaramillo<sup>1,3</sup>, J.C. Posada-Correa<sup>2</sup>, E. Pabón-Gelvez<sup>3</sup>, E. Ramos-Ramírez<sup>4</sup>, N.L. Gutiérrez-Ortega<sup>5</sup>

<sup>1</sup> Grupo materiales avanzados y energía, Instituto Tecnológico Metropolitano, Campus Fraternidad, Colombia. <sup>2</sup> Grupo Calidad, metrología y producción, Instituto Tecnológico Metropolitano, Campus Robledo, Colombia. <sup>3</sup> Grupo Ciencia de Materiales Avanzados, Facultad de Ciencias, Universidad Nacional de Colombia, Colombia. <sup>4</sup> Departamento de Química, División de Ciencias Naturales y Exactas de la Universidad de Guanajuato, México. <sup>5</sup> Departamento de Ingeniería Civil, División de Ingenierías de la Universidad de Guanajuato, México.

■ **10:00 - 10:15 S1D-0057 THE SYNTHESIS AND  
HYDROGEN STORAGE PROPERTIES OF MG/MGH<sub>2</sub>  
NANOCONFINED IN CARBON CRYOGELS.**

C.N. Vargas Hernández<sup>1</sup>, J.G. Cabañas Moreno<sup>1</sup>, O. Solorza Feria<sup>1</sup> and E. Reguera Ruiz<sup>2</sup>

<sup>1</sup> Centro de Investigación y Estudios Avanzados del IPN, Mexico D.F. <sup>2</sup> Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del IPN, Mexico D.F.

■ **10:15 - 10:30 S1D-0058 EFFECT OF TIME,  
TEMPERATURE AND ACETYLENE FLOW RATE ON  
CATALYTIC GROWTH OF CARBON NANOSTRUCTURED  
MATERIAL**

D. K. Tiwari<sup>1</sup>, J. Valenzuela<sup>1</sup>

<sup>1</sup> Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, México.

▶ **10:30 - 11:00 S1D-0059 *Invited Talk* SYNTHESIS  
AND CHARACTERIZATION OF BIMETALLIC  
NANOPARTICLES BY Cs-CORRECTED SCANNING  
TRANSMISSION ELECTRON MICROSCOPY**

R. Esparza<sup>1</sup>, A. Santoveña<sup>1</sup>, L. Ramírez López<sup>1</sup>, A. Ruíz-Baltazar<sup>1</sup>, A. Angeles-Pascual<sup>2</sup> and R. Pérez<sup>1</sup>

<sup>1</sup> Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México. <sup>2</sup> Departamento de Ingeniería Eléctrica-SEES, CINVESTAV-IPN, México.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: JOSE LUIS RODRIGUEZ LOPEZ (DMAV-IPICYT, MEX)**

▶ **12:30 - 13:00 S1D-0060 *Invited Talk* NANOSTRUCTURED CuInSe<sub>2</sub> FORMED INTO POROUS SILICON TEMPLATES BY ELECTRODEPOSITION**

S. de la Luz-Merino<sup>1</sup>, M. E. Calixto, A. Méndez-Blas<sup>1</sup>, and B. Marí-Soucase<sup>2</sup>

<sup>1</sup> Instituto de Física, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup> IDF-Departament de Física Aplicada, Universitat Politècnica de València, Spain

■ **13:00 - 13:15 S1D-0061 SIMULATION OF  
MECHANICAL COMPRESSION OF NANOSTRUCTURES**

S. Mejía-Rosales<sup>1</sup>

<sup>1</sup> CICFIM-Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León, México

▶ **13:15 - 13:45 S1D-0062 *Invited Talk* RUPTURE  
OF CRYSTALLINE STRUCTURE OF MUSCOVITE FOR  
PREPARING TWO-DIMENSIONAL SHEETS**

Feifei Jia<sup>1,2</sup>, Shaoxian Song<sup>1</sup>

<sup>1</sup> School of Resource and Environmental Engineering, Wuhan University of Technology, China. <sup>2</sup> Doctorado Institucional de Ingeniería y Ciencia de Materiales, Universidad Autónoma de San Luis Potosí, Mexico.

✂ **14:00 - 16:00 LUNCH**



## Symposium 2B

# BIOMATERIALS FOR MEDICAL APPLICATIONS

**Argelia Almaguer** / MEXICO / Universidad Nacional Autónoma de México

**Karine Anselme** / FRANCE / Institut de Science des Matériaux de Mulhouse

**Javier Castro** / MEXICO / Universidad Autónoma de Ciudad Juárez

**Sandra Van Vlierbergh** / BELGIUM / University of Ghent / Vrije Universiteit Brussel

**Sandra Rodil** / MEXICO / Universidad Nacional Autónoma de México

ROOM: TULUM F  
MONDAY, AUGUST 17

 Session Chair: **ARGELIA ALMAGUER**

■ **08:30 - 08:45 S2B-0001 NUMERICAL STUDY OF FIXATION OF LUBAR VERTEBRAE L3 AND L4 THROUGH TITANIUM Ti6Al4V**

J. Espinoza-Zavala<sup>1</sup>, B. Romero-Angeles<sup>2</sup>, G. Urriolagoitia-Sosa<sup>1</sup>, H. A. Benítez-García<sup>1</sup>, J.O. Hernández-Monterrosas<sup>1</sup>, G.M. Urriolagoitia-Calderón<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, Sección de Estudios de Posgrado e Investigación, Escuela Superior de Ingeniería Mecánica y Eléctrica, <sup>2</sup>Instituto Politécnico Nacional, Escuela Superior de Ingeniería Mecánica y Eléctrica, Unidad Azcapotzalco.

■ **09:00 - 09:15 S2B-0002 BIOFUNCTIONALIZATION OF COCR ALLOY FOR BIOMEDICAL APPLICATION**

Virginia Paredes<sup>1,2,3</sup>, Emiliano Salvagni<sup>2,3</sup>, José M. Manero<sup>2,3</sup>

<sup>1</sup>Ecci University, Research mechanical design and materials Group (GIDMyM), Colombia. <sup>2</sup>Department of Science Materials, Technical University of Catalonia (UPC), Spain. <sup>3</sup>Nanoengineering Research Centre (CRnE), Spain

■ **09:15 - 09:30 S2B-0003 SURFACE PHENOMENA ON TITANIUM DUE TO TREATMENT WITH HYDROGEN PEROXIDE**

A.Fonseca-García<sup>1,2</sup>, J. Perez-Alvarez<sup>1</sup>, M. Giorcelli<sup>3</sup>, A. A. Flores<sup>4</sup>, S. E. Rodil<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, <sup>2</sup>Posgrado en Ciencia e Ingeniería de Materiales, Universidad Nacional Autónoma de México. <sup>3</sup>Department of Applied Science and Technology, Politecnico di Torino. <sup>4</sup>Laboratorio de Genética Molecular, Facultad de Odontología, Universidad Nacional Autónoma de México.

▶ **09:30 - 10:00 S2B-0004 Invited Talk BIO-TRIBOCORROSION OF TITANIUM SURFACES IN THE PRESENCE OF CELLS OR MICROORGANISMS**

L.A. Rocha<sup>1,2,3</sup>, A.R. Ribeiro<sup>2,4</sup>, M.J. Runa<sup>3,5</sup>, Helena Cruz<sup>2,3</sup>, M.T. Mathew<sup>5,6</sup>

<sup>1</sup>Departamento de Física, Universidade Estadual Paulista – UNESP, Bauru, São Paulo, Brazil. <sup>2</sup>Brazilian Branch of Institute of Biomaterials, Tribocorrosion and Nano-Medicine (IBTN/Br), <sup>3</sup>MEMS-UMinho - Center MicroElectroMechanical Systems, Universidade do Minho Guimarães, Portugal. <sup>4</sup>Directory of Metrology Applied to Life Science, National Institute of Metrology Quality and Technology. <sup>5</sup>Institute of Biomaterials, Tribocorrosion and Nano-Medicine (IBTN). <sup>6</sup>Department of Orthopedic Surgery, Rush University Medical Center.

■ **10:00 - 10:15 S2B-0005 AMORPHOUS TITANIUM NANOTUBES FABRICATED BY ANODIZATION ENHANCE CELLULAR BEHAVIOUR**

Ernesto Beltrán-Partida<sup>1</sup>, Benjamin Valdez-Salas<sup>2</sup>, Alan Escamilla<sup>2</sup>, Cristina Velasquillo<sup>3</sup>

<sup>1</sup>Facultad de Odontología Mexicali, Universidad Autónoma de Baja California, <sup>2</sup>Instituto de Ingeniería, Universidad Autónoma de Baja California, <sup>3</sup>Instituto Nacional de Rehabilitación.



■ **10:15 - 10:30 S2B-0006 NANOCOMPOSITES SCAFFOLDS BASED ON BIOACTIVE GLASS NANOPARTICLES: EFFECT OF THE NATURE OF THE POLYMERIC MATRIX**

Cristian Covarrubias<sup>1</sup>, Amaru Aguero<sup>1</sup>, Montserrat Cádiz<sup>1</sup>, Mario Díaz<sup>1</sup>, Merhdad Yazdani-Pedram<sup>1</sup>, Juan P. Rodríguez<sup>2</sup>, Carla Urra<sup>2</sup>, Juan V. Cahuich-Rodríguez<sup>2</sup>, Juan M. Cervantes<sup>3</sup>

<sup>1</sup>Laboratory of Nanobiomaterials, INCO, Faculty of Dentistry, University of Chile, Santiago, Chile. <sup>2</sup>Laboratory of Cell Biology, INTA, University of Chile, Santiago, Chile. <sup>3</sup>Centro de Investigación Científica de Yucatán A.C.

▶ **10:30 - 11:00 S2B-0007 *Invited Talk* NANOSCALE INSIGHTS ON OSTEOGENIC CELLS INTERACTIONS WITH TITANIUM SURFACES**

J.H. Yi<sup>1</sup>, C. Parisi<sup>1</sup>, R. Wazen<sup>1</sup>, F. Variola<sup>2</sup>, A. Nanci<sup>1,3</sup>

<sup>1</sup>Laboratory for the Study of Calcified Tissues and Biomaterials, Faculty of Dentistry, Université de Montréal, Montréal, Québec, Canada. <sup>2</sup> Faculty of Engineering, University of Ottawa, Ontario, Canada. <sup>3</sup>Department of Biochemistry and Molecular Medicine, Université de Montréal, Montréal, Québec, Canada.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **PHAEDRA SILVA**

■ **12:30 - 12:45 S2B-0008 STUDY OF BIOCOMPATIBLE HYDROXYAPATITE COATINGS ON 316L STAINLESS STEEL GROWN BY ELECTROCHEMICAL TECHNIQUES**

L. R. Giraldo-Torres<sup>1</sup>, F. N. Jiménez-García<sup>1,2</sup>, B. Segura-Giraldo<sup>1,2</sup>

<sup>1</sup>Universidad Autónoma de Manizales, Antigua Estación del Ferrocarril, Manizales, Caldas, Colombia. <sup>2</sup>Universidad Nacional de Colombia, Sede Manizales

■ **12:45 - 13:00 S2B-0009 STUDY OF TiO<sub>2</sub> FIRST STAGES DEPOSITION BY HVOF FOR BIOMEDICAL APPLICATIONS**

G.A. Clavijo-Mejía<sup>1</sup>, D.G. Espinosa-Arbeláez<sup>1</sup>, J.A. Rincon-Lopez<sup>1</sup>, J.A. Hermann-Muñoz<sup>1</sup>, A.L. Giraldo-Betancur, G. Trapaga-Martinez<sup>1</sup>, J. Muñoz-Saldaña

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN.

▶ **13:00 - 13:30 S2B-0010 *Invited Talk* FUNCTIONAL POLYMERS IN BONE REGENERATION AND TREATMENT OF INFLAMMATORY DISEASES**

T. Bowden<sup>1</sup>

<sup>1</sup>Department of Chemistry – Ångström Laboratory, Uppsala University, Uppsala, Sweden

▶ **13:30 - 14:00 S2B-0011 *Invited Talk* OSTEOBLASTIC RESPONSE TO A MUSSEL-INSPIRED POLYMERIC COATING OF TITANIUM**

Aman Atwal<sup>1,2</sup>, Alex Steeves<sup>2</sup>, Fabio Variola<sup>2,3</sup>

<sup>1</sup>Department of Biopharmaceutical Sciences, University of Ottawa; <sup>2</sup> Department of Mechanical Engineering, University of Ottawa. <sup>3</sup> Department of Physics, University of Ottawa.

☒ **14:00- 16:00 LUNCH**

👤 Session Chair: **SANDRA E. RODIL**

■ **16:15 - 16:30 S2B-0012 DEVELOPMENT OF A TERNARY COMPOSITE NANOFIBER BASED MESH AS POTENTIAL BIOMATERIAL FOR ABDOMINAL WALL REPAIR**

K. Baylón<sup>1</sup>, K. Lozano<sup>2</sup>, P. Rodríguez<sup>1</sup>, C. Pozo<sup>1</sup>, O. Martínez-Romero<sup>1</sup>, A. Elías-Zúñiga<sup>1</sup>, E. Flores<sup>3</sup>, J.A. Díaz-Elizondo<sup>3</sup>, C.A. Rodríguez-González<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, Instituto Tecnológico y de Estudios Superiores de Monterrey. <sup>2</sup>Department of Mechanical Engineering, University of Texas-Pan America. <sup>3</sup>Medical School and Health Sciences, Instituto Tecnológico y de Estudios Superiores de Monterrey.

■ **16:30 - 16:45 S2B-0013 SURFACE MODIFICATION OF POLYCAPROLACTONE SCAFFOLDS BY AIR ATMOSPHERIC PLASMA TREATMENT FOR POSSIBLE USE IN TISSUE ENGINEERING**

<sup>1</sup>L.A. Can-Herrera, <sup>2</sup>A. Ávila-Ortega, <sup>3</sup>S. De la Rosa-García, <sup>1</sup>W. Herrera-Kao, <sup>1</sup>J.V. Cauich-Rodríguez, <sup>1</sup>J.M. Cervantes-Uc

<sup>1</sup>Unidad de Materiales, Centro de Investigación Científica de Yucatán. <sup>2</sup>Facultad de Ingeniería Química, Universidad Autónoma de Yucatán. <sup>3</sup>Departamento de Microbiología Ambiental y Biotecnología, Universidad Autónoma de Campeche.

■ **16:45 - 17:00 S2B-0014 POLY(GLYCEROL SEBACATE)/POLY(ε-CAPROLACTONE) ELECTROSPUN SCAFFOLDS FOR BLOOD VESSELS CONSTRUCTS**

R Vera-Graziano<sup>1</sup>, A Monroy Brera<sup>1</sup>, R Montiel-Campos<sup>2</sup>, A Maciel-Cerda<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. <sup>2</sup>División de Ciencias Básicas, Universidad Autónoma Metropolitana, México, DF

■ **17:00 - 17:15 S2B-0015 ELECTROSPUN ANTIBACTERIAL MESHES FOR DERMAL SKIN PROTECTION**

W Ortega-Lara<sup>1</sup>, E. Ramírez<sup>1</sup>, M. Rocha-Pizaña<sup>2</sup>, A. Elías-Zúñiga<sup>1</sup>, C. Rodríguez<sup>1</sup>

<sup>1</sup>Centro de Innovación en Diseño y Tecnología, Tecnológico de Monterrey, Campus Monterrey. <sup>2</sup>Centro de Biotecnología FEMSA-ITESM, Tecnológico de Monterrey, Campus Monterrey.

■ **17:15 - 17:30 S2B-0016 ELECTROSPUN NANOFIBERS MATS AS BIOMIMETIC MATRICES IN TISSUE ENGINEERING APPLICATIONS**

S. E. Rodríguez-de Luna<sup>1,2</sup>, I. E. Moreno-Cortez<sup>1,2</sup>, M. A. Garza-Navarro<sup>1,2</sup>, R. Lucio-Porto<sup>1,2</sup>, L. A. López-Pavón<sup>1,2</sup>.

<sup>1</sup>Universidad Autónoma de Nuevo León, FIME. <sup>2</sup>Universidad Autónoma de Nuevo León, CIIDIT.

■ **17:30 - 17:45 S2B-0017 BIOMIMETIC SKIN-LIKE TOPOGRAPHY OF BIOCOMPATIBLE HARD THIN FILMS ON SOFT POLYMER SUBSTRATES**

J.M. Lackner<sup>1</sup>, W. Waldhauser<sup>1</sup>, E. Froehlich<sup>2</sup>, C. Teichert<sup>3</sup>

<sup>1</sup>Joanneum Research Forschungsges.m.b.H., Institute for Surface Technologies and Photonics, Functional Surfaces. <sup>2</sup>Medical University Graz, Center for Medical Research. <sup>3</sup>University of Leoben, Institute for Physics.

▶ **17:45 - 18:15 S2B-0018 Invited Talk COLLAGEN MEMBRANES INDUCE DIFFERENT VASCULARIZATION AND CELLULAR INFLAMMATORY RESPONSE IN RELATION TO THEIR OF ORIGIN: IN VIVO AND CLINICAL STUDIES**

Shahram Ghanaati<sup>1,2</sup>

<sup>1</sup>Department for Oral, Cranio-Maxillofacial and Facial Plastic Surgery, Medical Center of the Goethe University Frankfurt, Frankfurt am Main, Germany. <sup>2</sup>Institute of Pathology, REPAIR-Lab, University Medical Center, Johannes Gutenberg University Mainz, Germany

ROOM: TERRACE  
MONDAY, AUGUST 17

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S2B-P001 SOLUBILITY STUDY OF AN INCLUSION COMPLEX OF  $\beta$ -CYCLODEXTRIN AND PACLITAXEL TO USE AS A DRUG DELIVERY SYSTEM**

Jesús Molinar Díaz<sup>1</sup>Eric Montañez Rentería<sup>1</sup>, Carlos A. Martínez Pérez<sup>1</sup>, Imelda Olivas Armendáriz<sup>1</sup>, Claudia Rodríguez González<sup>1</sup> and Perla E. García Casillas<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez.

■ **S2B-P002 NUMERICAL ANALYSIS FOR THE OPTIMIZATION OF A REVERSE SHOULDER ENDOPROSTHESIS MADE OF VITALLIUM ALLOY**

H. A. Benítez-García<sup>1</sup>, B. Romero-Ángeles<sup>2</sup>, J. Espinoza-Zavala<sup>1</sup>, J. O. Hernández-Monterrosas<sup>1</sup>, E. M. Gutiérrez-Armenta<sup>1</sup>, G. Urriolagoitia-Sosa<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, Sección de Estudios de Posgrado e Investigación, Escuela Superior de Ingeniería Mecánica y Eléctrica. <sup>2</sup>Instituto Politécnico Nacional, Escuela Superior de Ingeniería Mecánica y Eléctrica.

■ **S2B-P003 EVALUATION OF LECITHIN ADDITION IN NANOPARTICLES OF CHITOSAN/CHONDROITIN SULFATE CONTAINING CURCUMIN: STABILITY, CHARACTERIZATION AND CYTOTOXICITY**

K. V. Jardim<sup>1,3</sup>, J. L. N. Sampaio<sup>2</sup>, S. N. Bão<sup>2</sup>, M. H. Sousa<sup>3</sup>, A. L. Parize<sup>4</sup>

<sup>1</sup>Chemical Institute, University of Brasília. <sup>2</sup>Department of Cell Biology, Institute of Biological Sciences, University of Brasília. <sup>3</sup>University of Brasília. <sup>4</sup>Chemical Department, Federal University of Santa Catarina.

■ **S2B-P004 IN VITRO CYTOTOXIC EVALUATION OF THE QUERCETIN ENCAPSULATED IN NANOPARTICLES OF CHITOSANA/SODIUM TRIPOLYPHOSPHATE**

K. V. Jardim<sup>1,3</sup>, J. L. N. Siqueira<sup>2</sup>, S. N. Bão<sup>2</sup>, M. H. Sousa<sup>3</sup>, A. L. Parize<sup>4</sup>

<sup>1</sup>Chemical Institute, University of Brasília, Campus Darcy. <sup>2</sup>Department of Cell Biology, Institute of Biological Sciences, University of Brasília. <sup>3</sup>University of Brasília. <sup>4</sup>Chemical Department, Federal University of Santa Catarina.



■ **S2B-P005 3D DESIGN WITH POLYLACTIC ACID AND HYDROXYAPATITE FOR BIOMATERIALS**

E. Reyes-Cervantes<sup>1</sup>, R. Agustin-Serrano<sup>1</sup>, C. De La Cerna<sup>1</sup>

<sup>1</sup>Benemerita Universidad Autonoma de Puebla.

■ **S2B-P006 SYNTHESIS AND CHARACTERIZATION OF COMPOSITE BIOMATERIALS OF HYDROXYAPATITE, WOLLASTONITE AND CHITOSAN**

M.A. Encinas-Romero<sup>1</sup>, J.L. Valenzuela-García<sup>1</sup>, E. D. Guerra<sup>2</sup>, P. Zavala-Rivera<sup>1</sup>

<sup>(1)</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora. Hermosillo, Sonora, México.<sup>(2)</sup>

Department of Mining and Materials Engineering, McGill University. Montreal.

■ **S2B-P007 IN VIVO EVALUATION OF BIOACTIVE Ti6AL4V DENTAL IMPLANTS WITH SURFACE TREATMENT BY CO<sub>2</sub> LASER**

L. López-Sosa<sup>1</sup>, G. Contreras-Hernandez<sup>2</sup>, B. Beltran-Salinas<sup>1</sup>, M.A.L. Hernandez-Rodriguez<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León. <sup>2</sup>Mageotec S.A de C.V, Monterrey Nuevo León, México.

■ **S2B-P008 THE EFFECTS OF THE βD-MANNURONIC ACID TO αL-GULURONIC ACID RATIO ON THE RHEOLOGICAL AND ADHESIVE PROPERTIES OF SODIUM ALGINATE GELS WITH POTENCIAL USE AS BONE ADHESIVE**

P.A. Sarmiento<sup>1</sup>; S.A. Suarez<sup>2</sup>; F. Cedano<sup>2</sup>; J.P. Casas<sup>3</sup>; F. Salcedo<sup>1</sup>

<sup>1</sup>Chemical Engineering Department, Biomedical Engineering Department<sup>2</sup>, Mechanical Engineering Department<sup>3</sup>, Universidad de los Andes, Carrera.

■ **S2B-P009 SILICA NANOPARTICLES DOPED WITH ISOFLAVONES FROM EYSENHARDTIA POLYSTACHYA TO STUDY THEIR ANTIPROLIFERATIVE EFFECT AND BIOMARKER PROPERTIES IN MCF-7 CELLS**

M. G. Ferreira-García<sup>1</sup>, M. E. Cruz-Soto<sup>2</sup>, Á. R. Hernández-Martínez<sup>1</sup>, Á. L. Rodríguez-Morales<sup>1</sup>, F. J. López-Martínez<sup>3</sup>, A. R. Ferriz-Martínez<sup>3</sup>, M. T. de J. Gasca-García<sup>3</sup>, M. R. Estévez-González<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada.

<sup>2</sup>Universidad del Valle de México Campus Querétaro.

<sup>3</sup>Universidad Autónoma de Querétaro, Facultad de Ciencias Naturales.

■ **S2B-P010 THEORETICAL STUDY OF THE STRUCTURAL AND ELECTRONIC PROPERTIES OF**

**AMINOGLYCOSIDES AND GOLD COMPLEXES PROVIDED AGAINST HIV REPLICATION**

Pedro Francisco-Santiago<sup>1</sup>, Bertha Molina-Brito<sup>2</sup>, Jorge Ramón Soto-Mercado<sup>2</sup>, Luis Enrique Sansores-Cuevas<sup>1</sup>.

<sup>1</sup>Instituto de Investigaciones en Materiales. <sup>2</sup>Facultad de Ciencias.

■ **S2B-P011 DEVELOPMENTS OF POLIMERIC SCAFFOLDS AS SKIN REGENERATORS**

M. F. Sánchez Medel<sup>1</sup>, M. R. Estevez Gonzalez<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, UNAM.

■ **S2B-P012 DEVELOPMENT BASED ON CHITOSAN DRESSING FOR APPLICATION IN BURNS**

Gabriela Guadalupe Esquivel Barajas<sup>1</sup>, Neri German Padilla Cárdenas<sup>1</sup>, Luis Alberto Bretado Aragón<sup>1</sup>.

<sup>1</sup>Universidad de La Ciénega del Estado Michoacán de Ocampo, Ingeniería en Nanotecnología.

■ **S2B-P013 PROPOSED PROSTHESIS DESIGN INTERVERTEBRAL DISC OF PEEK AND HYDROXYAPATITE**

J. Luna<sup>1</sup>, S. Beristain<sup>1</sup>, L. García<sup>1</sup>, A. Betancourt<sup>2</sup> G. V. Dávila<sup>3</sup>, I. Quintanar<sup>1</sup>, L. Rosales<sup>1</sup>

<sup>1</sup>Universidad Tecnológica de Tulancingo. <sup>2</sup>CINVESTAV Unidad Querétaro, <sup>3</sup>Instituto Politécnico Nacional, Escuela Superior de Ingeniería Mecánica y Eléctrica, Sección de Estudios de Posgrado e Investigación.

■ **S2B-P014 WIRELESS BACTERIA SENSOR BASED ON GOLD AND CARBON MATERIALS**

Rafael Velázquez<sup>1</sup>, Khaled Habiba<sup>1</sup>, Coral Ramos<sup>5</sup>, Zuania Cordero<sup>2</sup>, Bárbara Avalos<sup>2</sup>, Axel Arroyo<sup>3</sup>, Frank Mendoza<sup>1,5</sup>, Juan Villalobos<sup>5</sup>, Javier Avalos<sup>4,6</sup>, Darinel Ortiz<sup>5</sup>, Brad R. Weiner<sup>3,6</sup>, Gerardo Morell<sup>1,6</sup>

<sup>1</sup>Department of Physics, University of Puerto Rico.

<sup>2</sup>Department of Biology, University of Puerto Rico,

<sup>3</sup>Department of Chemistry, University of Puerto Rico,

<sup>4</sup>Department of Physics, University of Puerto Rico, <sup>5</sup>

Department of Biology, University of Puerto Rico, <sup>6</sup>Institute of Functional Nanomaterials, University of Puerto Rico.

■ **S2B-P015 PHYSICO-CHEMICAL CHARACTERIZATION OF A COMMERCIAL HUMAN ALLOGRAFT BONE**

G.A. Clavijo-Mejía<sup>1</sup>, J. A. Hermann-Muñoz<sup>1</sup>, J. A. Rincón-López<sup>1</sup>, L. Rodríguez-Mandujano<sup>1</sup>, D. G. Espinosa-Arbeláez<sup>1</sup>, A. L. Giraldo-Betancur<sup>1</sup>, J. Muñoz-Saldaña<sup>1</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN.

■ **S2B-P016 COINTERCALATION OF DOXORUBICIN AND CISPLATIN ANTICANCER DRUGS INTO ZIRCONIUM**

### PHOSPHATES NANOPARTICLES FOR DRUG DELIVERY APPLICATIONS

J.R. González-Villegas<sup>1</sup>, J. L. Colón<sup>1</sup>

<sup>1</sup>University of Puerto Rico-Río Piedras Campus, Department of Chemistry.

### ■ S2B-P017 PRE-CLINICAL VALIDATION STUDY OF A MINIATURIZED ELECTROCHEMICAL IMMUNOASSAY BASED ON SQUARE WAVE VOLTAMMETRY FOR EARLY DETECTION OF CARCINOEMBRYONIC ANTIGEN IN HUMAN SERUM

J.L. Hernández-López<sup>1</sup>, F.D. Martínez-Mancera<sup>1</sup>, P. García-López<sup>2</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica. <sup>2</sup>Instituto Nacional de Cancerología.

### ■ S2B-P018 LOW-COST FABRICATION OF A BIOMIMETIC MICROFLUIDIC CELL CULTURE PLATFORM

E. Jiménez Díaz<sup>1</sup>, L. Cabriales<sup>1</sup>, M. Macías<sup>2</sup>, M. Sosa<sup>2</sup>, I.A. Sánchez Cedillo<sup>3</sup>, M. Hautefeuille<sup>1</sup>

<sup>1</sup>Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México. <sup>2</sup>Instituto de Fisiología Celular, Universidad Nacional Autónoma de México. <sup>3</sup>Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán.

### ■ S2B-P019 ANTIBACTERIAL EFFECT OF BISMUTH SUBSALICYLATE NANOPARTICLES AGAINST STREPTOCOCCUS SP.

Alejandro Luis Vega-Jiménez<sup>1</sup>, Mariela Flores-Castañeda<sup>2</sup>, Enrique Camps<sup>2</sup>, Argelia Almaguer-Flores<sup>1</sup>

<sup>1</sup>Universidad Nacional Autónoma de México, Facultad de Odontología, México. <sup>2</sup>Departamento de Física, Instituto Nacional de Investigaciones Nucleares, México

### ■ S2B-P020 OBTAINING AND CHARACTERIZATION OF CHITOSAN-ARNICA COMPOSITE FOR POSSIBLE APPLICATION AGAINST VARICELLA

Yadira Esther Aceves Álvarez<sup>1</sup>

<sup>1</sup>Universidad de La Ciénega del Estado de Michoacán de Ocampo. Avenida

### ■ S2B-P021 COMPARATIVE ANALYSIS BETWEEN PVDF AND CORONA POLED PVDF PROSTHESES, FABRICATED BY A 3D PRINTER, AS PRESSURE, TACTILE AND TEMPERATURE SENSORS

G. Rodríguez-Roldán<sup>1</sup>, E. Suaste-Gómez<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Eléctrica, Sección Bioelectrónica.

### ■ S2B-P022 SELF-ASSEMBLY OF A DESIGNED ALTERNATING ARGININE/PHENYLALANINE OLIGOPEPTIDE

Carla Cristina Decandio<sup>1</sup>, Emerson Rodrigo Silva<sup>1,2</sup>, Ian W. Hamley<sup>2</sup>, Valeria Castelletto<sup>3</sup>, Michelle Silva. Liberato<sup>1</sup>, Vani Xavier Oliveira Jr.<sup>1</sup>, Cristiano L. P. Oliveira<sup>4</sup> and Wendel Andrade Alves<sup>1</sup>

<sup>1</sup>Centro de Ciências Naturais e Humanas, Universidade Federal do ABC, <sup>2</sup>Department of Chemistry, University of Reading; <sup>3</sup>National Physical Laboratory. <sup>4</sup>Instituto de Física, Universidade de São Paulo

### ■ S2B-P023 ADHESION RESISTANCE OF PORCELAIN VENEERS ON CASTING COBALT AND NICKEL BASED DENTAL ALLOYS

D. Contreras<sup>2</sup>, S. Belmares<sup>1</sup>, G.C. Hdz, Y. Bedolla-Gil<sup>1</sup>

<sup>1</sup>Facultad de Ciencias Físico Matemáticas de la Universidad Autónoma de Nuevo León. <sup>2</sup>GEODENT S.A. de C.V. Monterrey, N. L. México.

### ■ S2B-P024 POTENTIALITY OF PIEZOCERAMIC DEVICES, WITH PLATINUM IMPLANTS IN APPLICATIONS OF UNCONVENTIONAL ELECTRONICS FOR BIOMEDICAL PURPOSES

A. Florencio-Ramírez<sup>1</sup>, E. Suaste-Gómez<sup>1</sup>

<sup>1</sup> Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional

### ■ S2B-P025 HYDROGELS MATERIALS BASED ON SHORT PEPTIDES FOR ENCAPSULATION OF LEISHMANIA ANTIGENS

S. F. Souza<sup>1</sup>, M. A. Sperança<sup>1</sup>, W. A. Alves<sup>1</sup>

<sup>1</sup>Centro de Ciências Naturais e Humanas, Universidade Federal do ABC (UFABC)

### ■ S2B-P026 EFFECT OF AN ELECTRIC BIAS ON THE ANTIBACTERIAL PROPERTIES OF Ag-GOD NANOCOMPOSITES

Juan C. Villalobos<sup>5</sup>, Barbara Avalos-Cavero<sup>2</sup>, Coral Ramos<sup>5</sup>, Andrea Ferrer<sup>2</sup>, Mariel Jiménez<sup>4</sup>, Axel Arroyo<sup>3</sup>, Khaled Habiba<sup>1</sup>, Rafael Velázquez<sup>1</sup>, Javier Avalos<sup>4,6</sup>, Gerardo Morell<sup>1,6</sup>, Brad Weiner<sup>3,6</sup>

<sup>1</sup>Department of Physics, University of Puerto Rico,

<sup>2</sup> Department of Biology, University of Puerto Rico,

<sup>3</sup>Department of Chemistry, University of Puerto Rico,

<sup>4</sup>Department of Physics, University of Puerto Rico, <sup>5</sup>

Department of Biology, University of Puerto Rico, <sup>6</sup>Institute of Functional Nanomaterials, University of Puerto Rico





■ **S2B-P027 INJECTABLE AND MOLDABLE PUTTY CONTAINING MESOPOROUS BIOACTIVE GLASS PARTICLES FOR IMPROVED BONE REPAIR**

Agda Aline Rocha de Oliveira<sup>1</sup> and Emerson Fonseca<sup>2</sup>

<sup>1</sup>JHS Biomateriais - Minas Gerais, Brasil. <sup>2</sup>Departamento de Física – Universidade Federal de Minas Gerais, Brasil

■ **S2B-P028 COMPARATIVE IN VITRO ACTIVITY OF SILVER, ALONE AND IN COMBINATION WITH CERIUM OXIDE, FOR ELIMINATING ESCHERICHIA COLI**

Roberto Guerra González<sup>1</sup>, R. Rangel<sup>2</sup>, K. Rangel-Arreola<sup>2</sup>, V. Cedeño<sup>2</sup>, Alejandra Aguilar Álvarez<sup>3</sup>, Dante Tapia<sup>3</sup>, P. Quintana<sup>4</sup>

<sup>1</sup>Facultad de Ingeniería Química, Universidad Michoacana de S.N.H. <sup>2</sup>División de estudios de posgrado, Facultad de Ingeniería Química, Universidad Michoacana de S.N.H. <sup>3</sup>Facultad de Químico Farmacobiología, Universidad Michoacana de S.N.H. <sup>4</sup>Departamento de Física Aplicada, CINVESTAV-IPN, Unidad Mérida.

■ **S2B-P029 IMMOBILIZED METAL AFFINITY CHROMATOGRAPHY IN PRESENCE OF LYSINE AND SODIUM GLUTAMATE FOR PURIFICATION OF h-GPN2 PROTEIN PREVIOUS TO PROTEIN CRYSTAL**

Juárez-Lucero<sup>1</sup>, M. R. Guevara-Villa<sup>2</sup>, G. Hernández-Zárate<sup>2</sup>, R. Sánchez-Olea<sup>3</sup>, M. Calera-Medina<sup>3</sup>

<sup>1</sup>Facultad de Medicina, Universidad Autónoma de San Luis Potosí. <sup>2</sup>Ingeniería en Biotecnología, Universidad Politécnica Metropolitana de Puebla. <sup>3</sup>Instituto de Física, Universidad Autónoma de San Luis Potosí.

■ **S2B-P030 CROSSLINKED POLYMER BASED ON CHITOSAN FOR USING LIKE SCAFFOLD IN BIOMEDICAL AREA**

M. C. Cerrillos-Romero<sup>1</sup>, V. A. Escobar-Barrios, L. A. Salazar-Olivo

<sup>1</sup>Instituto Potosino de Investigación Científica y tecnológica.

■ **S2B-P031 EMISSION VARIATION OF CdSeTe / ZnS QUANTUM DOTS BIOCONJUGATED TO PAPILLOMA VIRUS ANTIBODIES**

J.A. Jaramillo Gómez<sup>1</sup>, T.V. Torchynska<sup>2</sup>, J.L. Casas Espinola<sup>2</sup> and J. Douda<sup>1</sup>,

<sup>1</sup>Instituto Politécnico Nacional, <sup>2</sup>Instituto Politécnico Nacional.

■ **S2B-P032 ELECTRO-CHEMICAL BEHAVIOR OF TEXTURIZED SURFACES ON Ti6Al4V ELI BIO-INSPIRED IN HUMAN BONE STRUCTURE**

E. Correa Muñoz<sup>1</sup>, J.S. Caballero Sarmiento, <sup>1</sup>H.A. Estupiñan Duran, <sup>1</sup>D.Y. Peña Ballesteros.<sup>2</sup>

<sup>1</sup>Universidad Nacional de Colombia- Sede Medellín. <sup>2</sup>Universidad Industrial de Santander (UIS) carrera.

■ **S2B-P033 GENOMIC DNA BINDING TO ZNO MICRORODS**

Carlos Vargas Hernández<sup>1</sup>, Diego Alonso Guzmán Embús<sup>1</sup>

<sup>1</sup>Universidad Nacional de Colombia sede Manizales, Laboratorio de Propiedades Ópticas de Materiales (POM) Campus la Nubia

■ **S2B-P034 SILVER NANOPARTICLES ADMINSTRATED BY INTRAPERITONEAL WAY AND THEIR EFFECTS IN CLINICAL CHEMISTRY AND HEMATOLOGY**

D Peralta-alvarez<sup>1</sup>, LF Espinosa-Cristobal<sup>2</sup>, GA Martinez-Castañón<sup>3</sup>, M Cervantes-Flores<sup>4</sup>, A Donohue-Cornejo<sup>2</sup>, J Salas-Pacheco<sup>5</sup>

<sup>1</sup>Maestría en Ciencias Estomatológicas, Facultad de Odontología, Universidad Juárez del Estado de Durango. <sup>2</sup>Departamento de Estomatología, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez. <sup>3</sup>Laboratorio de Nanobiomateriales Aplicados, Facultad de Estomatología, Universidad Autónoma de San Luis Potosí. <sup>4</sup>Laboratorio de Inmunología, Facultad de Ciencias Químicas, Universidad Juárez del Estado de Durango. <sup>5</sup>Laboratorio de Análisis Clínicos, Facultad de Medicina, Universidad Juárez del Estado de Durango.

■ **S2B-P035 LIPOSOMES FOR METOPROLOL ENCAPSULATION**

C.R. González Vargas<sup>1</sup>, J. Douda<sup>1</sup>, A.A. Vallejo Cardona<sup>2</sup>

<sup>1</sup>UPIITA: Unidad Profesional Interdisciplinaria de Ingeniería y Tecnología Avanzada. <sup>2</sup>CIATEJ: Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco.

■ **S2B-P036 EFFECT OF THE CONTENT OF CaO AND P<sub>2</sub>O<sub>5</sub> ON THE PROPERTIES OF PDMS-SiO<sub>2</sub>-CaO-P<sub>2</sub>O<sub>5</sub> HYBRID: REACTION KINETICS, DEGRADATION AND BIOACTIVITY**

D.A. Sánchez-Télez<sup>1</sup>, L. Téllez-Jurado<sup>1</sup>, L. M. Rodríguez-Lorenzo<sup>2,3</sup>

<sup>1</sup>Instituto Politécnico Nacional-ESIQIE, Depto. de Ing. Metalúrgica y Materiales. <sup>2</sup>Biomaterials Group, ICTP-CSIC. <sup>3</sup>Networking Biomedical Research Centre in



Bioengineering, Biomaterials and Nanomedicine, CIBER-BBN, Spain

■ **S2B-P037 EFFECT OF LOW LEVEL LASER IRRADIATION ON THE MORPHOLOGY OF DENTAL PULP STEM CELLS**

Ana María Hernández Lopez<sup>1</sup>; Frédéric Cuisinier<sup>2</sup>; Pierre-Yves Collart Dutilleul<sup>2</sup>; Csilla Gergely<sup>3,4</sup>; Marta Martín<sup>3,4</sup>; Jorge Luis Menchaca Arredondo<sup>1</sup>.

<sup>1</sup>Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Nuevo León; <sup>2</sup>Université Montpellier, Laboratoire Biologie-Santé Nanosciences. <sup>3</sup>Université Montpellier, Laboratoire Charles Coulomb. <sup>4</sup>CNRS, Laboratoire Charles Coulomb.

■ **S2B-P038 DEVELOPMENT A NANOHYBRID MESOPOROUS SILICA FUNCTIONALIZED WITH A SMART COPOLYMER (PNIPAAm-co-ABCD)**

L. García Uriostegui<sup>1,2</sup>, A. Escalante<sup>1</sup>, G. Toriz<sup>1</sup>, E. Delgado Fornué<sup>1</sup>

<sup>1</sup>Centro Universitario de Ciencias Exactas e Ingenierías (CUCEI- U de G), Guadalajara, Jalisco, México. <sup>2</sup>Consejo Nacional de Ciencia y Tecnología (CONACYT)

■ **S2B-P039 ENHANCED MRI RELAXIVITY INDUCED BY NOVEL ONE-DIMENSIONAL Fe<sub>3</sub>O<sub>4</sub> BUILDING BLOCKS**

Juan Beltran-Huarcac<sup>1,2</sup>, Daysi Diaz-Diestra<sup>1,3</sup>, Jabril Vilmenay<sup>2</sup>, Zeng Huadong<sup>4</sup>, Brad R. Weiner<sup>1,3</sup>, Gerardo Morell<sup>1,2</sup>

<sup>1</sup>Molecular Sciences Research Center, University of Puerto Rico. <sup>2</sup>Department of Physics, University of Puerto Rico. <sup>3</sup>Department of Chemistry, University of Puerto Rico. <sup>4</sup>McKnight Brain Institute, University of Florida, Gainesville, FL

■ **S2B-P040 SWELLING BEHAVIOR AND YOUNG MODULUS OF THERMORESPONSIVE BIOCOMPOSITE POLY (N-ISOPROPYLACRYLAMIDE) HYDROGELS MADE WITH STARCH EXTRACTED FROM AVOCADO SEEDS (*Persea americana*, Mill)**

V.V.A. Fernández<sup>1</sup>, Y. Hernández<sup>1</sup>, J. Aguilar<sup>1</sup>, F. Carvajal<sup>2</sup>, Y. Estrada<sup>3</sup>, E.R. Macías<sup>3</sup> and J.F.A. Soltero<sup>3</sup>

<sup>1</sup>Departamento de Ciencias Tecnológicas, Universidad de Guadalajara; <sup>2</sup>Departamento de Ingenierías, Universidad de Guadalajara; <sup>3</sup>Departamento de Ingeniería Química, Universidad de Guadalajara.

■ **S2B-P041 MULTIFUNCTIONAL MAGNETIC NANOWIRES: AN AVENUE TO HIGHLY-CONTROLLABLE NANOSTRUCTURES FOR TARGETED GENE DELIVERY**

M. Castro<sup>1</sup>, C. Ostos<sup>1</sup>, J.García-Posada<sup>1</sup>, J.C. Cruz<sup>2</sup>

<sup>1</sup>CATALAD Research Group, Instituto de Química, Universidad de Antioquia UdeA, <sup>2</sup>GIBIC Research Group, Facultad de Ingeniería, Universidad de Antioquia UdeA,

■ **S2B-P042 GROWTH LINE HEP-G2 HEPATOCELLULAR CARCINOMA HOMO SAPIENS ON POLYVINYL DIFLUORIDE FIBER MATS (PVDF) BASED ON ELECTROSPINNING**

C. O. González-Morán<sup>1</sup>, J. G. Miranda-Hernández<sup>1</sup>, H. Herrera-Hernández<sup>1</sup>

<sup>1</sup>Universidad Autónoma del Estado de México (CU-UAEM-VM). <sup>2</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional.

■ **S2B-P043 STUDY OF CORROSION BEHAVIOR OF A POLYLACTIC/HYDROXYAPATITE COMPOSITE COATING IN HANK SOLUTION FOR BIOMATERIAL APPLICATIONS**

G. Carbajal-De la Torre<sup>1</sup>, C.A. Pérez-Cortazar<sup>1</sup>, A.B. Martínez-Valencia<sup>1</sup>, L. Márquez-Pérez<sup>1</sup>, A. Sanchez-Castillo<sup>1</sup>, M. Villagomez-Galindo<sup>1</sup>, M.A. Espinosa-Medina<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica, Universidad Michoacana de San Nicolás de Hidalgo.

■ **S2B-P044 REDUCTION IN AUTO-ACTIVATION OF PEROXIDASE IMMOBILIZED ON POROUS SILICON/ SILICA MICROPARTICLES: EFFECT OF CO-IMMOBILIZATION**

Padmavati Sahare<sup>1</sup>, Marcela Ayala<sup>2</sup>, Rafael Vazquez-Duhalt<sup>3</sup>, L.T. Canham and Vivechana Agrawal<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas, UAEM,

■ **S2B-P045 SYNTHESIS AND CHARACTERIZATION OF IRON OXIDE MAGNETIC NANOPARTICLES AND ITS APPLICATION AGAINST CANCER**

J. Cruz-Vargas<sup>1</sup>, P.Guadarrama<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales; Circuito Exterior, Ciudad Universitaria,

■ **S2B-P046 CHARACTERIZATION OF HYBRID MATERIALS PREPARED BY DEPOSITION OF EXTRACT FROM THE PLANT TOURNEFORTIA HIRSUTISSIMA L. ON FAU ZEOLITES AND MATERIAL MCM-41**

I. Hernández Salgado<sup>1</sup>, R. Portillo Reyes<sup>2</sup>, V. A. Hernández Salgado<sup>3</sup>, M. A. Salgado Juárez<sup>2</sup>, M. A. Hernández Espinosa<sup>3</sup>

<sup>1</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla. <sup>2</sup>Departamento de Catálisis de la Facultad de Ciencias Químicas, <sup>3</sup>Departamento de



Investigación en Zeolitas, ICUAP,<sup>4</sup>Facultad de Ciencias Químicas, Benemérita Universidad Autónoma de Puebla.

■ **S2B-P047 HYDROGELS USED AS MARKERS FOR BREAST BIOPSY**

S. Reyes<sup>1</sup>, M.E. Cruz Soto<sup>3</sup>, A.L. Rodriguez<sup>2</sup>, A.R. Hernández<sup>2</sup> & M. Estevez<sup>2</sup>

<sup>1</sup> Maestría en Ciencia e Ingeniería de Materiales, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México.<sup>2</sup> Departamento de Ingeniería Molecular de Materiales, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México.<sup>3</sup> Escuela de Medicina, Universidad del Valle de México.

■ **S2B-P048 CHITOSAN-SILVER NANOPARTICLES (CS-AGNPS) NANOCOMPOSITES FOR WOUND DRESSING APPLICATIONS**

A. Hernández Rangel<sup>1</sup>, E. Luna-Hernández<sup>1</sup>, P. Silva-Bermúdez<sup>2</sup>, A. Mauricio-Sánchez<sup>1</sup>, C. Velasquillo-Martínez<sup>2</sup> and G. Luna-Bárceñas<sup>1</sup>

<sup>1</sup> Centro de Investigación y de Estudios Avanzados del IPN.  
<sup>2</sup> Instituto Nacional de Rehabilitación.

■ **S2B-P049 ANTIBACTERIAL EFFECT OF DYED FIBER USING NATURAL BIOLOGICAL ACTIVE SUBSTANCE VIOLACEIN**

Chang Seok Lee<sup>1</sup>, Young Mi Kwon<sup>1</sup>, Yu Jung Kim<sup>1</sup>, Robert J. Mitchell<sup>2</sup>, Seong Yeol Choi<sup>2</sup>, Jin Hyung Lee<sup>3</sup>

<sup>1</sup> Yeejoo Co., LTD.<sup>2</sup> Ulsan National Institute of Science and Technology.<sup>3</sup> Korea Institute of Ceramic Engineering and Technology,

I. Cepeda-Pérez<sup>1</sup>, L. Pérez-Mayen<sup>1</sup>, T. López-Luke<sup>1</sup>, E. de la Rosa<sup>1</sup>, A. Torres-Castro<sup>2</sup>, A. Ceja-Fdez<sup>1</sup>, J. Vivero-Escoto<sup>3</sup>, A.L. Gonzalez-Yebra<sup>4</sup>

<sup>1</sup> Centro de Investigaciones en Óptica A.C. <sup>2</sup> Universidad Autónoma de Nuevo León, CIDIIT-FIME, UANL, <sup>3</sup> The University of North Carolina-Charlotte. Department of Chemistry., <sup>4</sup> Departamento de Medicina y Nutrición. División Ciencias de la Salud, Campus León, Universidad de Guanajuato.

■ **09:15 - 09:30 S2B-0021 MAGNETIC NANOSTRUCTURES FOR BIOMEDICAL APPLICATION**  
Perla E. García Casillas<sup>1</sup>

<sup>1</sup> Universidad Autónoma de Ciudad Juárez.

■ **09:30 - 09:45 S2B-0022 IMMUNOSENSORS FOR DETECTION OF TUBERCULOSIS BASED ON SEMICONDUCTING POLYMERS**

Vicente Damián Compeán-García<sup>1</sup>, Miguel Ángel Arroyo-Ornelas<sup>1</sup>, Concepción Arenas-Arrocena<sup>2</sup>, Luz María López-Marín<sup>1</sup>

<sup>1</sup> Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México,<sup>2</sup> Escuela Nacional de Estudios Superiores, Unidad León, Universidad Nacional Autónoma de México.

■ **09:45 - 10:00 S2B-0023 WATER-SYNTHESIZED ZnS:Mn QUANTUM DOTS FOR MULTIPLE BIOLOGICAL DETECTION AND ENZYME IMMOBILIZATION: AN EMERGING BIOMATERIAL**

Daysi Díaz-Diestra<sup>1,2</sup>, Juan Beltran-Huarac<sup>1,3</sup>, Dina P. Bracho-Rincon<sup>1,4</sup>, José A. González-Feliciano<sup>1,4</sup>, Carlos I. Gonzalez<sup>1,4,5</sup>, Brad R. Weiner<sup>1,2</sup> and Gerardo Morell<sup>1,3</sup>

<sup>1</sup> Molecular Sciences Research Center, University of Puerto Rico. <sup>2</sup> Department of Chemistry, University of Puerto Rico - Río Piedras. <sup>3</sup> Department of Physics, University of Puerto Rico - Río Piedras. <sup>4</sup> Department of Biology, University of Puerto Rico - Río Piedras. <sup>5</sup> Department of Biochemistry, School of Medicine, University of Puerto Rico - Medical Sciences,

▶ **10:00 - 10:30 S2B-0024 Invited Talk MULTIFUNCTIONAL BIODEGRADABLE NANOCAPSULES BUILT ON VEGETABLE OIL NANOTEMPLATES**

R. Vecchione<sup>1,2</sup>, P. A. Netti<sup>1,2</sup>

<sup>1</sup> Center for Advanced Biomaterials for Health Care@CRIB, Istituto Italiano di Tecnologia, Naples, Italy.<sup>2</sup> Interdisciplinary Research Center of Biomaterials, CRIB, University Federico II, Naples, Italy

ROOM: TULUM F  
TUESDAY, AUGUST 18

👤 Session Chair: SANDRA VAN VLIERBERGHE

■ **08:30 - 08:45 S2B-0019 APTMS MODIFIED SURFACE OF YAG:PR NANOPHOSPHOR: AN EFFECTIVE NANOSCINTILLATOR FOR PHOTODYNAMIC THERAPY IN CANCER TREATMENT**

Prakhar Sengar<sup>1,2</sup>, G.A. Hirata<sup>2</sup>

<sup>1</sup> Posgrado en Física de Materiales CICESE. <sup>2</sup> Centro de Nanociencias y Nanotecnología-UNAM.

■ **09:00 - 09:15 S2B-0020 WET CHEMICAL SYNTHESIS OF QUANTUM DOTS FOR IMAGING AND DIAGNOSTICS: A RAMAN SPECTROSCOPY STUDY**

■ **10:30 - 10:45 S2B-0025 MULTI-FUNCTIONAL SILVER NANOPARTICLES DECORATED WITH GRAPHENE QUANTUM DOTS IN CANCER THERAPEUTICS**


Khaled Habiba<sup>1,2</sup>, Joel Encarnación-Rosado<sup>3</sup>, Kenny García<sup>4</sup>, Vladimir Makarov<sup>1,2</sup>, Javier Avalos<sup>5</sup>, Gerardo Morell<sup>1,2</sup> and Brad R. Weiner<sup>2,6</sup>.

<sup>1</sup>Department of Physics, University of Puerto Rico -Rio Piedras Campus, <sup>2</sup>Institute of Functional Nanomaterials, University of Puerto Rico, <sup>3</sup>Department of Biology, University of Puerto Rico -Rio Piedras Campus, <sup>4</sup>Department of Education, University of Puerto Rico -Rio Piedras Campus, <sup>5</sup>Department of Physics, University of Puerto Rico -Bayamon Campus, <sup>6</sup>Department of Chemistry, University of Puerto Rico -Rio Piedras Campus.

■ **10:45 - 11:00 S2B-0026 CORE-SHELL (Au-MnFe<sub>2</sub>O<sub>4</sub>) NANO-FLOTILLAS AS CARGOS FOR DRUG DELIVERY IN LARYNX CARCINOMA CELLS**

M. Ravichandran<sup>1</sup>, Goldie Oza<sup>2</sup>, Jose Tapia Ramirez<sup>3</sup>, Francisco Garcia-Sierra<sup>4</sup>, Norma Barragán Andrade<sup>4</sup>, S. Velumani<sup>1,2</sup>

<sup>1</sup>Program on Nanoscience & Nanotechnology, <sup>2</sup>Department of Electrical Engineering-SEES, <sup>3</sup>Department of Genetics & Molecular Biology, <sup>4</sup>Department of Cell Biology.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **SANDRA E. RODIL**

■ **12:30 - 12:45 S2B-0027 HOST-GUEST INTERACTION MEDIATED ENGINEERING OF pH-RESPONSIVE SUPRAMOLECULAR VESICLES FOR CONTROLLED DRUG DELIVERY**

B. Yang<sup>1</sup>, Z. Guo<sup>1</sup>, L. Xiao<sup>1</sup>, G. Zhou<sup>1</sup>

<sup>1</sup>Institute of Electronic Paper Displays, South China Academy of Advanced Optoelectronics, South China Normal University.

■ **12:45 - 13:00 S2B-0028 AU-Fe<sub>3</sub>O<sub>4</sub>-CARBON DOTS AS NANOARMADAS FOR BIOIMAGING AND DRUG DELIVERY**

Goldie oza<sup>1</sup>, M. Ravichandran<sup>2</sup>, Jose Tapia Ramirez<sup>3</sup>, Francisco Sierra-García<sup>4</sup>, Norma Barragán Andrade<sup>4</sup>, S. Velumani<sup>1,2</sup>

<sup>1</sup>Department of Electrical Engineering (SEES), <sup>2</sup>Program on Nanoscience and Nanotechnology, <sup>3</sup>Department of

Genetics and Molecular Biology, <sup>4</sup>Department of Cell Biology,

► **13:00 - 13:30 S2B-0029 Invited Talk MULTI-LENGTH SCALE MICROSCOPES OF BIOMATERIAL INTERFACES**  
**K. Grandfield<sup>1</sup>**

<sup>1</sup>Department of Materials Science and Engineering, School of Biomedical Engineering, McMaster University,

■ **13:30 - 13:45 S2B-0030 COMPARISON OF THE DIFFERENTIATION OF PERIODONTAL LIGAMENT STEM CELLS ON METALS, CERAMICS AND POLYMERS**

C.C. Barrera<sup>1</sup>, H. Arzate<sup>2</sup>, S. E. Rodil<sup>3</sup>

<sup>1</sup>Programa de Doctorado en Ciencias Odontológicas, Biomateriales, Facultad de Odontología, UNAM. <sup>2</sup>Laboratorio de Biología Celular, DEPEI, Facultad de Odontología, UNAM. <sup>3</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México.

■ **13:45 - 14:00 S2B-0031 STUDY OF THE EFFECTS OF CARBON NANOTUBES ON THE DOPAMINE MEMBRANE RECEPTOR IN HELIX ASPERSA'S NEURONS**

E.E. Mendoza-Ortega<sup>1</sup>, E. Orrantia-Borunda<sup>1</sup>, J. Bernal-Martínez<sup>1</sup>, A. Aguilar-Elguezabal<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados S.C.

 **14:00- 16:00 LUNCH**

 Session Chair: **ARGELIA ALMAGUER**

► **16:15 - 16:45 S2B-0032 Invited Talk CRYOGEL-POLYESTER COMBINATION SCAFFOLDS FOR HARD TISSUE ENGINEERING**

J. Van Hoorick<sup>1</sup>, M. Markovic<sup>2</sup>, H. Declercq<sup>3</sup>, M. Cornelissen<sup>3</sup>, T. Fowler<sup>4</sup>, O. Hoffmann<sup>4</sup>, A. Ovsianikov<sup>2</sup>, J. Van Erps<sup>5</sup>, H. Thienpont<sup>1,5</sup>, P. Dubruel<sup>1</sup>, S. Van Vlierberghe<sup>1,5</sup>

<sup>1</sup>Department of Organic and Macromolecular Chemistry, Ghent University, Belgium. <sup>2</sup>Institute of Materials Science and Technology, Vienna University of Technology. <sup>3</sup>Tissue Engineering Group, Department of Basic Medical Sciences, Ghent University. <sup>4</sup>Department of Pharmacology and Toxicology, University of Vienna. <sup>5</sup>Brussels Photonics Team, Department of Applied Physics and Photonics,

■ **16:45 - 17:00 S2B-0033 ANTIMICROBIAL ACTIVITY STUDY OF HYDROXYLAPATITE-AG3PO4 SYSTEM**

A. L. Hernández-de Huerta<sup>1</sup>, E. Reyes-Cervantes<sup>2</sup>, R. Agustín-Serrano<sup>3</sup>, M. Juárez-Meneses<sup>2</sup> and E. Rubio-Rosas<sup>2</sup>.



<sup>1</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla. <sup>2</sup>Centro Universitario de Vinculación y Transferencia de Tecnología, Benemérita Universidad Autónoma de Puebla, Puebla, Puebla México

University, Belgium. <sup>3</sup>Junior Research Group Cell Biology, University of Rostock, Germany. <sup>4</sup>Brussels Photonics Team, Vrije Universiteit Brussel, Belgium

■ **17:00 - 17:15 S2B-0034 ANTIBACTERIAL ACTIVITY OF SILVER-GRAPHENE QUANTUM DOTS NANOCOMPOSITES AGAINST GRAM-POSITIVE AND GRAM-NEGATIVE BACTERIA**

Kenny Garcia<sup>9</sup>, Khaled Habiba<sup>1,3</sup>, Dina P. Bracho-Rincon<sup>2,3</sup>, Jose A. Gonzalez-Feliciano<sup>2,3</sup>, Vladimir I. Makarov<sup>1</sup>, Darinel Ortiz<sup>4</sup>, Javier A. Avalos<sup>3,5</sup>, Carlos I. Gonzalez<sup>2,3,6,7</sup>, Brad R. Weiner<sup>3,7,8</sup>, Gerardo Morell<sup>1,3,7</sup>.

<sup>1</sup>Department of Physics, University of Puerto Rico -Rio Piedras Campus. <sup>2</sup>Department of Biology, University of Puerto Rico -Rio Piedras Campus, San. <sup>3</sup>Molecular Sciences Research Center, University of Puerto Rico. <sup>4</sup>Department of Biology, University of Puerto Rico -Bayamon Campus. <sup>5</sup>Department of Physics, University of Puerto Rico -Bayamon Campus. <sup>6</sup>Department of Biochemistry, University of Puerto Rico-Medical Sciences. <sup>7</sup>Institute for Functional Nanomaterials, University of Puerto Rico. <sup>8</sup>Department of Chemistry, University of Puerto Rico -Rio Piedras Campus. <sup>9</sup>Department of Education, University of Puerto Rico -Rio Piedras Campus.

■ **17:15 - 17:30 S2B-0035 INCORPORATION OF ANTIMICROBIAL PEPTIDES (AMP) INTO NATURAL BIOPOLYMERS AS A NEW STRATEGY TO DESIGN NON-TOXIC ANTIMICROBIAL TEXTILES**

I.C. Gouveia<sup>1</sup>, Frederico Nogueira<sup>1</sup>, Ana Paula Gomes<sup>1</sup>, Cláudia Mouro<sup>1</sup>

<sup>1</sup>FibEnTech - Fiber materials and environmental technologies - research unit, University of Beira Interior, Covilhã, Portugal

■ **17:30 - 17:45 S2B-0036 IDEAL WOUND DRESSINGS OF ALOE VERA WITH NPS-AG FOR MINOR INJURED**

L. Gómez<sup>1</sup>, C. Echeverry<sup>1</sup>, M. Londoño<sup>1</sup>

<sup>1</sup>Grupo de Investigación en Ingeniería Biomédica EIA-CES - GIBEC, Escuela de Ingeniería de Antioquia, Universidad CES.

■ **17:45 - 18:00 S2B-0037 CROSSLINKABLE BIOPOLYMERS TARGETING OSTEOGENESIS AND ADIPOGENESIS**

I. Van Nieuwenhove<sup>1</sup>, W. De Vos<sup>2</sup>, A. Salamon<sup>3</sup>, K. Peters<sup>3</sup>, P. Dubruel<sup>1</sup> and S. Van Vlierberghe<sup>1,4</sup>

<sup>1</sup>Polymer Chemistry and Biomaterials Group, Ghent University, Belgium. <sup>2</sup>Cell Systems and Imaging, Antwerp

ROOM: TERRACE  
TUESDAY, AUGUST 18

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S2B-P050 ATOMIC SIMULATION BASED DESIGN OF BIOCOMPATIBLE PIEZO-ELECTRIC MIXED CRYSTAL (Mg<sub>1-x</sub>, A<sub>x</sub>)SiO<sub>3</sub> AND ITS THIN FILM GENERATION**

E. Nakamachi<sup>1</sup>, N. Yoshioka<sup>1</sup>, H. Sakamoto<sup>2</sup>, T. Yamaguchi<sup>1</sup>, Y. Morita<sup>1</sup>

<sup>1</sup>Dept. of Biomedical Engng., Doshisha University, <sup>2</sup>Kumamoto University,

■ **S2B-P051 STABLE SUPPORTED PHOSPOLIPID BIOMEMBRANES ONTO SPIN COATED HYDROGEL FILMS SCAFFOLDS**

Mauricio A. Sarabia-Vallejos<sup>1</sup>, Carmen M. González-Henríquez<sup>2</sup>, Guadalupe del C. Pizarro<sup>2</sup>, Evelyn N. Córdoba-Alarcón<sup>2</sup> and Claudio A. Terraza<sup>3</sup>

<sup>1</sup>Instituto de Física, <sup>3</sup>Departamento de Química, Pontificia Universidad Católica de Chile, Santiago, Chile. <sup>2</sup>Departamento de Química, Universidad Tecnológica Metropolitana, Santiago, Chile.

■ **S2B-P052 THIN HYDROGEL FILMS DEPOSITED THROUGH ELECTROSPINNING-BIOMEMBRANE FORMATION**

C.M. Gonzalez-Henriquez<sup>1</sup>, G. del C. Pizarro<sup>1</sup>, M.A. Sarabia-Vallejos<sup>2</sup> and C.A.Terraza-Inostroza<sup>3</sup>

<sup>1</sup>Departamento de Química, Universidad Tecnológica Metropolitana, Santiago, Chile, <sup>2</sup> Instituto de Física, <sup>3</sup>Departamento de Química, Pontificia Universidad Católica de Chile, Santiago, Chile.

■ **S2B-P053 MAGHEMITE NANOPARTICLES FOR HYPERTHERMIA APPLICATIONS**

E.M. Múzquiz-Ramos<sup>1</sup>, V. Guerrero-Chávez<sup>1</sup>, B.I. Macías-Martínez<sup>1</sup>, C.M. López-Badillo<sup>1</sup>, L.A. García-Cerda<sup>2</sup>

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Coahuila. <sup>2</sup>Centro de Investigación en Química Aplicada.

■ **S2B-P054 DESIGN AND FABRICATION OF HIGH FREQUENCY LEAD-FREE PIEZOELECTRIC FILM TRANSDUCER**

Wei Ren<sup>1</sup>, Hongwei Liu<sup>1</sup>, Peng Shi<sup>1</sup>, and Qifa Zhou<sup>2</sup>

<sup>1</sup>Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research., <sup>2</sup>National Institutes of Health (NIH) Transducer Resource Center, Department of Biomedical Engineering, University of Southern California,

■ **S2B-P055 SYNTHESIS, STRUCTURE AND IN VITRO BIOLOGICAL PROPERTIES OF GAP AND TCP NANOPOWDERS PRODUCED BY CRYSTALLIZATION OF AMORPHOUS GAP**

Oleksii Dubok<sup>1</sup>, P.A. Marquez Aguilar<sup>2</sup>, Ivette Mendoza Torres<sup>2</sup>, M. de los A. Aguilar Santamaria<sup>3</sup>, E. T. Vázquez Salazar<sup>3</sup>

<sup>1</sup>Institute for Problems of Materials Science, National Academy of Sciences of Ukraine. <sup>2</sup>Center of Investigation in Engineering and Applied Sciences of the Autonomous University of the State of Morelos (CIICAp-UAEMor). <sup>3</sup>Universidad Autónoma Metropolitana, División ciencias biológicas y de la salud,

■ **S2B-P056 DEVELOPMENT OF TiO<sub>2</sub>-CAO-P2O<sub>5</sub>-SiO<sub>2</sub> FILMS USING PLASMA ELECTROLYTIC OXIDATION (PEO), ON Ti6Al4V ELI SUBSTRATE PREVIOUSLY NITRIDING BY PHYSICS DEPOSITION OF PVD VAPOR**

Chaparro Garnica, Cristian Yesid<sup>1</sup>, García Rueda, Francy Catalina<sup>2</sup>, Dario Y. Peña B.<sup>3</sup>, Anderson A. Sandoval A.<sup>4</sup>, Hugo Estupiñán<sup>5</sup>

■ **S2B-P057 ANTIMICROBIAL AGENTS BASED ON NANO-HYDROTALCITES SUPPORTED ON SILICA**

G. R. Oliveira<sup>1</sup>, L. J. D. Amaral<sup>1</sup>, M. Giovanela<sup>1</sup>, J. S. Crespo<sup>1</sup>, G. Fetter<sup>2</sup>, J. A. Rivera<sup>2</sup>, A. Sampieri<sup>3</sup>

<sup>1</sup>Universidade de Caxias do Sul, Centro de Ciências Exatas e da Tecnologia. <sup>2</sup>Universidad Autónoma de Puebla, Facultad de Ciencias Químicas. <sup>3</sup>Universidad Autónoma de Puebla, Facultad de Ingeniería Química.

■ **S2B-P058 EFFECTS OF SOLVENTS ON THE RADIATION GRAFTING REACTION OF VINYL COMPOUNDS ON POLY (3-HYDROXYBUTYRATE)**

González Torres<sup>1</sup>, J. R. Rodríguez Talavera<sup>1</sup>, S. Vargas Muñoz<sup>1</sup>, R. A. Esparza Muñoz<sup>1</sup>, B. Huerta<sup>2</sup>, G. Méndez<sup>2</sup>, Ma. P. Carreón. Castro<sup>3</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada. Universidad Nacional Autónoma de México. <sup>2</sup>Centro de Investigación en Química Aplicada. <sup>3</sup>Departamento de Química de Radiaciones y Radioquímica del Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México

■ **S2B-P059 CRYSTALLINE AND SPECTROSCOPIC CHARACTERIZATION OF POLY(2-AMINOETHYL METHACRYLATE HYDROCHLORIDE) CHAINS GRAFTED ONTO POLY[(R)-3-HYDROXYBUTYRIC ACID]**

J.R. Rodríguez Talavera<sup>1</sup>, M. González Torres<sup>1</sup>, S. Vargas Muñoz<sup>1</sup>, R. A. Esparza Muñoz<sup>1</sup>, Blanca Huerta<sup>2</sup>, G. Méndez<sup>2</sup>, Ma. P. Carreón. Castro<sup>3</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada. Universidad Nacional Autónoma de México. <sup>2</sup>Centro de Investigación en Química Aplicada. <sup>3</sup>Departamento de Química de Radiaciones y Radioquímica del Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México.

■ **S2B-P060 TRIBOLOGICAL AND MECHANICAL PROPERTIES OF POLY[(R)-3-HYDROXYBUTYRIC ACID] GRAFTED WITH VINYL COMPOUNDS: INSIGHT INTO POSSIBLE APPLICATION**

Vargas<sup>1</sup>, M. González Torres<sup>1</sup>, J.R. Rodríguez<sup>1</sup>, M. Estévez González<sup>1</sup>, Ma. P. Carreón-Castro<sup>2</sup>, G. López Calzada<sup>1</sup>, W. Brostow<sup>3</sup> and N. Hnatchuk<sup>3</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México. <sup>2</sup>Departamento de Química de Radiaciones y Radioquímica del Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México. <sup>3</sup>Laboratory of Advanced Polymers & Optimized Materials (LAPOM), Department of Materials Science and Engineering and Department of Physics, University of North Texas.

■ **S2B-P061 CHEMICAL CHARACTERIZATION OF A SYNTHETIC COLLAGEN MEMBRANE FOR GUIDED BONE REGENERATION**

L.J. Villarreal-Gómez<sup>1</sup>, T. Ng<sup>2</sup>, R. Vera-Graziano<sup>3</sup>, S.L. Gómez-Castellanos<sup>1</sup>, A.L. Iglesias<sup>1</sup>, E. Serena-Gómez<sup>4</sup>

<sup>1</sup>Escuela de Ciencias de Ingeniería y Tecnología, Unidad Valle de las Palmas, Universidad Autónoma de Baja California, Tijuana, México. <sup>2</sup>Oakland Oral and Maxillofacial Surgery, Oakland, California, United States. <sup>3</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Distrito Federal, México. <sup>4</sup>Centro de Ciencias de la Salud, Unidad Valle de las Palmas, Universidad Autónoma de Baja California, Tijuana, México.

■ **S2B-P062 CHEMICAL CHARACTERIZATION OF A RESORBABLE SCREW FOR BONE FIXATION**

L.J. Villarreal-Gómez<sup>1</sup>, T. Ng<sup>2</sup>, R. Vera-Graziano<sup>3</sup>, S.L. Gómez-Castellanos<sup>1</sup>, A.L. Iglesias<sup>1</sup>, E. Serena-Gómez<sup>4</sup>

<sup>1</sup>Escuela de Ciencias de Ingeniería y Tecnología, Unidad Valle de las Palmas, Universidad Autónoma de Baja





California, Tijuana, México. <sup>2</sup> Oakland Oral and Maxillofacial Surgery, Oakland, California, United States. <sup>3</sup> Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Distrito Federal, México. <sup>4</sup> Centro de Ciencias de la Salud, Unidad Valle de las Palmas, Universidad Autónoma de Baja California, Tijuana, México

■ **S2B-P063 IN VITRO CELL UPTAKE STUDY OF SILVER NANOPARTICLES**

H. Kolarova<sup>1,3</sup>, K. Tomankova<sup>1,3</sup>, J. Horakova<sup>1,3</sup>, M. Harvanova<sup>2,3</sup>, L. Malina<sup>1,3</sup>, J. Soukupova<sup>4</sup>, S. Hradilova<sup>4</sup>, K. Kejllova<sup>5</sup>, J. Malohlava<sup>1,3</sup>, L. Licman<sup>1</sup>, M. Dvorakova<sup>5</sup>, D. Jirova<sup>5</sup>

<sup>1</sup>Department of Medical Biophysics, <sup>2</sup>Department of Pharmacology, <sup>3</sup>Institute of Molecular and Translational Medicine, Faculty of Medicine and Dentistry, Palacky University in Olomouc, <sup>4</sup>Department of Physical Chemistry, Faculty of Science, Regional Centre of Advanced Technologies and Materials, <sup>5</sup>Centre of Toxicology and Health Safety, National Institute of Public Health,

■ **S2B-P064 STARCH-GUAR GUM EXTRUDATES: MICROSTRUCTURE, PHYSICOCHEMICAL PROPERTIES AND IN-VITRO DIGESTION STUDIES**

E. von Borries Medrano<sup>1</sup>, M. R. Jaime Fonseca<sup>1</sup> and M. A. Aguilar Méndez<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional,

■ **S2B-P065 A RAPID, EFFICIENT, AND FACILE SOLUTION FOR DENTAL HYPERSENSITIVITY: THE TANNIN-IRON COMPLEX**

D.X. Oh<sup>1</sup> and D.S. Hwang<sup>1,2</sup>

<sup>1</sup>POSTECH Ocean Science and Technology, Pohang University of Science and Technology (POSTECH); <sup>2</sup> School of Interdisciplinary Bioscience and Bioengineering, Pohang University of Science and Technology (POSTECH),

■ **S2B-P066 CORRELATION BETWEEN CORROSION AND ADHESION OF PROTEINS ON STEEL 316L TREATED BY IONIC NITRIDING**

H. A. Estupiñan-Duran<sup>1</sup>, D. Sh. Galeano-Osorio<sup>1</sup>, J. M. Vélez-Restrepo<sup>1</sup>

<sup>1</sup>Universidad Nacional de Colombia sede Medellín Antioquia Colombia,

■ **S2B-P067 EXTENDED POTTS MODEL FOR CARDIOMYOCYTE ELONGATION ON THE NANOFIBROUS SCAFFOLD**

N. N. Kudryashova<sup>1</sup>, A.V. Panfilov<sup>2</sup>, and K.I. Agladze<sup>1</sup>

<sup>1</sup>Moscow Institute of Physics and Technology. <sup>2</sup>Department of Physics and Astronomy, Ghent University Belgium

■ **S2B-P068 NEW STIMULI-SENSITIVE COPOLYMERS OF N-VINYLCAPROLACTAMA GRAFT AND 4-VINYLPYRIDINE ON SILICONE AS CARRIERS OF DRUGS.**

Victor H. Pino-Ramos<sup>1</sup>, Carmen Alvarez-Lorenzo<sup>2</sup>, Angel Concheiro<sup>2</sup>, and Emilio Bucio<sup>1</sup>

<sup>1</sup>Departamento de Química de Radiaciones y Radioquímica, Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México.,

<sup>2</sup>Departamento de farmacia y Tecnología Farmacéutica, Universidad de Santiago de Compostela.

■ **S2B-P069 SYNTHESIS OF BIOMEDICAL Ti-Nb-Ta-Mn ALLOY BY MECHANICAL ALLOYING**

C.Salvo<sup>1</sup>, C.Aguilar<sup>1</sup>, S. Lascano<sup>1</sup>, L. Bejar<sup>2</sup>, A. Medina<sup>2</sup>, D. Guzmán<sup>3</sup>

<sup>1</sup>Universidad Técnica Federico Santa María, Departamento de Ingeniería Metalúrgica y de Materiales, Departamento de Ingeniería Mecánica. <sup>2</sup>Universidad Michoacana de San Nicolás de Hidalgo, Instituto de Investigaciones Metalúrgicas, Facultad de Ingeniería Mecánica, Ciudad Universitaria, Morelia, México. <sup>3</sup>Universidad de Atacama, Departamento de Metalurgia.

■ **S2B-P070 PHYSICOCHEMICAL CHARACTERIZATION OF IONIC LIPOPLEXES AND THEIR POTENTIAL USE AS NON-VIRAL VECTORS**

César Rodríguez-Beas<sup>1</sup>

<sup>1</sup>Physics Department, University of Sonora,

■ **S2B-P071 CHARACTERIZATION OF POROUS SILICA NANOPARTICLES SYNTHESIZED FROM RICE HUSKS: A COMPARISON STUDY OF SYNTHESIS METHODS**

Jin Hyung Lee<sup>1</sup>

<sup>1</sup>Korea Institute of Ceramic Engineering and Technology,

■ **S2B-P072 FABRICATION OF 3D PRINTED SCAFFOLDS WITH DEFINED FIBER AND PORE SIZES**

A Paredes-Puerto<sup>1</sup>, A Pérez-Cordova<sup>2</sup>, H Esquivel-Solís<sup>1</sup>

<sup>1</sup>Unidad de Biotecnología Médica y Farmacéutica, Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco. <sup>2</sup> Escuela de Ingeniería, Universidad Modelo,

■ **S2B-P073 DFT STUDY OF TAMOXIFEN AND ENDOXIFEN IN THE ESTROGEN RECEPTOR ALPHA**



**Jorge A. Tapia<sup>1</sup>, César A. Cab<sup>1</sup>, Ramiro F. Quijano-Quiñones<sup>2</sup>, and Gabriel I. Canto<sup>3</sup>**

<sup>1</sup>Facultad de Ingeniería, Universidad Autónoma de Yucatán. <sup>2</sup>Laboratorio de Química Farmacéutica, Facultad de Química, Universidad Autónoma de Yucatán. <sup>3</sup>Centro de Investigación en Corrosión, Universidad Autónoma de Campeche,

- **S2B-P074 USE OF NANOHYDROXYAPATITE-CHITOSAN AND NANOSILVER-CHITOSAN IN THE OSTEOREGENERATION OF CRITICAL SIZE DEFECTS**  
**MA. Casillas-Santana<sup>1</sup>, GA. Martínez-Castañón<sup>1</sup>, NV. Zavala-Alonso<sup>1</sup>, N. Patiño-Marín<sup>1</sup>, JH. Olvera-Delgado<sup>1</sup>, JF. Reyes-Macias<sup>1</sup>, V. Flores Gutiérrez<sup>1</sup>, G. Ortega-Zarzosa<sup>2</sup>, and N. Niño-Martínez<sup>2</sup>.**  
<sup>1</sup>Universidad Autónoma de San Luis Potosí, Laboratorio de Nanobiomateriales, Doctorado en Ciencias Odontológicas, Facultad de Estomatología, <sup>2</sup> Universidad Autónoma de San Luis Potosí, Facultad de Ciencias,
- **S2B-P075 EVALUATION AND CHARACTERIZATION OF MATERIALS HA:X (X = TiO<sub>2</sub>, In<sub>2</sub>TiO<sub>5</sub>, Sc<sub>2</sub>TiO<sub>5</sub>) AS SUPPORTS FOR GROWTH OF MYCOBACTERIUM SMEGMATIS IN A GENTAMICIN SUSCEPTIBILITY TESTING**  
**Flor Madalitz Vazquez Paz<sup>1</sup>, Iliana Celina Infanta Muñoz Palma<sup>1</sup>, Adriana Garibay Escobar<sup>1</sup>, Francisco Brown Bojórquez<sup>1</sup>, Magaly Avilés Acosta<sup>2</sup>, Manue Pérez Tello<sup>1</sup>**  
<sup>1</sup>Departamento de Ciencias Químico Biológicas, Universidad de Sonora,  
<sup>2</sup>Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora.  
<sup>3</sup>Laboratorio Estatal de Salud Pública de Sonora.  
<sup>4</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora, Rosales y Luis Encinas.
- **S2B-P076 SYNTHESIS OF COMPOUND BIOMATERIAL CORE-SHELL STRUCTURE (Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>) FOR APPLICATION IN TRANSPLANTS BONE TISSUE.**  
**A. Martínez<sup>1</sup>, G.Valverde<sup>1</sup> y M.A. Alvarez<sup>2</sup>**  
<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada.México D.F.  
<sup>2</sup>Laboratorio de Bioingeniería de Tejidos, Facultad de Odontología, Universidad Nacional Autónoma de México, México.
- **S2B-P077 CYTOTOXICITY EVALUATION OF A STARCH-BASED HYDROGEL LOADED WITH**

## HYDROXYAPATITE AND CALCIUM CARBONATE FOR BONE REGENERATION

**JC Flores<sup>1</sup>, BI Cerda<sup>1</sup>, V Escobar<sup>2</sup>, DM Escobar<sup>1</sup>, Ch Grandfils<sup>3</sup>, AJ Pozos<sup>1</sup>.**

<sup>1</sup> Laboratorio de Ciencias Básicas, Facultad de Estomatología, Universidad Autónoma de San Luis Potosí. <sup>2</sup> Laboratorio de Polímeros, Instituto Potosino de Investigación Científica y Tecnológica. <sup>3</sup> Centre Interfacultaire des Biomateriaux (CEIB), Institut de Chimie.

- **S2B-P078 STUDY OF BIOMECHANICAL AND STRUCTURAL PROPERTIES OF FEMUR BONES FROM FOOD RESTRICTED RATS**  
**L. Rubio-Navarro<sup>1</sup>, G.A. Fonseca-Hernández<sup>2</sup>, Y.M. González-Mendoza<sup>1</sup>, S.E. García-Tovar<sup>1</sup>, E. Pérez-Torrero<sup>1</sup>**  
<sup>1</sup>División de investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro,  
<sup>2</sup>Laboratorio de Pruebas Mecánicas Centro de Física Aplicada y Tecnología Avanzada (CFATA) Universidad Autónoma de México (UNAM) Campus Juriquilla.
- **S2B-P079 EVALUATION OF CHITOSAN/MIMOSA TENUIFLORA FILMS FOR SKIN WOUND REPAIR**  
**L. E. Valencia-Gómez<sup>1</sup>, S. A. Martel-Estrada<sup>2</sup>, C. Vargas-Requena<sup>3</sup>, C. Rodríguez-González<sup>1</sup>, P. E. García-Casillas<sup>1</sup>, H. Camacho-Montes<sup>1</sup>, and I. Olivas-Armendáriz<sup>1</sup>.**  
<sup>1</sup>Departamento de Ciencia de los Materiales, Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, <sup>2</sup> Departamento de Diseño, Instituto de Arquitectura, Diseño y Arte, Universidad Autónoma de Ciudad Juárez. <sup>3</sup> Departamento de Química, Instituto de Ciencias Biomédicas, Universidad Autónoma de Cd. Juárez,
- **S2B-P080 NON-INVASIVE RAMAN SPECTROSCOPY OF HUMAN SKIN TISSUE IN-VITRO**  
**R. Cabrera-Alonso<sup>1</sup>, F. J. González-Contreras<sup>1</sup>, M. J. Yacamán<sup>2</sup>**  
<sup>1</sup>Center for the Investigation and Application of Science and Technology, Autonomous University of San Luis Potosí. <sup>2</sup>Department of Physics and Astronomy, University of Texas at San Antonio, UTSA Circle.
- **S2B-P081 BIOLOGIC EVALUATION OF PORCINE URINARY BLADDER MATRIX BIOFUNCTIONALIZED WITH HYDROXYAPATITE OR TRICALCIUM PHOSPHATE FOR BONE REGENERATION**  
**Flores<sup>2</sup>, J.E. Soto-Sáinz<sup>1</sup>, E.L. Silva-Benítez<sup>1</sup>, A.J. Pozos-Guillen<sup>2</sup>, J.G. Romero-Quintana<sup>3</sup>, E.M. Aguilar-Medina<sup>3</sup>, A. Ayala-Ham<sup>3</sup>, R. Ramos-Payán<sup>3</sup>**



<sup>1</sup>Institutional Doctorate in Materials Science and Engineering UASLP, Mexico, <sup>2</sup>Laboratory of Basic Science, Faculty of Stomatology, UASLP, México, <sup>3</sup>Immunogenetics and Molecular Microbiology Laboratory of Chemistry Faculty UAS, México.

■ **S2B-P082 BIOLOGICAL ENDODONTIC BY TISSUE ENGINEERING IN DOGS**

Raúl Rosales-Ibáñez<sup>1</sup>, Braulio García<sup>1</sup>, Daniel Silva-Herzog<sup>1</sup>, Keila Alvarado-Estrada<sup>1</sup>

<sup>1</sup>Facultad de Estomatología, Universidad Autónoma de San Luis Potosí. México.

■ **S2B-P083 ADDITION OF SMALL METALLIC CLUSTER IN SILYBIN AS AN INDIRECT FORM TO DETECT SILYMARIN EN BIOLOGICAL TISSUE**

M. Reina<sup>1</sup>, A. Martínez<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México

■ **S2B-P084 DEVELOPMENT OF ULTRA-LOW FRICTION FILMS BASE FeB/Fe<sub>2</sub>B AND ITS EFFECT ON THE BIOCOMPATIBILITY OF THE AISI 316L STAINLESS STEEL**

J. Ramos-López<sup>1</sup>, A. Chino-Ulloa<sup>1</sup>, J. I. Pérez-Zapote<sup>1</sup>, P. A. Ruiz-Trabolsi<sup>1</sup>, M. Hernandez-Alejandro<sup>1</sup> and E. Hernández Sánchez<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional,

■ **S2B-P085 IMPACT OF HYDROGEN BONDS ON CRYSTALLIZATION KINETICS IN AMORPHOUS NIFEDIPINE AND ITS MIXTURES WITH ACETYLATED SACCHARIDES**

P. Włodarczyk<sup>1</sup>, L. Hawelek<sup>1</sup>, A. Włodarczyk<sup>2</sup>, E. Kaminska<sup>3</sup>, M. Tarnacka<sup>4,5</sup>, K. Jurkiewicz<sup>4,5</sup>, K. Kolodziejczyk<sup>4,5</sup>, M. Dulski<sup>6</sup>, M. Zych<sup>3</sup>, K. Kaminski<sup>4,5</sup>, M. Paluch<sup>4,5</sup>

<sup>1</sup>Institute of Non-Ferrous Metals, <sup>2</sup> Department of Animal Histology and Embryology, University of Silesia.

<sup>3</sup> Department of Pharmacognosy and Phytochemistry,

Medical University of Silesia in Katowice, School of Pharmacy with the Division of Laboratory Medicine in Sosnowiec. <sup>4</sup> Institute of Physics, University of Silesia. <sup>5</sup>

Silesian Center of Education and Interdisciplinary Research, University of Silesia. <sup>6</sup> Institute of Material Science, University of Silesia,

■ **S2B-P086 PREPARATION OF NOVEL DENTAL RESTORATIVE SYSTEMS BASED IN BIFUNCTIONAL MONOMERS WITH HIGH DEGREE OF CONVERSION AND HIGH THERMAL RESISTANCE**

A.M. Herrera-González<sup>1</sup>, C.E. Cuevas-Suárez<sup>2</sup>, A.A. Pérez-Mondragón<sup>3</sup>, J.V. Barajas-Zuñiga<sup>3</sup>, J. García-Serrano<sup>1</sup>

<sup>1</sup>Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo. Ciudad del Conocimiento. <sup>2</sup> Área Académica de Odontología, Universidad Autónoma del Estado de Hidalgo, Instituto de Ciencias de la Salud. <sup>3</sup> Licenciatura en Química, Universidad Autónoma del Estado de Hidalgo, Ciudad del Conocimiento.

■ **S2B-P087 NONLINEAR PROPERTIES OF RADIOCHROMICS FILMS FOR TUMOR TREATMENT USING Z SCAN TECHNIQUE**

Gutiérrez Fuentes<sup>1,2</sup>, M. A. Camacho López<sup>2</sup>, J. Jiménez-Pérez<sup>3</sup>, Z. Correa Pacheco<sup>4</sup>

<sup>1</sup>Universidad Politécnica del Valle de Toluca (UPVT).

<sup>2</sup>Universidad Autónoma del Estado de México Instituto Literario. <sup>3</sup>UPIITA-Instituto Politécnico Nacional, <sup>4</sup>Instituto Politécnico Nacional-Centro de Desarrollo de Productos Bióticos.

■ **S2B-P088 EXTRACTION AND CHARACTERIZATION OF POLYSACCHARIDE FROM DIFFERENT MACRO ALGAE SPECIES**

R. Cintrón<sup>1</sup>, L. Díaz-Vázquez<sup>1</sup>, L. Robinson<sup>1</sup>

<sup>1</sup>University of Puerto Rico, Rio Piedras Campus, Chemistry Department,

■ **S2B-P089 INFLUENCE OF SYNTHESIS VARIABLE ON THE STRUCTURE AND MAGNETIC RESPONSE OF Mn<sub>0.74</sub>Zn<sub>0.25</sub>Fe<sub>2.8</sub>O<sub>4</sub>**

João Paulo R.L.L. Parra<sup>1</sup>, Murillo Longo Martins<sup>2</sup>, Gustavo M. Moretto<sup>1</sup>, Rodrigo Ichikawa<sup>3</sup>, Luiz G. Martinez<sup>3</sup>, Fabiano Colauto<sup>4</sup>, Wilson A. Ortiz<sup>4</sup>, José Ricardo de A. Miranda<sup>1</sup>, Willian Fernando Zambuzzi<sup>1</sup>, Margarida Juri Saeki<sup>1</sup>

<sup>1</sup>Paulista State University (UNESP),Brazil. <sup>2</sup>Institute of Physics, University of Copenhagen. <sup>3</sup>Institute of Nuclear and Energy Research (IPEN). <sup>4</sup>Department of Physics Federal University of, São Carlos,

■ **S2B-P090 DESIGN OF AN INTERVERTEBRAL DISC PROSTHESIS BASED ON ULTRA-HIGH-MOLECULAR-WEIGHT POLYETHYLENE**

I. Quintanar<sup>1</sup>, S. Beristain<sup>1</sup>, L. García<sup>1</sup>, P. Ramirez<sup>1</sup>, D. Espinosa<sup>2</sup>, J. Luna<sup>1</sup>, L. Rosales<sup>1</sup>

<sup>1</sup>Universidad Tecnológica de Tulancingo, <sup>2</sup>CINVESTAV Unidad Querétaro.

■ **S2B-P091 CHARACTERIZATION OF PORCINE LIVER PARENCHYMA BEHAVIOR UNDER TENSILE LOADING**

K. Baylon<sup>1</sup>, M.R. Moreno-Guerra<sup>1</sup>, O. Matrínez-Romero<sup>2</sup>, A. Elías-Zuñiga<sup>2</sup>, E. Flores<sup>3</sup>, J.A. Díaz-Elizondo<sup>3</sup>, J.V.L. da Silva<sup>4</sup>, C.A. Rodríguez<sup>2</sup>

<sup>1</sup>Department of Mechanical Engineering, Tecnológico de Monterrey, ITESM. <sup>2</sup>School of Engineering and Sciences, Tecnológico de Monterrey, ITESM. <sup>3</sup>Medical School and Health Sciences, Tecnológico de Monterrey, ITESM. <sup>4</sup>Three Dimensional Technologies Division Renato Archer Information Technology Center.

■ **S2B-P092 SYNTHESIS AND CHARACTERIZATION OF PLA/SBA-15 COMPOSITE SCAFFOLD**

O.A. Chanes-Cuevas<sup>1</sup>, N. Vargas-Becerril<sup>1</sup>, L. Téllez-Jurado<sup>2</sup>, M.A. Álvarez-Pérez<sup>1</sup>

<sup>1</sup>Laboratorio de Bioingeniería de Tejidos; División de Estudios de Posgrado e Investigación de la Facultad de Odontología, UNAM. <sup>2</sup>Departamento de Ingeniería Metalúrgica y de Materiales E.S.I.Q.I.E-I.P.N.

■ **S2B-P093 DEGRADATION TEST OF SCAFFOLDS WITH COMPOSITION DIFFERENT OF POLY (LACTIC-ACID)**

O.A. Chanes-Cuevas<sup>1</sup>, N. Vargas-Becerril<sup>1</sup>, L. Téllez-Jurado<sup>2</sup>, O. Álvarez-Fregoso<sup>3</sup>, M.A. Álvarez-Pérez<sup>1</sup>

<sup>1</sup>Laboratorio de Bioingeniería de Tejidos; División de Estudios de Posgrado e Investigación de la Facultad de Odontología, UNAM. <sup>2</sup>Departamento de Ingeniería Metalúrgica y de Materiales E.S.I.Q.I.E-I.P.N. <sup>3</sup>Instituto de Investigaciones en Materiales.

■ **S2B-P094 SYNTHESIS AND CHARACTERIZATION OF NANOSTRUCTURED BIOACTIVE FILMS FOR MEDICAL APPLICATIONS**

Ever Estrada-Cabrera<sup>1</sup>, Siva Kumar-Krishnan<sup>1</sup>, J. Gabriel Luna-Bárceñas<sup>1</sup>, Ana María Arizmendi-Morquecho<sup>2</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Querétaro. <sup>2</sup>Centro de Investigación en Materiales Avanzados S.C.

■ **S2B-P095 NANOENCAPSULATION ARANTO EXTRACT (KALANCHOE DAIGREMONTIANA) BY NANOSPRAY DRYER AND ITS EFFECT ON CELL LINE OF BREAST CANCER**

O. Alvarado<sup>1</sup>, E. San Martín<sup>1</sup>, C. Gomez<sup>2</sup>, C. Estanislao<sup>2</sup>, A. Rosas<sup>1</sup>, J. Rosas<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional. <sup>2</sup>Departamento de Biomedicina, Escuela Nacional de Medicina y Homeopatía del Instituto Politécnico Nacional Guillermo Massieu Helguera.

■ **S2B-P096 DEVELOPMENT OF A BIOCOMPATIBLE ALLOY WITH A BIOACTIVE SURFACE THROUGH A CASTING PROCESS**

S. Galindo V<sup>1</sup>, J. Ortiz<sup>1</sup>, M. A. L. Hernandez, C. R. Muñoz<sup>1</sup>, F. Martínez<sup>1</sup>, J. S. Luna<sup>1</sup> and R. Zamora<sup>1</sup>.

<sup>1</sup>Faculty of Engineering, Autonomous University of Coahuila, Camporeddondo Unit, Saltillo, México. <sup>2</sup>Faculty of Engineering Mechanical and Electrical, Autonomous University of Nuevo Leon, México

■ **S2B-P097 DESING AND SYNTHESIS OF MOLECULAR SENSORS TO SACCHARIDE RECOGNITION.**

López-Porras<sup>1</sup>, K. Mondragón-Vásquez<sup>1</sup>, M. G. Sánchez-Otero<sup>1</sup>, F.A. Cen-Pacheco<sup>1</sup>. J. G. Domínguez-Chávez<sup>1</sup>.

<sup>1</sup>Facultad de Bioanálisis Región Veracruz,

■ **S2B-P098 IN VITRO RELEASE OF RIBOFLAVIN FROM ALGINATE GEL PARTICLES**

M. R. Jaime Fonseca<sup>1</sup>, S. Bakalis<sup>2</sup>, P. J. Fryer<sup>2</sup>

<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada (CICATA -IPN). <sup>2</sup>School of Chemical Engineering, University of Birmingham.

■ **S2B-P099 EVALUATION OF PEPTIDE KSL-W INCORPORATED IN LIQUID-CRYSTALLINE SYSTEMS AGAINST SALIVARY BIOFILM MULTISPECIES.**

M Chorilli<sup>1</sup>, CR Fontana<sup>2</sup>, ECL Cazedey<sup>3</sup>, J Bernegossi<sup>1</sup>

<sup>1</sup>School of Pharmaceutical Sciences, Department of Drugs and Medicines, Universidade Estadual Paulista "Júlio de Mesquita Filho", Araraquara, São Paulo, Brazil. <sup>2</sup>School of Pharmaceutical Sciences, Department of Clinical Analysis, Universidade Estadual Paulista "Júlio de Mesquita Filho", Araraquara, São Paulo, Brazil. <sup>3</sup>Faculty of Pharmacy, Department of Drugs, Federal University of Bahia, Salvador, Bahia, Brazil.

■ **S2B-P100 A MODEL SYSTEM TO INVESTIGATE THE PARALLEL ROLE OF MICROENVIRONMENTAL FACTORS ON PLURIPOTENT STEM CELL FATE AND BEHAVIOR**

J. Saksena<sup>1</sup>, L. Boraas<sup>1</sup>, S.C. Sklare<sup>2</sup>, J.L. Curley<sup>1</sup>, T. Ahsan<sup>1</sup>, D.B. Chrisey<sup>1,2</sup>

<sup>1</sup> Department of Biomedical Engineering, Tulane University, New Orleans; <sup>2</sup> Department of Physics and Engineering Physics, Tulane University, New Orleans,

■ **S2B-P101 ENGINEERING THE CELLULAR NICHE VIA CAD/CAM LASER PROCESSING**



S.C. Sklare<sup>1</sup>, J. Saksena<sup>2</sup>, J.L. Curley<sup>1</sup>, T. Ahsan<sup>2</sup>, D.B. Chrisey<sup>1,2</sup>

<sup>1</sup> Department of Physics and Engineering Physics, Tulane University, New Orleans, <sup>2</sup> Department of Biomedical Engineering, Tulane University, New Orleans,

■ **S2B-P102 INTERACTION OF PRISTINE MWCNT WITH PLANT CELLS, RHIZOBIA AND MYCORRHIZA DURING GROWTH OF LUCERNE (MEDICAGO SATIVA) AND BARLEY (HORDEUM VULGARE)**

D. K. Tiwari<sup>1,2</sup>, J. Villegas<sup>3</sup>, L. Carreto Montoya<sup>3</sup>

<sup>1</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, B.C., México. <sup>2</sup>Instituto de Física y Matemáticas, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México. <sup>3</sup>Instituto de Investigaciones Químico-Biológicas, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México.

■ **S2B-P103 PHOTO-ASSISTED REDUCTION OF SILVER/TIO<sub>2</sub> AND THEIR EFFECT AS AN ANTIBACTERIAL AGENT AGAINST ESCHERICHIA COLI ( E. COLI) AND SALMONELLA TYPHI ( S. TYPHI)**

Roberto Guerra González<sup>1</sup>, R. Rangel<sup>2</sup>

<sup>1</sup> Posgrado en Ingeniería Ambiental, Facultad de Ingeniería Química, Universidad Michoacana de S.N.H., Morelia, Michoacán, México. <sup>2</sup>División de estudios de posgrado, Facultad de Ingeniería Química, Universidad Michoacana de S.N.H., Morelia, Michoacán, México.

<sup>1</sup>CINVESTAV-Unidad Querétaro. <sup>2</sup>Unidad de Ingeniería de Tejidos, Terapia Celular y Medicina Regenerativa, Instituto Nacional de Rehabilitación. <sup>3</sup>Biocología, Instituto Nacional de Rehabilitación. <sup>4</sup>División de Estudios de Posgrado e Investigación, Facultad de Odontología, Universidad Nacional Autónoma de México,

■ **09:15 - 09:30 S2B-0040 BIOINSPIRED PASSIVE ANTI BIOFILM SURFACES PREVENTING BIOFILM FORMATION**

S. Pechook<sup>1,2</sup>, I. Polishchuk<sup>1,2</sup>, M. Shemesh<sup>3</sup>, B. Pokroy<sup>1,2</sup>

<sup>1</sup> Department of Materials Science and Engineering, Technion Israel Institute of Technology. <sup>2</sup> Russell Berrie Nanotechnology Institute, Technion Israel Institute of Technology. <sup>3</sup> Department of Food Quality and Safety, Institute for Postharvest Technology and Food Sciences, Agricultural Research Organization (ARO), The Volcani Center,

▶ **09:30 - 10:00 S2B-0041 Invited Talk CELLULARISED COLLAGEN-BASED SCAFFOLDS FOR THE REGENERATION OF THE VASCULAR WALL**

Diego Mantovani<sup>1</sup>

<sup>1</sup>Laboratory for Biomaterials and Bioengineering, Canada Research Chair I for the Innovation in Surgery, Dept of Min-Met-Materials Engineering & CHU de Québec Research Center, Laval University, Quebec City, Canada

■ **10:00 - 10:15 S2B-0042 ALGINATE-GRAFT-GELATIN COPOLYMERS FOR TISSUE ENGINEERING APPLICATIONS**

G.-J. Graulus,<sup>1</sup> A. Mignon,<sup>1</sup> S. Van Vlierberghe<sup>1</sup> and P. Dubruel<sup>1</sup>

<sup>1</sup> Polymer Chemistry & Biomaterials Research Group, Department of Organic and Macromolecular Chemistry, Ghent University

■ **10:15 - 10:30 S2B-0043 CROSSLINKABLE GELATINS FOR 3D PRINTING: FROM MATERIAL DERIVATIZATION TOWARDS BIOMEDICAL APPLICATION**

J. Van Hoorick<sup>1</sup>, H. Declercq<sup>2</sup>, M. Cornelissen<sup>2</sup>, H. Thienpont<sup>1,3</sup>, A. Ovsianikov<sup>4</sup>, P. Dubruel<sup>1</sup>, S. Van Vlierberghe<sup>1,3</sup>

<sup>1</sup>Department of Organic and Macromolecular Chemistry, Ghent University. <sup>2</sup>Tissue Engineering Group, Department of Basic Medical Sciences, Ghent University. <sup>3</sup>Brussels Photonics Team, Department of Applied Physics and Photonics. <sup>4</sup>Institute of Materials Science and Technology, Vienna University of Technology,

ROOM: TULUM F  
WEDNESDAY, AUGUST 19

Session Chair: SANDRA E. RODIL

■ **08:30 - 08:45 S2B-0038 BIOLOGICAL CHARACTERIZATION OF COLLAGEN-EDC SCAFFOLDS**

M.L. Del Prado-Audelo<sup>1</sup>, N. Rodríguez-Fuentes<sup>1</sup>, A.E. Castell-Rodríguez<sup>2</sup>, M.C Piña-Barba<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, UNAM.

<sup>2</sup>Facultad de Medicina, UNAM.

■ **09:00 - 09:15 S2B-0039 CELL RESPONSE AND BACTERIAL ADHESION ON COMPOSED CHITOSAN-Ag NANOPARTICLES FILMS**

A. Hernández Rangel<sup>1</sup>, P. Silva-Bermudez<sup>2</sup>, J. García-López<sup>2</sup>, N. Vazquez Torres<sup>3</sup>, S. Kumar-Krishnan<sup>1</sup>, A. Almaguer-Flores<sup>4</sup>, C. Ibarra<sup>2</sup>, G. Luna Bárcenas<sup>1</sup>, C. Velasquillo<sup>3</sup>.

■ **10:30 - 10:45 S2B-0044 RECOMBINANT SPIDROINS FOR THE CARDIAC TISSUE ENGINEERING**

A. Teplenin<sup>1</sup>, A. Krashenninnikova<sup>1</sup>, N. Agladze<sup>1</sup>, I. Agapov<sup>3</sup>, V. Bogush<sup>2</sup>, K. Agladze<sup>1</sup>

<sup>1</sup>Moscow Institute of Physics and Technology, <sup>2</sup>The State Research Institute for Genetics and Selection of Industrial Microorganisms <sup>3</sup>The Shumakov Research Center for Transplantology and Artificial Organs.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **PHAEDRA SILVA**

■ **12:30 - 12:45 S2B-0045 MOSSBAUER STUDIES OF MAGNETIC CERAMICS FOR BIOMEDICAL APPLICATIONS**

M. V. Tkachenko<sup>1</sup>, A. S. Kamzin<sup>2</sup>

<sup>1</sup>V. N. Karazin Kharkiv National University, Kharkiv, Ukraine. <sup>2</sup>Ioffe Physical-Technical Institute RAS, S-Petersburg, Russia.

■ **12:45 - 13:00 S2B-0046 PLLA SCAFFOLD WITH GRADIENT PORE SIZE IN MICROPHYSIOLOGICAL TISSUE SYSTEM BIOREACTOR FOR OSTEOCHONDRAL REGENERATION**

Conoscenti<sup>1,2,3</sup>, R. Gottardi<sup>2,3,4</sup>, G. A. Mannella<sup>1</sup>, P. G. Alexander<sup>2,3</sup>, H. Lin<sup>2,3</sup>, V. La Carrubba<sup>1,5</sup>, V. Brucato<sup>1</sup>, R. S. Tuan<sup>2,3</sup>

<sup>1</sup>Department of Civil, Environmental, Aerospace, Materials Engineering (DICAM), University of Palermo. <sup>2</sup>Center for Cellular and Molecular Engineering, Department of Orthopaedic Surgery, University of Pittsburgh. <sup>3</sup>McGowan Institute for Regenerative Medicine, University of Pittsburgh. <sup>4</sup>Ri.MED Foundation, <sup>5</sup>Istituto Euro Mediterraneo di Scienza e Tecnologia (IEMEST)

■ **13:00 - 13:15 S2B-0047 BIOLOGICAL FATE OF COMPLEX ENGINEERED NANOMATERIALS**

Sergio E. Moya<sup>1</sup>

<sup>1</sup>CIC biomaGUNE. Spain.

■ **13:15 - 13:30 S2B-0048 IN VITRO BIOCOMPATIBILITY OF CHITOSAN/EXTRACT FROM MIMOSA TENUIFLORA SCAFFOLD**

L.A. Márquez-Chávez<sup>1</sup>, I. Olivas-Armendáriz<sup>1</sup>, E. Santos-Rodríguez<sup>2</sup>, F. Jiménez-Vega<sup>3</sup>, P.E. García-Casillas<sup>1</sup>, C.A. Martínez-Pérez<sup>1</sup>, C. Chapa-González<sup>1</sup>, S.A. Martel-Estrada<sup>4</sup>

<sup>1</sup> Instituto de Ingeniería y Tecnología, Universidad Autónoma de Cd. Juárez, <sup>2</sup>ICTP Meso-American Centre for Theoretical Physics (ICTP-MCTP) Universidad Autónoma de Chiapas, Ciudad Universitaria, Diseño y Arte, Universidad Autónoma de Cd. Juárez,

■ **13:30 - 13:45 S2B-0049 DESIGN, MANUFACTURING AND APPLICATION OF NANODEVICES (SMART DRUGS) THAT ACTS AS NANOCARRIERS FOR CONTROLLED AND DIRECTED DRUG DELIVERY TO SELECT CELLS, ORGANS OR TISSUES IN ORDER TO TREAT CARDIOVASCULAR DISEASES**

J.M. Velez<sup>1</sup>, J.J. Velez<sup>2</sup>

<sup>1</sup>Escuela Superior de Medicina, Instituto Politecnico Nacional. <sup>2</sup>Facultad de Medicina, UNAM.

■ **13:45 - 14:00 S2B-0050 ADDITIVE MANUFACTURING OF METALLIC SCAFFOLDS FOR ORTHOPEDIC APPLICATION**

Leszek A. Dobrzanski<sup>1</sup>, Anna D. Dobrzanska-Danikiewicz, Tomasz G. Gawel, Anna Achteлик-Franczak <sup>1</sup>Silesian University of Technology.

✕ **14:00- 16:00 LUNCH**

👤 Session Chair: **ARGELIA ALMAGUER**

■ **16:15 - 16:30 S2B-0051 FLUORESCENCE STUDY ON GRAPHENE DECORATED BY METAL NANOPARTICLES**

Martha, Ortiz<sup>1,2</sup>, Mikel, Hurtado<sup>1,2</sup>, Yenny Hernandez<sup>1,2</sup> <sup>1</sup>Universidad de Los Andes, Departamento de Física. <sup>2</sup>Nanomaterials LAB, Universidad de Los Andes Bogotá-Colombia

■ **16:30 - 16:45 S2B-0052 OSTEOCONDUCTIVE AND OSTEOINDUCTIVE PROPERTIES OF BOVINE BONE MATRIX NUKBONE**

Nayeli Rodríguez-Fuentes<sup>1</sup>, Juana Enríquez-Jiménez<sup>2</sup>, Luz E. Alcántara-Quintana<sup>3</sup>, Cristina Piña-Barba<sup>1</sup>, Javier R. Ambrosio<sup>4</sup>

<sup>1</sup>Laboratorio de Biomateriales, Departamento de Materiales Metálicos y Cerámicos, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México (UNAM), México; <sup>2</sup>Depto. Biología de la Reproducción, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán (INCMNSZ); <sup>3</sup>Aplicaciones en Terapia Celular, S. A. de C. V., Santa Bárbara; <sup>4</sup>Laboratorio de Biología del Citoesqueleto, Departamento de Microbiología y Parasitología, Facultad de Medicina-UNAM,





■ **16:45 - 17:00 S2B-0053 RAPID PROTOTYPING OF ON-DEMAND BIOMIMETIC 3D CELL CULTURE PLATFORMS USING LOW-COST DIRECT LASER SYSTEM**

L. Cabriales<sup>1</sup>, E. Jiménez Díaz<sup>1</sup>, J. López Aparicio<sup>1</sup>, A. Cruz Ramírez<sup>1</sup>, M. Macias<sup>2</sup>, M. Sosa<sup>2</sup>, I.A. Sánchez Cedillo<sup>3</sup>, M. Hautefeuille<sup>1</sup>

<sup>1</sup>Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México. <sup>2</sup>Instituto de Fisiología Celular, Universidad Nacional Autónoma de México. <sup>3</sup>Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán,

■ **17:00 - 17:15 S2B-0054 A MODEL SYSTEM TO INVESTIGATE THE PARALLEL ROLE OF MICROENVIRONMENTAL FACTORS ON PLURIPOTENT STEM CELL FATE AND BEHAVIOR**

J. Saksena<sup>1</sup>, L. Boraas<sup>1</sup>, S.C. Sklare<sup>2</sup>, J.L. Curley<sup>1</sup>, T.Ahsan<sup>1</sup>, D.B. Chrisey<sup>1,2</sup>

<sup>1</sup> Department of Biomedical Engineering, Tulane University, New Orleans., <sup>2</sup> Department of Physics and Engineering Physics, Tulane University, New Orleans

■ **17:15 - 17:30 S2B-0055 ENGINEERING THE CELLULAR NICHE VIA CAD/CAM LASER PROCESSING**  
S.C. Sklare<sup>1</sup>, J. Saksena<sup>2</sup>, J.L. Curley<sup>1</sup>, T. Ahsan<sup>2</sup>, D.B. Chrisey<sup>1,2</sup>

<sup>1</sup>Department of Physics and Engineering Physics, Tulane University, New Orleans. <sup>2</sup>Department of Biomedical Engineering, Tulane University, New Orleans,

■ **17:30 - 17:45 S2B-0056 COMPOSITION AND MICROPOROSITY OF CALCIUM PHOSPHATE SUBSTRATES INFLUENCE THE OSTEOGENIC DIFFERENTIATION OF HUMAN MESENCHYMAL STEM CELLS**

G. Costa Machado<sup>1</sup>, E. García-Tuñón<sup>1</sup>, S. Eslava<sup>2</sup>, M. Peroglio<sup>3</sup>, M. Alini<sup>3</sup>, E. Saiz<sup>1</sup>

<sup>1</sup>Imperial College London, Exhibition Road., <sup>2</sup>Department of Chemical Engineering, University of Bath, Bath, United Kingdom, <sup>3</sup>AO Research Institute Davos, Clavadelerstrasse.

## Symposium 3A


# MATERIALS AND TECHNOLOGIES FOR ENERGY CONVERSION, SAVING AND STORAGE (MATECCSS)

Federico Rosei / CANADA / INRS Centre for Energy, Materials and Telecommunications

Victor-Manuel Castano-Meneses / MEXICO / Universidad Nacional Autónoma de México

Diego Mantovani / CANADA / Laval University

ROOM: TULUM B  
TUESDAY, AUGUST 18

 Session Chair: **FEDERICO ROSEI AND VICTOR CASTAÑO**

► **08:30 - 09:00 S3A-0001 *Invited Talk* DESIGN OF NANOMATERIALS FOR ENERGY STORAGE**

Cengiz S. Ozkan<sup>1</sup>

■ **09:00 - 09:15 S3A-0002 SYNTHESIS OF Fe<sub>2</sub>O<sub>3</sub> / TiO<sub>2</sub>/C HOLLOW SPHERES AND ITS ELECTROCHEMICAL PERFORMANCE IN LITHIUM BATTERIES**

R. Valentín del Ángel<sup>1</sup>, N. A. García Gómez<sup>1</sup>, E.M. Sánchez Cervantes<sup>1</sup>, L.L. Garza-Tovar<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, División de Estudios de Posgrado, Laboratorio de Materiales 2: Almacenamiento y Conversión de Energía,

■ **09:15 - 09:30 S3A-0003 SCALABLE MANUFACTURING OF 3D CARBON NANOTUBES FOR LI-S BATTERY CATHODE TO ACHIEVE HIGH ENERGY DENSITY AND LONG CYCLING LIFE**

Gang Yang<sup>1</sup>, Choongho Yu<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering and Materials Science and Engineering, Texas A&M University College.

■ **09:30 - 09:45 S3A-0004 SUPERCAPACITORS BASED ON HETEROSTRUCTURED POTASSIUM POLYTITANATES MODIFIED BY TRANSITION METALS**

V.G. Goffman<sup>1</sup>, A.V. Gorokhovskiy<sup>1,2</sup>, N.V. Gorshkov<sup>1</sup>, J.I. Escalante García<sup>2</sup>, A.F. Fuentes<sup>2</sup>, F.S. Fedorov<sup>1</sup>

<sup>1</sup>Yuri Gagarin State Technical University of Saratov;

<sup>2</sup>CINVESTAV Unidad Saltillo,

■ **09:45 - 10:00 S3A-0005 SILICON MICROWIRES WITH TUNABLE SIZES AS ANODES OF LI ION BATTERIES, PREPARED BY NOVEL ETCHING METHOD**

Oscar Pérez-Díaz<sup>1</sup>, Enrique Quiroga-González<sup>1</sup>, Nicolás Rutilo Silva-González<sup>1</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla,.

■ **10:00 - 10:15 S3A-0006 CHANGES IN PHYSICOCHEMICAL PROPERTIES OF LIGNOCELLULOSE INDUCED BY GAMMA RADIATION**  
Raymundo Sánchez Orozco<sup>1</sup>, Patricia Balderas Hernández<sup>2</sup>, Fernando Ureña Núñez<sup>3</sup>

<sup>1</sup>División de Ingeniería Química, Tecnológico de Estudios Superiores de Jocotitlán, <sup>2</sup>Facultad de Química, Universidad Autónoma del Estado de México, <sup>3</sup>Instituto Nacional de Investigaciones Nucleares.

■ **10:15 - 10:30 S3A-0007 SILICA AEROGEL SYNTHESIS FOR THERMAL INSULATION**

A. García-Torres<sup>1</sup>, L. Álvarez-Contreras<sup>1</sup>, A. Aguilar-Elguezabal<sup>1</sup>


<sup>1</sup>Centro de Investigación en Materiales Avanzados, S.C., CIMAV.

► **10:30 - 11:00 S3A-0008 *Invited Talk* UPTAKE OF LITHIUM FACILITATED BY PARTIAL REDUCTION IN SILICA**



**Cristian V. Ciobanu<sup>1</sup>, Branden B. Kappes<sup>1</sup>, and Yufeng Zhao<sup>1</sup>**

<sup>1</sup>Department of Mechanical Engineering and Materials Science Program, Colorado School of Mines,

 **11:00 – 11:30 COFFEE BREAK**

 **11:30 – 12:30 PLENARY LECTURE**

 **Session Chair: ERIC GARFUNKEL AND GIOVANNI FANCHINI**

 **12:30 - 13:00 S3A-0009 *Invited Talk* PULSED LASER SYNTHESIS OF VANADIUM OXIDE THIN FILMS FOR ADVANCED ENERGY DEVICES**


**M. Chaker<sup>1</sup>**

<sup>1</sup>Institut National de la Recherche Scientifique – Énergie, Matériaux et Télécommunications,

 **13:00 - 13:15 S3A-0010 SYNTHESIS AND CHARACTERIZATION OF OXIDES -TYPE  $K_2NiF_4$  AND/OR  $Nd_2CuO_4$  CONTAINING GOLD**

**Verónica García Rojas<sup>1</sup>, Jerffesson Rodríguez Delgado<sup>1</sup>, Gilles Gauthier<sup>2</sup>**

<sup>1</sup>Grupo de Investigación en Química Estructural – GIQUE, Universidad Industrial de Santander; <sup>2</sup>Grupo INTERFASE, Universidad Industrial de Santander,

 **13:15 - 13:30 S3A-0011 HIGH-EFFICIENCY SKUTTERUDITE-BASED MATERIALS FOR THERMOELECTRIC GENERATORS**

**K.T. Wojciechowski<sup>1</sup>, K. Michalak<sup>1</sup>, A. Kowalczyk<sup>1</sup>, A. Stabrawa<sup>1</sup>, J. Leszczynski<sup>1</sup>, L. Jaworska<sup>2</sup>, P. Klimczyk<sup>2</sup>**

<sup>1</sup>Thermoelectric Research Laboratory, Faculty of Materials Science and Ceramics, AGH University of Science and Technology Al. Mickiewicza. <sup>2</sup>Institute of Advanced Manufacturing Technology Wroclawska


 **13:30 - 14:00 S3A-0012 *Invited Talk* REVIEW OF WORLD-EXAMPLARS IN ACHIEVING ZERO-ENERGY/ ZERO-CARBON**

**Leo W.M. LAU**

Chengdu Green Energy and Green Manufacturing Technology R&D Center, Chengdu, China


 **14:00- 16:00 LUNCH**

 **Session Chair: DIEGO MANTOVANI AND CRISTIAN CIOBANU**

 **16:00 - 16:30 S3A-0013 *Invited Talk* PHYSICS AT THE NANOSCALE**


**Ivan K. Schuller<sup>1</sup>**,

<sup>1</sup>Physics Department, UCSD,

 **16:30 - 17:00 S3A-0014 *Invited Talk* INTERFACE SCIENCE IN ENERGY AND NANOELECTRONICS APPLICATIONS**

**Eric Garfunkel<sup>1</sup>**

<sup>1</sup>Departments of Chemistry and Physics, and Institute of Advanced Materials, Devices and Nanotechnology, Rutgers – the State University of New Jersey, Piscataway,

 **17:00 - 17:30 S3A-0015 *Invited Talk* INTEGRATED FERROIC FOR SENSING, MEMORY, RF, AND MICROWAVE ELECTRONICS**

**Nian X. Sun<sup>1</sup>**

<sup>1</sup>W.M. Keck Laboratory for Integrated Ferroics, and Electrical and Computer Engineering Department, Northeastern University, Boston, MA, USA

 **17:30 - 18:00 S3A-0016 *Invited Talk* ENERGY SUSTAINABILITY: SMART GRID AND THE ENDURANCE IN HIGH VOLTAGE INSULATING MATERIALS**

**Medoza-González<sup>1</sup>, M. Paredes-Olguín<sup>1</sup>, T.N. Retana-Fernández<sup>1</sup>, F. P. Espino-Cortés<sup>2</sup>, R. Linares y Miranda<sup>2</sup>, H. Martínez-Gutiérrez<sup>3</sup> and C. Gómez-Yáñez<sup>1</sup>**

<sup>1</sup>Department of Metallurgy and Materials Engineering, ESIQIE, <sup>2</sup>Graduate Studies Section, Electrical Engineering, ESIME-Zacatenco, <sup>3</sup>Center of Nanoscience and Micro and Nano Technology, Instituto Politécnico Nacional,

 **18:00 - 18:30 S3A-0017 *Invited Talk* HOT PLASMONIC ELECTRONS, HEAT GENERATION AND TRANSPARENCY WINDOW IN HYBRID NANOSTRUCTURES**

**Alexander Govorov<sup>1</sup>**

<sup>1</sup>Department of Physics and Astronomy, Ohio University,

 **18:30 - 19:00 S3A-0018 *Invited Talk* PLASMONIC DETECTION OF SIMPLE MOLECULES AND IONS WITH METAL NANOSTRUCTURES**

**Eric Borquet<sup>1</sup>**

<sup>1</sup>Department of Chemistry, Temple University,

ROOM: TERRACE  
TUESDAY, AUGUST 18

## ▶ 18:30 -20:30 POSTER SESSION &amp; COFFEE BREAK

## ■ S3A-P001 SYNTHESIS AND CHARACTERIZATION OF RUTHENIUM CATALYST SUPPORTED ON MESOPOROUS ALUMINA AND SILICA

N. Zambrano-Urrutía<sup>1</sup>, V. García-Rojas<sup>1</sup><sup>1</sup>Universidad Industrial de Santander, Departamento de Ciencias Básicas, Escuela de Química.

## ■ S3A-P002 PALM TREE DERIVED CARBON FOR SUPERCAPACITOR APPLICATIONS

Niman H. Alshareef<sup>1</sup> and D. H. Nagaraju<sup>2</sup><sup>1</sup>The KAUST High School, King Abdullah University of Science & Technology (KAUST), <sup>2</sup>Materials Science and Engineering, King Abdullah University of Science & Technology (KAUST),

## ■ S3A-P003 DISCHARGE AND CHARGE OF LEAD ACID BATTERIES WITH PHOTOVOLTAIC PANELS.

Barrera Calva<sup>1</sup>, C. Álvarez M., F. González García<sup>1</sup>, R. Rosas C<sup>1</sup>, A. M. Soto E.<sup>1</sup>, Iván S. Hernández<sup>1</sup> and Nascir Perez M<sup>1</sup>.<sup>1</sup>IRE, IPH, CBI, Universidad Autónoma Metropolitana, Iztapalapa, México, <sup>2</sup>Química, CBI, Universidad Autónoma Metropolitana, Iztapalapa, México■ S3A-P004 ANODIC EVALUATION OF CARBON NANOFIBERS DECORATED WITH TiO<sub>2</sub> NANOSTRUCTURES IN A MICROBIAL FUEL CELLM.H. Sixtos-Suárez<sup>1</sup>, M.A. Rodríguez-Olguín<sup>1</sup>, J.F. Villarreal-Chiu<sup>1</sup>, E.M. Sánchez<sup>1</sup>, N.A. García-Gómez<sup>1</sup><sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas. México.■ S3A-P005 UNZIPPING AND EXFOLIATING MULTIWALLED CARBON NANOTUBES FOR ENHANCED SiO<sub>2</sub>/TiO<sub>2</sub> CARBON INTERACTION IN CORE@SHELL COMPOSITES FOR SUPERCAPACITORSJ.R. Herrera-Garza<sup>1</sup>, J.C. Calva<sup>1</sup>, P. Acevedo-Peña<sup>1</sup>, M. Rincón<sup>1</sup><sup>1</sup>UNAM

## ■ S3A-P006 ELECTROCATALYTIC OXYGEN EVOLUTION REACTION IN ALKALINE MEDIA USING HYDROTALCITE-LIKE MATERIALS Ni/Fe

J. Vazquez-Samperio<sup>1,2</sup>, E. Reguera-Ruiz<sup>1</sup>, M.A. Oliver-Tolentino<sup>1</sup>, A. Guzmán-Vargas<sup>2</sup>, B. Tapia-Juarez<sup>2</sup>, A. Díaz-Romero<sup>2</sup><sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional,<sup>2</sup>ESIQIE-IPN, Laboratorio de Investigación en Materiales Porosos Catálisis Ambiental y Química Fina,■ S3A-P007 PHASE BEHAVIOR OF PVA+H<sub>3</sub>PO<sub>2</sub>+H<sub>2</sub>O/TiO<sub>2</sub> PROTON CONDUCTING POLYMER NANOCOMPOSITESC. Combariza<sup>1,2</sup>, R.A. Vargas<sup>1</sup> and J.E. Diosa<sup>1</sup><sup>1</sup>Grupo de Transiciones de Fases en Sistemas No Metálicos, Departamento de Física, Universidad del Valle,<sup>2</sup>Escuela de Ingeniería Mecánica, Universidad del Valle,

## ■ S3A-P008 MICROWAVE ASSISTED SYNTHESIS OF RUTHENIUM BASED ELECTROCATALYSTS FOR HYDROGEN OXIDATION REACTION IN PEM FUEL CELLS

M. T. Bernal López<sup>1</sup>, A.L. Ocampo Flores<sup>2</sup>, J. García Valdés<sup>2</sup>, P. J. Sebastian<sup>3</sup>, E. J. Borja Arco<sup>1</sup>.<sup>1</sup>Departamento de Física y Química Teórica, Facultad de Química, Universidad Nacional Autónoma de México,<sup>2</sup> Departamento de Química Analítica, Facultad de Química, Universidad Nacional Autónoma de México. <sup>3</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México,

## ■ S3A-P009 ACTIVATED CARBON MODIFICATION FOR ENERGY STORAGE IMPROVEMENT

N. Rayón-López<sup>1,2</sup>, M. Adán-Benítez<sup>1</sup>, H.I. Villafán-Vidales<sup>1</sup>, E.C. Menchaca-Campos<sup>2</sup>, D.E. Pacheco-Catalán<sup>3</sup>, A.K. Cuentas-Gallegos<sup>1</sup><sup>1</sup>Instituto de Energía Renovable, Universidad Nacional Autónoma de México, <sup>2</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas (CIICAp), Universidad Autónoma del Estado de Morelos, <sup>3</sup>Unidad de Energía Renovable, Centro de Investigación Científica de Yucatán A.C.

## ■ S3A-P010 ACTIVATED CARBON MODIFICATION FOR ENERGY STORAGE IMPROVEMENT

N. Rayón-López<sup>1,2</sup>, M. Adán-Benítez<sup>1</sup>, H.I. Villafán-Vidales<sup>1</sup>, E.C. Menchaca-Campos<sup>2</sup>, D.E. Pacheco-Catalán<sup>3</sup>, A.K. Cuentas-Gallegos<sup>1</sup><sup>1</sup>Instituto de Energía Renovable, Universidad Nacional Autónoma de México <sup>2</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas (CIICAp), Universidad Autónoma del Estado de Morelos. <sup>3</sup>Unidad de Energía



Renovable, Centro de Investigación Científica de Yucatán A.C.

- **S3A-P011 THERMOELECTRIC PROPERTIES OF ANNEALED AND SPARK PLASMA SINTERED (SPS)  $\text{Bi}_x\text{Sb}_x$  (X; 10 AND 14) ALLOY. A COMPARATIVE STUDY**  
A. Flores<sup>1</sup>, M. Ortega<sup>1</sup>, Y. Matsumoto<sup>1</sup>, F. Morales<sup>2</sup> and T. M. Tritt<sup>3</sup>

<sup>1</sup> Electrical Engineer, Center for Research and Advanced Studies of the National Polytechnic Institute. <sup>2</sup>Materials Research Institute UNAM., Depto. de la Materia Condensada: <sup>3</sup>Department of Physics & Astronomy Laboratory Clemson University Clemson,

- **S3A-P012 SEEBECK COEFFICIENT OF THERMALLY-OXIDIZED TITANIUM OXIDE THIN FILMS**

D.F. Melo-Millán<sup>1</sup>, A. Avila-García<sup>1</sup>

<sup>1</sup>CINVESTAV del I.P.N., Dep. Ingeniería Eléctrica.

- **S3A-P013 SYNTHESIS AND CHARACTERIZATION OF HEXABORIDES ACTIVATED WITH NANOPARTICLES FOR STORING HYDROGEN ELECTROCHEMICALLY**

D. Rubio Saavedra<sup>1</sup>, O. Graeve<sup>2</sup>, A. López Suárez<sup>3</sup>, J.A. Chavez-Carvayar<sup>4</sup>, E. Luna Martínez<sup>1</sup>, S.A. Gamboa<sup>1</sup>

<sup>1</sup> Departamento de Materiales Solares, Instituto de Energías Renovables, Universidad Nacional Autónoma de México. <sup>2</sup>Department of Mechanical and Aerospace Engineering, Jacobs School of Engineering, University of California, San Diego, La Jolla. <sup>3</sup>Instituto de Física UNAM, Circuito de la Investigación Científica, Ciudad Universitaria, <sup>4</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México

- **S3A-P014 PRODUCTION OF BIODIESEL FROM THE ESTERIFICATION OF OLEIC ACID ON CATALYSTS Co / ZSM-5**

F. Nuñez<sup>1</sup>, Jin An Wang<sup>1</sup>, Lifang Chen<sup>1</sup>, F. Tzompatzí<sup>2</sup>

<sup>1</sup>Instituto Politecnico Nacional. <sup>2</sup>Universidad Autonoma Metropolitana.

- **S3A-P015 MICRO-DIRECT METHANOL FUEL CELLS**

<sup>1</sup>Mendoza P., <sup>2</sup>Galvan V., <sup>2</sup>Domalaon K., <sup>2</sup>Sotéz S., <sup>2</sup>Gomez F., <sup>1</sup>Hinojosa M.

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, <sup>2</sup>California State University

- **S3A-P016 ADSORPTION OF CARBON DIOXIDE ON HYDROTALCITE**

Pabón-Gelves<sup>1</sup>, K.P. Cacia-Madero<sup>1,2</sup>, N.L. Gutiérrez-Ortega<sup>3</sup>, E. Ramos-Ramírez<sup>4</sup>

<sup>1</sup>Grupo Ciencia de Materiales Avanzados, Facultad de Ciencias, Universidad Nacional de Colombia, Sede Medellín. <sup>2</sup> Laboratorio de Ciencias Térmicas, Instituto Tecnológico Metropolitano, Campus Fraternidad.

<sup>3</sup>Departamento de Ingeniería Civil, División de Ingenierías, Universidad de Guanajuato. <sup>4</sup>Departamento Química, División de Ciencias Naturales y Exactas, Universidad de Guanajuato.

- **S3A-P017 INFLUENCE OF PH ON THE DENSIFICATION OF  $\text{BaZr}_{0.1}\text{Ce}_{0.7}\text{Y}_{0.1}\text{Yb}_{0.1}\text{O}_3$  - $\gamma$**

I. V. da Silva<sup>1</sup>, W. K. Yoshito<sup>2</sup>, M. L. Martins<sup>1</sup>, R. U. Ichikawa<sup>2</sup>, D. I. dos Santos<sup>3</sup>, L. G. Martinez<sup>2</sup>, M. A. Centeno<sup>4</sup>, J. A. G. Odriozola<sup>4</sup>, Margarida Juri Saeki<sup>1</sup>

<sup>1</sup> Paulista State University. <sup>2</sup>Institute of Nuclear and Energy Research IPEN. <sup>3</sup> Paulista State University. <sup>4</sup>Seville University,

- **S3A-P018 STUDY OF ELECTROCATALYSTS FOR THE ORR BASED ON NANOCOMPOSITES OF POLYPYRROLE-CoSe<sub>2</sub> SUPPORTED ON NITROGEN-DOPED GRAPHITE**

I.J. García-Rosado<sup>1</sup>, M.A. Smit<sup>1</sup>, J. Uribe-Calderón<sup>1</sup>, N. Alonso-Vante<sup>2</sup>

<sup>1</sup>Centro de Investigación Científica de Yucatán (CICY). <sup>2</sup>Laboratoire de catalyse en chimie organique.

- **S3A-P019 GRAPHENE OXIDE MEMBRANE FOR A FUEL CELL GOMFC**

E. Serma<sup>1</sup>, J.A. Melo-Banda<sup>1</sup>, R. Silva-Rodrigo<sup>1</sup>.

<sup>1</sup>División de Estudios de Posgrado e Investigación, Instituto Tecnológico de Ciudad Madero.

- **S3A-P020 ELECTROCHEMICAL PERFORMANCE OF  $\text{Li}_4\text{Ti}_5$ - $x\text{Fe}_x\text{O}_{12}$  ( $x=0, 0.1$  AND  $0.2$ ) MICROESPHERES AS ANODE FOR LITHIUM-ION BATTERIES**

R.A. Hernandez-Carrillo<sup>1</sup>, N.A. García-Gómez<sup>1</sup>, J.G. Ramos-Sánchez<sup>2</sup>, J.G. Vázquez-Arenas<sup>2</sup>, I. González-Ramírez<sup>2</sup> and E. M. Sanchez-Cervantes<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, UANL, Facultad de Ciencias Químicas, Laboratorio de Materiales II. <sup>2</sup> Universidad Autónoma Metropolitana Unidad Iztapalapa, UAM-I, Departamento de Química.

- **S3A-P021 SYNTHESIS OF  $\text{Li}_4\text{Ti}_5\text{O}_{12}$  BY IONIC LIQUID-ASSISTED SONOCHEMICAL METHOD, AND ITS ELECTROCHEMICAL PROPERTIES**



R. Briones-Martínez<sup>1</sup>, R.A. Hernández-Carrillo<sup>1</sup>, N.A. García-Gómez<sup>1</sup>, S.M. de la Parra-Arciniega<sup>1</sup>, E.M. Sánchez-Cervantes<sup>1</sup>

<sup>1</sup>Laboratorio de Materiales para el Almacenamiento y Conversión de Energía, Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León.

■ **S3A-P022 EXPERIMENTAL INVESTIGATION OF A HELICAL SAVONIUS FOR THE POTENCIAL USE IN PUBLIC LIGHTING**

Huerta-Argaez<sup>1</sup>, A. F. Medina-Medina<sup>1</sup>, R. Domínguez Maldonado<sup>2,3</sup>

<sup>1</sup>Augusto Irineo León castillo, Servicio y Mantenimiento S.A. de C.V, <sup>2</sup>Universidad Anahuac-Mayab, Facultad de Ingeniería, <sup>3</sup>Asesoría Científica, Tecnológica e Industrial,

■ **S3A-P023 SUBSONIC WIND TUNNEL TO EVALUATE WIND TURBINE PROTOTYPES**

Huerta-Argaez<sup>1</sup>, A. F. Medina-Medina<sup>1</sup>, R. Domínguez Maldonado<sup>2,3</sup>

<sup>1</sup>Augusto Irineo León castillo, Servicio y Mantenimiento S.A. de C.V, <sup>2</sup>Universidad Anahuac-Mayab, Facultad de Ingeniería, <sup>3</sup>Asesoría Científica, Tecnológica e Industrial,

■ **S3A-P024 Ti<sub>x</sub>Sn<sub>1-x</sub>O<sub>2</sub> MWCNT ESTRUCTURAS CORE-SHELL ANODE DESEMPEÑO COMO ALTO PARA baterías Li-ion**

M. Ramírez Vargas<sup>-1</sup>, P. Acevedo-Peña<sup>1</sup>, JC Calva-Yáñez<sup>1</sup>, ME Rincón<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México.

■ **S3A-P025 NaH/ AlB<sub>2</sub> COMPOSITE FOR HYDROGEN STORAGE**

K. Suárez-Alcántara<sup>1</sup>

<sup>1</sup>Unidad Morelia del Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México,

■ **S3A-P026 SYNTHESIS AND ELECTROCHEMICAL EVALUATION OF NaTiPO4F IN SODIUM BATTERIES**

A.E. Correa Cerón<sup>1</sup>, J. Ibarra Rodríguez<sup>1</sup>, L.C. Torres González<sup>1</sup>, L.L. Garza-Tovar<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, División de Estudios de Posgrado, Laboratorio de Materiales 2: Almacenamiento y Conversión de Energía,

■ **S3A-P027 SYNTHESIS OF FLOWER-LIKE NICKEL OXIDE STRUCTURES FOR DYE-SENSITIZED SOLAR CELLS (DSSC)**

J.G. Portillo<sup>1</sup>, J. Hernandez-Paz<sup>1</sup>, C.A. Rodríguez<sup>1</sup>, M. Gomez-Mares<sup>2</sup>

<sup>1</sup>Universidad Autonoma de Ciudad Juarez (UACJ).

<sup>2</sup>Materials Department - Delphi Automotive Systems

■ **S3A-P028 ON THE METAL OXIDE/PMMA NANOCOMPOSITES EXPOSED TO THE ELECTRICAL ARCS IN AIR**

V. Doddapaneni<sup>1,2</sup>, M. Saleemi<sup>1,3</sup>, R. Gati<sup>4</sup>, H. Edin<sup>2</sup>, M. S. Toprak<sup>1</sup>

<sup>1</sup>Department of Materials and Nano Physics, KTH - Royal Institute of Technology. <sup>2</sup>Department of Electromagnetic Engineering, KTH - Royal Institute of Technology.

<sup>3</sup>Department of Materials and Environmental Chemistry, Arrhenius Laboratory, Stockholm University. <sup>4</sup>Switchgear Group, ABB Corporate Research.

■ **S3A-P029 INFLUENCE OF ELECTRIC FIELD IN THE CHEMISORPTION OF ATOMIC HYDROGEN ON GRAPHENE**

Cesar A. Cab<sup>1</sup>, Jorge A. Tapia<sup>1</sup>, R. Peón-Escalante<sup>1</sup> and Francisco R. Peñuñuri<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería, Universidad Autónoma de Yucatán.

■ **S3A-P030 A NEW INSTRUMENT FOR THE MEASUREMENT OF SEEBECK-COEFFICIENTS AND ELECTRICAL CONDUCTIVITIES FOR THIN THERMOELECTRIC MATERIALS**

Rebekka Taubmann<sup>1</sup>, Juergen Blumm<sup>1</sup>, Reinhard Gschwendtner<sup>1</sup>, Ekkehard Post<sup>1</sup>, Bob Fidler<sup>2</sup>

<sup>1</sup>NETZSCH-Gerätebau GmbH, Germany, <sup>2</sup>NETZSCH Instruments N.A. LLC, USA

■ **S3A-P031 MOLECULAR MODELING OF CALCIUM CARBONATE AS RAW MATERIAL FOR HYDROGEN STORAGE**

T. Ramírez-Rodríguez<sup>1</sup>, F. de L. Castillo-Alvarado<sup>1</sup>,

<sup>1</sup>Instituto Politécnico Nacional, México.

■ **S3A-P032 LOW COST SYNTHESIS OF CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub>-xCl<sub>x</sub> AND ITS APPLICATION IN HIGH EFFICIENCY SOLAR CELLS**

J.C. Calva-Yáñez<sup>1</sup>, M.E. Rincón<sup>1</sup>, P.C. Bedotto<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México,

■ **S3A-P033 SOLAR H<sub>2</sub> GENERATION WITH QUANTUM DOT SENSITIZED SOLAR CELLS PHOTOANODES**



**A. Cerdán-Pasarán<sup>1</sup>, T. López-Luke<sup>2</sup>, D. Esparza<sup>2</sup>, E. De la Rosa<sup>2</sup>, R. Fuentes-Ramírez<sup>1</sup> and A. Alatorre-Ordaz<sup>1</sup>.**

<sup>1</sup>Universidad de Guanajuato, Gto. <sup>2</sup>Centro de Investigaciones en Óptica

■ **S3A-P034 MESOPOROUS ACTIVATED CARBON FROM SOYBEAN HULLS AS A POTENTIAL ELECTRODE FOR SUPERCAPACITORS**

**Reyna Sánchez J. P.<sup>1</sup>, Garza Tovar L. L.<sup>1</sup>, N.A. García-Gómez<sup>1</sup>, Torres González L. C.<sup>1</sup>,**

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, Laboratorio de Materiales II.

■ **S3A-P035 CHALCOGENIDES AND SKUTTERUDITES BASED SEGMENTED THERMOELECTRIC SYSTEMS**

**Mohsin Saleemi<sup>1,2</sup>, Mohsen Yakshi Tafti<sup>1</sup>, Muhammet S. Toprak<sup>1</sup>**

<sup>1</sup>Department of Materials and Nano Physics, KTH - Royal Institute of Technology; <sup>2</sup>Department of Materials and Environmental Chemistry, Arrhenius Laboratory, Stockholm University,

■ **10:30 - 10:45 S3A-0023 HYBRID PIGMENTS OF NATURAL BETANINS FROM INORGANIC MATRICES, SYNTHESIS AND EVALUATION.**

**E. Pérez-Ramírez<sup>1</sup> and E.J. Lima-Muñoz<sup>1</sup>**

<sup>1</sup>Instituto de Investigaciones en Materiales - Universidad Nacional Autónoma de México.

■ **10:45 - 11:00 S3A-0024 NUMERICAL SIMULATION OF PHOTOVOLTAIC DEVICES BASED ON PEROVSKITE ABSORBERS**

**Krishna R. Adhikari<sup>(1,2)</sup>, Bernabé Marí Soucase<sup>(1)</sup>**

<sup>1</sup>Departament de Física Aplicada, Universitat Politècnica de València, València, Spain. <sup>2</sup>Tribhuvan University, Katmandu, Nepal

☞ **11:00 - 11:30 COFFEE BREAK**

☞ **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: ERIC BORGUET AND SASHA GOVOROV**

**ROOM: TULUM B  
WEDNESDAY, AUGUST 19**

👤 **Session Chair: CARLOS GOMEZ YANEZ AND LOUIS VERVOORT**

▶ **08:30 - 09:00 S3A-0019 Invited Talk LANTHANIDE-DOPED UPCONVERTING NANOPARTICLES**

**F. Vetrone<sup>1</sup>**

<sup>1</sup>Institut National de la Recherche Scientifique - Énergie, Matériaux et Télécommunications (INRS - EMT), Université du Québec,

▶ **09:00 - 09:30 S3A-0020 Invited Talk EXPLORING THE FUNCTIONAL PROPERTIES OF THE PIGMENT EUMELANIN**

**Clara Santato<sup>1</sup>, Prajwal Kumar<sup>1</sup>, Eduardo Di Mauro<sup>1</sup>**

<sup>1</sup>Polytechnique Montreal

▶ **09:30 - 10:00 S3A-0021 Invited Talk BEYOND OLED**

**Xiao Wei Sun<sup>1</sup>**

<sup>1</sup>Nanyang Technological University

▶ **10:00 - 10:30 S3A-0022 Invited Talk ORGANIC SOLAR CELLS BASED ON (MOSTLY) FULLERENES**

**M. Riede<sup>1</sup>**

<sup>1</sup>Department of Physics, University of Oxford, England UK

▶ **12:30 - 13:00 S3A-0025 Invited Talk METAL HEXABORIDE DIFFUSION AND HYDROGEN STORAGE PROSPECTS**

**O.A. Graeve<sup>1,2</sup>, J.T. Cahill<sup>1</sup>, S.M. Fuller<sup>2</sup>, V.R. Vasquez<sup>3</sup>**

<sup>1</sup> Department of Mechanical and Aerospace Engineering, University of California, San Diego. <sup>2</sup> Kazuo Inamori School of Engineering, Alfred University. <sup>3</sup> Department of Chemical and Materials Engineering, Reno.

▶ **13:00 - 13:30 S3A-0026 Invited Talk LARGE-AREA, SOLUTION-PROCESSED GRAPHENE THIN FILMS FOR SOLAR AND THERMAL MANAGEMENT APPLICATIONS**

**G. Fanchini<sup>1</sup>**

<sup>1</sup>Department of Physics and Astronomy, Western University,

▶ **13:30 - 14:00 S3A-0027 Invited Talk SOLUTION-BASED BIO-INSPIRED GROWTH OF PHOTOCATALYTICALLY ACTIVE NANOPOROUS MEMBRANES AND ORIENTED NANOWIRES FOR WATER PURIFICATION AND SPLITTING**

**D. Kisailus<sup>1</sup>**

<sup>1</sup>Department of Chemical and Environmental Engineering, University of California, Riverside,

▶ **14:00 - 14:30 S3A-0028 Invited Talk SELF-ASSEMBLED PHE-PHE DIPEPTIDE DOPED WITH MEH-PPV: TUNNABLE PHOTOPHYSICAL CHARACTERISTICS**

T. D. Martins<sup>1</sup>, A. C. C. Ribeiro<sup>1</sup>, H. S. Camargo<sup>1</sup>

<sup>1</sup>Chemistry Institute - Federal University of Goias,



### 14:00- 16:00 LUNCH

**Session Chair: FIORENZO VETRONE AND TATIANA MARTINS**

▶ **16:00 - 16:30 S3A-0029 *Invited Talk* FUNCTIONAL PROPERTIES OF HYDROTHERMALLY SYNTHESIZED PEROVSKITE NANOSTRUCTURES FOR ENERGY CONVERSION**

A. Ruediger<sup>1</sup>, I. Velasco Davalos<sup>1</sup>, F. Ambriz Vargas<sup>1</sup>, J. Plathier<sup>1</sup>, R. Thomas<sup>1</sup>

<sup>1</sup>Nanoelectronics-Nanophotonics, INRS-EMT.

▶ **16:30 - 17:00 S3A-0030 *Invited Talk* DEVELOPMENT OF CHEAP THIN FILMS FABRICATION METHODS FOR PHOTOVOLTAIC CELLS.**

Denis Gilbert Francis David<sup>1</sup>, Marcus Vinicius Santos da Silva<sup>1</sup>, Yuri Hamayano Lopes Ribeiro<sup>1</sup>, Tércio Neres dos Santos<sup>1</sup>, Adauto do Livramento Dias<sup>1</sup>, Pascal Bargiela<sup>2</sup>, Tenilson Souza da Silva<sup>1</sup>, Antonio Ferreira da Silva<sup>1</sup>.

<sup>1</sup>Instituto de Física - Universidade Federal da Bahia Campus Universitário de Ondina, <sup>2</sup>Instituto de Química - Universidade Federal da Bahia Campus Universitário de Ondina,

■ **17:00 - 17:15 S3A-0031 HIGH ACTIVE AND STABLE WO<sub>3</sub> FILMS PHOTOANODE PREPARED BY SCREEN PRINTING METHOD FOR WATER SPLITTING**

I.A. Castro<sup>1</sup>, M. Fekete<sup>2</sup>, G.B. Soares<sup>1</sup>, C. Ribeiro<sup>3</sup>, U. Bach<sup>2</sup>, L. Spiccia<sup>2</sup>

<sup>1</sup>Universidade Federal de São Carlos, São Paulo, Brazil, <sup>2</sup>Monash University, Melbourne, Victoria, Australia, <sup>3</sup>Embrapa instrumentação, São Paulo, Brazil

▶ **17:15 - 17:45 S3A-0032 *Invited Talk* NANOSTRUCTURED CARBON MATERIALS DERIVED FROM BIOMASS**

Xu Li<sup>1</sup>, Su Xi Wang<sup>1</sup>, Siew Yee Wong<sup>1</sup> and Yu Yuan Chieng<sup>1</sup>

<sup>1</sup>Institute of Materials Research and Engineering, Agency for Science, Technology and Research (ASTAR), 3 Research Link, Singapore

■ **17:45 - 18:00 S3A-0033 PTAG BIMETALLIC NANOPARTICLES FOR OXYGEN REDUCTION REACTION IN PRESENCE OF METHANOL**

F. M. Cuevas Muñoz<sup>1</sup>, J. C. Abrego-Martínez<sup>1</sup>, J. Ledesma-García<sup>2</sup>, L. G. Arriaga<sup>1</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica, <sup>2</sup>Universidad Autónoma de Querétaro.

■ **18:00 - 18:15 S3A-0034 OBTAINING LIQUID FUEL AND A SECONDARY PRODUCT (COAL) FROM USED TIRE RUBBER BY CATALYTIC PYROLYSIS USING SOLID SUPER-ACIDS AND N<sub>2</sub> FLOWS**

M. M. Guerrero-Esparza<sup>1</sup>, J. Medina-Valtierra<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Aguascalientes.

■ **18:15 - 18:30 S3A-0035 INFLUENCE OF PRESULFIDING CONDITIONS ON MORPHOLOGY AND HYDROGENATION PERFORMANCE OF UNSUPPORTED Ni-Mo-W CATALYSTS**

C. Yin<sup>1</sup>, S. Xue<sup>1</sup>, D. Liu<sup>1</sup>, H. Li<sup>1</sup>, H. Liu<sup>1</sup>, C. Liu<sup>1</sup>

<sup>1</sup>State Key Laboratory of Heavy Oil Processing, Key Laboratory of Catalysis, CNPC, China University of Petroleum, Qingdao,

## ROOM: TULUM B THURSDAY, AUGUST 20

**Session Chair: FCENGIZ OZKAN AND DENIS DAVID**

▶ **08:30 - 09:00 S3A-0036 *Invited Talk* TOWARD SCALED MANUFACTURING: NEW TECHNIQUES FOR FUEL CELL MATERIALS CHARACTERIZATION**

W. Mérida<sup>1</sup>

<sup>1</sup>Clean Energy Research Centre. The University of British, Vancouver.

▶ **09:00 - 09:30 S3A-0037 *Invited Talk* ELECTROCHEMISTRY AT THE METAL-ELECTROLYTE-GAS INTERFACE IN SOLID ACID FUEL CELL ELECTRODES**

S. M. Haile<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, Northwestern University,

▶ **09:30 - 10:00 S3A-0038 *Invited Talk* MECHANICAL PROCESSING OF MAGNESIUM FOR HYDROGEN STORAGE**

S. Ferreira Santos<sup>1</sup>, A. A. Cesario Asselli<sup>2</sup>, J. Huot<sup>2</sup>

<sup>1</sup>Universidade Federal do ABC, <sup>2</sup>Université du Québec à Trois-Rivières.



▶ **10:00 - 10:30 S3A-0039 Invited Talk CATALYSTS, CARBON SUPPORTS, AND MEMBRANES FOR PEM FUEL CELLS AND ELECTROLYZERS**

Horacio R. Corti<sup>1,2</sup>, Esteban A. Franceschini<sup>1</sup>, Mariano M. Bruno<sup>1</sup>, Federico A. Viva<sup>1</sup>, Graciela C. Abuin<sup>3</sup>, Liliana Diaz<sup>3</sup>, Yessika A. Hernández-Rodríguez<sup>1</sup>

<sup>1</sup>Departamento de Física de la Materia Condensada. Centro Atómico Constituyentes. Comisión Nacional de Energía Atómica. <sup>2</sup>Instituto de Química Física de los Materiales, Medio Ambiente y Energía (INQUIMAE-CONICET). Facultad de ciencias Exactas y Naturales - Universidad de Buenos Aires. <sup>3</sup>Centro de Procesos Superficiales, PTM. Instituto Nacional de Tecnología Industrial. (INTI).

▶ **10:30 - 11:00 S3A-0040 Invited Talk COMPACT AND FLEXIBLE, HOOK-AND-LOOP TAPE-BASED MEMBRANELESS DEVICE FOR ENERGY CONVERSION**

Ortiz-Ortega<sup>1</sup>, N. Arjona<sup>2</sup>, J. Ledesma-García<sup>1</sup>, L. G. Arriaga<sup>3</sup>

<sup>1</sup>División de investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro. <sup>2</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica S.C. <sup>3</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica S.C.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: FEDERICO ROSEI, LOUIS VERVOORT AND VICTOR CASTAÑO**

■ **12:30 - 12:45 S3A-0041 A POTENTIAL ANODE MATERIAL FOR MICROBIAL FUEL CELLS COMPOSED BY CARBON NANOFIBERS DECORATED WITH CuO NANOPARTICLES**

M.A. Rodríguez-Olguín<sup>1</sup>, M.H. Sixtos-Suárez<sup>1</sup>, S.M. de la Parra-Arciniega<sup>1</sup>, E.M. Sánchez<sup>1</sup>, N.A. García-Gómez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas

■ **12:45 - 13:00 S3A-0042 MICRO-DIRECT METHANOL FUEL CELLS**

<sup>1</sup>Mendoza P., <sup>2</sup>Galvan V., <sup>2</sup>Domalaon K., <sup>2</sup>Sotéz S., <sup>2</sup>Gomez F., <sup>1</sup>Hinojosa M

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León. <sup>2</sup>California State University, Los Angeles.

■ **13:00 - 13:15 S3A-0043 DEVELOPMENT OF NAFION/SIO<sub>2</sub> COMPOSITE MEMBRANES WITH POTENTIAL APPLICATION IN FUEL CELLS**

E. Hernández<sup>1</sup>; T. Romero<sup>2</sup>; M. Hinojosa<sup>1</sup>, S. Carranza<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León. <sup>2</sup>Instituto de Investigaciones Eléctricas.

■ **13:15 - 13:30 S3A-0044 OXIDATIVE DESULFURIZATION OF ORGANOSULFUR COMPOUNDS IN A MODEL MIXTURE OF SCRAP TIRE PYROLYSIS OIL**

Gómez-Ibáñez<sup>1</sup>, V. Rojas-García<sup>1</sup>

<sup>1</sup>Universidad Industrial de Santander, Facultad de Ingenierías Físicoquímicas, Escuela de Ingeniería Química, Grupo de Investigación en Química Estructural -GIQUE, Colombia-Bucaramanga, Colombia.

■ **13:30 - 13:45 S3A-0045 TOWARD THE IDEA OF REPLACING INTERNAL COMBUSTION ENGINE BY POLYMER ELECTROLYTE MEMBRANE (PEM) FUEL CELL AS POWER SOURCE FOR MOTOR VEHICLES. THE IMPACT OF PLATINUM LOADING AND RELATIVE HUMIDITY ON OXYGEN TRANSPORT RESISTANCE AND IDENTIFICATION OF THE UNKNOWN RESISTANCE**

Laura E. Narvaez<sup>1</sup>, Mahmoud R. Reda<sup>2</sup>

<sup>1</sup>CanadElectrochim, <sup>2</sup>CanadElectrochim, Calgary Alberta Canada

## Symposium 3B

# PHOTOVOLTAICS, SOLAR ENERGY MATERIALS AND TECHNOLOGIES

**Xavier Mathew** / MEXICO / Instituto de Energías Renovables-UNAM

**Gerko Oskam** / MEXICO / Centro de Investigación y de Estudios Avanzados del IPN

**Gerardo Contreras Puente** / MEXICO / Escuela Superior de Física y Matemáticas, IPN

**Neelkanth G. Dhere** / USA / Florida Solar Energy Center, University of Central Florida

ROOM: VALLARTA  
MONDAY, AUGUST 17

 Session Chair: **GERKO OSKAM**

► **08:45 - 09:15 S3B-0001 *Invited Talk* SOME INSIGHTS ABOUT NEW PHOTOVOLTAIC MATERIALS: HYBRID HALIDE PEROVSKITES AND ALL-OXIDE SYSTEMS**

Ivan Mora-Sero<sup>1</sup>

<sup>1</sup>Photovoltaics and Optoelectronic Devices Group, Departament de Física, Universitat Jaume I, Spain.

■ **09:15 - 09:30 S3B-0002 LOW TEMPERATURE AND SOLUTION PROCESSED ELECTRON SELECTIVE LAYER FOR FLEXIBLE PEROVSKITE SOLAR CELLS**

Kai Wang,<sup>1</sup> Qingshun Dong,<sup>1</sup> Chunfeng Lan,<sup>2</sup> Shuai Zhao,<sup>2</sup> Tingli Ma<sup>2</sup>

<sup>1</sup> State Key Laboratory of Fine Chemicals, School of Chemistry, Dalian University of Technology. <sup>2</sup> Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology,

■ **09:30 - 09:45 S3B-0003 OPTOELECTRONIC PROPERTIES OF ORGANOMETAL HALIDE PEROVSKITE FILMS ON TITANIUM OXIDE SUBSTRATES**

Zhihua Xu<sup>1</sup>, Zhengtao Chen<sup>1</sup>, Kevin Weeks<sup>1</sup>, Taryn De Rosa<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering, University of Minnesota-Duluth,

■ **09:45 - 10:00 S3B-0004 FACILE SYNTHESIS OF MAPbX<sub>3</sub> (X=I, Br, Cl) THIN FILM HYBRID PEROVSKITES**

Erika Vega<sup>1</sup>, Ma. Estela Calixto<sup>2</sup>, Antonio Méndez Blas<sup>2</sup>, Miguel Mollar<sup>1</sup>, Bernabé Mari<sup>1</sup>

<sup>1</sup>Departament de Física Aplicada-IDF, Universitat Politècnica de València. <sup>2</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, Puebla, México

■ **10:00 - 10:15 S3B-0005 PEROVSKITE SOLAR CELLS WITH INFRARED PHOTOELECTRON CONVERSION**

Yuhei Ogomi<sup>1</sup>, Qing Shen<sup>2</sup>, Koji Nishinaka<sup>1</sup>, Kosei Fujiwara<sup>1</sup>, Keita Sakaguchi<sup>1</sup>, Taro Toyoda<sup>2</sup>, and Shuzi Hayase<sup>1</sup>

<sup>1</sup>Kyushu Institute of Technology<sup>2</sup>The university of Electro-communication

■ **10:15 - 10:30 S3B-0006 TRIARYLAMINE-BASED HOLE-TRANSPORTING MATERIAL FOR HIGH PERFORMANCE PEROVSKITE SOLAR CELLS**

Sungmin Park,<sup>1,2</sup> Jin Hyuck Heo,<sup>3</sup> Sang Hyuk Im,<sup>3</sup> Hae Jung Son<sup>1</sup>

<sup>1</sup>Photoelectronic Hybrid Research Center, Korea Institute of Science and Technology, Republic of Korea, <sup>2</sup>Department of Chemistry, Korea University. <sup>3</sup>Functional Crystallization Center (FCC), Department of Chemical Engineering, Kyung Hee University

► **10:30 - 11:00 S3B-0007 *Invited Talk* HYBRID ORGANIC/INORGANIC PEROVSKITE SOLAR CELLS**

David Cahen<sup>1</sup>

<sup>1</sup>Weizmann Institute of Science. Rehovot Israel.





11:00 – 11:30 COFFEE BREAK

11:30 – 12:30 PLENARY LECTURE

Session Chair: **GERARDO CONTRERAS PUENTE**

■ **12:30 - 12:45 S3B-0008 BINARY INDIUM-ZINC OXIDE PHOTOANODES FOR EFFICIENT DYE-SENSITIZED SOLAR CELLS**

A. Kunzmann<sup>1</sup>, R. D. Costa<sup>1</sup>, M. Stanzel<sup>2</sup>, W. Peukert<sup>2</sup> and D. M. Guldi<sup>1</sup>

<sup>1</sup>Department of Chemistry and Pharmacy, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany.

<sup>2</sup>Institute of Particle Technology, Friedrich-Alexander-Universität, Germany

■ **12:45 - 13:00 S3B-0009 PEROVSKITE SOLAR CELLS-HOW INTERFACE OF TITANIA/PEROVSKITE LAYER AFFECT PHOTOELECTRON CONVERSION EFFICIENCY**

Hirofumi Daisuke<sup>1</sup>, Soya Nakayashiki<sup>1</sup>, Yuhei Ogomi<sup>1</sup> and Shuzi Hayase<sup>1</sup>

<sup>1</sup>Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology

■ **13:00 - 13:15 S3B-0010 FABRICATION AND CHARACTERIZATION OF NANOSTRUCTURED TiO<sub>2</sub>/In<sub>2</sub>S<sub>3</sub>-Sb<sub>2</sub>S<sub>3</sub>/CUSCN EXTREMELY THIN ABSORBER SOLAR CELL**

A.M. Huerta-Flores<sup>1</sup>, N.A. Garcia-Gomez<sup>1</sup>, S.M. de la Parra-Arciniega<sup>1</sup>, E.M. Sanchez-Cervantes<sup>1</sup>

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autonoma de Nuevo León,

■ **13:15 - 13:30 S3B-0011 INFLUENCE OF STRUCTURAL PROPERTIES ON THE PERFORMANCE OF ZnO-BASED DYE-SENSITIZED SOLAR CELLS**

Gerko Oskam<sup>1</sup> and Juan A. Anta<sup>2</sup>

<sup>1</sup> Department of Applied Physics, CINVESTAV-IPN. <sup>2</sup> Area de Química Física, Departamento de Sistemas Físicos, Químicos y Naturales, Universidad Pablo de Olavide.

**14:00- 16:00 LUNCH**

ROOM: TERRACE  
MONDAY, AUGUST 17

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S3B-P001 DEPOSITION AND STUDY OF Sb<sub>2</sub>S<sub>3</sub> THIN FILMS FOR APPLICATIONS IN SOLAR CELLS**

S.H. Turrén Cruz<sup>1</sup>, N.R. Mathews<sup>2</sup>, H. Juarez<sup>1</sup>, X. Mathew<sup>2</sup>

<sup>1</sup> Centro de Investigación en Dispositivos Semiconductores - BUAP. <sup>2</sup> Instituto de Energías Renovables - UNAM

■ **S3B-P002 ANOMALOUS PHOTOVOLTAIC EFFECT IN HIGHLY ORIENTED FILMS OF BiFeO<sub>3</sub> AND Bi<sub>0.9</sub>La<sub>0.1</sub>FeO<sub>3</sub> ON SrTiO<sub>3</sub> AND DyScO<sub>3</sub>**

E. Martínez-Aguilar<sup>1</sup>, H.H'Mok<sup>1</sup>, M.P. Cruz<sup>2</sup>, J.J. Gervacio<sup>2</sup>, M. A. Curiel<sup>3</sup> and J.M. Siqueiros<sup>2</sup>

<sup>1</sup>Centro de Investigación Científica y de Educación Superior de Ensenada. <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México. <sup>3</sup>Universidad Autónoma de Baja California.

■ **S3B-P003 SYNTHESIS OF 1,4-PHENYLENE PORPHYRIN DENDRIMERS AND ITS INTRAMOLECULAR ENERGY TRANSFER STUDIES**

A. Contreras-Cadena<sup>1</sup>, M. Martínez-García<sup>1</sup>

<sup>1</sup>Instituto de Química, Universidad Nacional Autónoma de México.

■ **S3B-P004 SYNTHESIS AND OPTOELECTRONIC PROPERTIES OF P-CONJUGATED PORPHYRIN CYCLIC DIMER**

E. Corral-Rascón<sup>1</sup>, M. Martínez-García<sup>1</sup>

■ **S3B-P005 COMPARISON OF TIN-DOPED INDIUM OXIDE FILMS FABRICATED BY SPRAY PYROLYSIS AND MAGNETRON SPUTTERING FOR APPLICATIONS IN SOLAR CELLS**

Oleksandr Malik<sup>1</sup>, Francisco Javier De la Hidalga-Wade<sup>1</sup>

<sup>1</sup>Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE),

■ **S3B-P006 SYNTHESIS AND STUDY OF ZnO-Al<sub>2</sub>O<sub>3</sub> /Si NANOSTRUCTURED BILAYERS DEPOSITED BY ATOMIC LAYER DEPOSITION**

R. Garcia-Gutierrez<sup>1</sup>, F. Romo-Garcia<sup>1</sup>, R. Rodriguez<sup>2</sup>, H. Tiznado<sup>3</sup>, O. E. Contreras<sup>3</sup>

<sup>1</sup>Departament of Research in Physics, University of Sonora, Hermosillo, México. <sup>2</sup>Department of Industrial Engineering, University of Sonora, Hermosillo, Sonora, México. <sup>3</sup>Center of Nanosciences & Nanotechnology, UNAM, Ensenada, B. C. México

■ **S3B-P007 LOSS MECHANISMS INFLUENCE ON KESTERITE/CDS-BASED THIN FILM SOLAR CELL PERFORMANCE**

Maykel Courel-Piedrahita<sup>1</sup>, Jacob Antonio Andrade-Arvizu<sup>1</sup>, and Osvaldo Vigil-Galán<sup>1</sup>

<sup>1</sup>Escuela Superior de Física y Matemáticas-Instituto Politécnico Nacional (IPN),

■ **S3B-P008 ENHANCED OPEN-CIRCUIT VOLTAGE OF PbS:Bi<sup>3+</sup> NANOCRYSTALS**

M. Chavez<sup>1</sup>, H. Juarez<sup>1</sup>, M. Pacio<sup>1</sup>, O. Portillo<sup>1</sup>, X. Mathew<sup>1</sup>

<sup>1</sup>Benemerita Universidad Autonoma de Puebla

■ **S3B-P009 PHOTOLUMINESCENCE DOWN SHIFTER FROM SILICON NANOCRYSTALS IN SiN<sub>x</sub> FOR SOLAR CELLS**

Elis Mon Pérez<sup>1</sup>, Betsabeé Marel Monroy Peláez<sup>1</sup>, Jaime Santoyo Salazar<sup>2</sup>, Alejandra López Suárez<sup>3</sup>, Guillermo Santana Rodriguez<sup>1</sup>

<sup>1</sup>Departamento de Materiales de Baja Dimensionalidad, Instituto de Investigaciones en Materiales, UNAM.<sup>2</sup> Departamento de Física, CINVESTAV-IPN. <sup>3</sup> Departamento de Física Experimental, Instituto de Física, UNAM.

■ **S3B-P010 A SIMPLE FABRICATION PROCESS OF CRYSTALLINE SILICON SOLAR CELLS BASED ON SPIN ON DOPANT FOR THE CELL EMITTER FORMATION ON LOW COST CZ WAFERS**

J. Martínez<sup>1</sup>, M. Moreno<sup>1</sup>, P. Rosales<sup>1</sup>, A. Torres<sup>1</sup>, C. Reyes-Betanzo<sup>1</sup>, R. Ambrosio<sup>1</sup>

<sup>1</sup> National Institute of Astrophysics Optics and Electronics, INAOE, Electronics, Puebla, Mexico.<sup>2</sup>Meritorious Autonomous University of Puebla, BUAP, Electronics, Puebla, Mexico

■ **S3B-P011 OPTIMIZATION OF SOLUTION DEPOSITION OF CDS NANOPARTICLES ON ELECTRON-SPUN CELLULOSE ACETATE FIBERS FOR SOLAR CELL APPLICATIONS**

D. Mateus Torres-Herrera<sup>1</sup>, Jorge A. García-Valenzuela<sup>2</sup>, Mérida Sotelo-Lerma<sup>2</sup>, M. Mónica Castillo-Ortega<sup>2</sup>, Claudia Martínez-Alonso<sup>1</sup>, Hailin Hu<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México.<sup>2</sup>Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora,

■ **S3B-P012 STRUCTURAL AND OPTICAL PROPERTIES OF CDTE-NANOCRYSTALS THIN FILMS GROWN BY CHEMICAL SYNTHESIS**

E. Campos-Gonzalez<sup>1</sup>, F. de Moure-Flores<sup>2</sup>, L.E. Ramirez-Velázquez<sup>3</sup>, k. Casallas-Moreno<sup>4</sup>, A. Guillén-Cervantes<sup>1</sup>, J. Santoyo-Salazar<sup>1</sup>, J. Contreras-Puente<sup>4</sup>, O.Zelaya-Angel<sup>1</sup>

<sup>1</sup>Departamento de Física, CINVESTAV-IPN. <sup>2</sup>Facultad de Química, Materiales, Universidad Autónoma de Querétaro, Querétaro, Mexico. <sup>3</sup>Escuela Superior de Ingeniería Química e Industrias Extractivas, Instituto Politécnico Nacional México D.F. <sup>4</sup>Escuela Superior de Ingeniería y Arquitectura del IPN, México D.F., Mexico. <sup>5</sup>Escuela Superior de Física y Matemáticas del IPN, México D.F.

■ **S3B-P013 GAUSSIAN SUPRLATTICE IN GaAs/GalnNAs SOLAR CELLS**

C. I. Cabrera<sup>1</sup>, D. A. Contreras-Solorio<sup>1</sup>, L. Hernández<sup>2</sup>

<sup>1</sup>Unidad Académica de Física, Universidad Autónoma de Zacatecas, Calzada. <sup>2</sup>Facultad de Física, Universidad de La Habana.

■ **S3B-P014 MODIFIED TiO<sub>2</sub> NANOTUBES FOR APPLICATION IN SOLAR CELLS**

Milivoj Plodinec<sup>1</sup>, Andreja Gajović<sup>1</sup>, Krunoslav Juraic<sup>1</sup>, Ana Šantić<sup>1</sup>, Miran Čeh<sup>2</sup>, Davor Gracin<sup>1</sup>

<sup>1</sup>Ruder Bošković Institute. <sup>2</sup>Jožef Stefan Institute,

■ **S3B-P015 ELECTRODEPOSITION AND CHARACTERIZATION OF SELECTIVE BLACK COBALT BASED COATINGS FOR SOLAR-THERMAL ENERGY CONVERSION**

D.M. Herrera-Zamora<sup>1</sup>, F.I. Lizama-Tzecz<sup>1</sup>, J.D. Macías<sup>1</sup>, J.J. Alvarado-Gil<sup>1</sup>, O. Arés<sup>1</sup>, G. Oskam<sup>1</sup>

<sup>1</sup>Applied Physics Department, Center for Research and Advanced Studies (CINVESTAV-IPN),

■ **S3B-P016 STUDY OF NANOSTRUCTURED ZINC OXIDE THIN FILMS FOR ORGANIC PHOTOVOLTAICS BY GISAXS/GIWAXS**

Krunoslav Juraic<sup>1,2</sup>, Matija Gredicak<sup>1</sup>, Davor Gracin<sup>1</sup>, Daniel Meljanac<sup>1</sup>, <sup>3</sup>Hrvoje Skenderovic, Dario Omanovic<sup>1</sup>, Sigríd Bernstorff<sup>4</sup>

<sup>1</sup> Rudjer Boskovic Institute, Zagreb, Croatia; <sup>2</sup>Institute of Inorganic Chemistry, Graz University of Technology, Graz, Austria; <sup>3</sup>Institute of physics, Zagreb, Croatia; <sup>4</sup>Sincrotrone Trieste,

■ **S3B-P017 LINEAL CORRELATIONS TO NORMALIZE CHARACTERISTICS ELECTRICS TO OPERATE STANDARDS VALUES TO PHOTOVOLTAIC MODULES.**

R. C. José Luis Zaratustra<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables (IER)

■ **S3B-P018 CdS THIN FILMS GROWN ON FLEXIBLE SUBSTRATES BY CHEMICAL BATH DEPOSITION**

S-3B



Rodríguez-Rosales<sup>1</sup>, E. Campos-González<sup>2</sup>, A. Guillen-Cervantes<sup>2</sup>, J. Santoyo-Salazar<sup>2</sup>, M. de la L. Olvera<sup>3</sup>, J.S. Arias-Cerón<sup>3</sup>, S. Mayen-Hernández<sup>1</sup>, J. Santos-Cruz<sup>1</sup>, O. Zelaya-Angel<sup>2</sup>, L.A. Hernández-Hernández<sup>2</sup>, G. Contreras-Puente<sup>4</sup>, F. de Moure-Flores<sup>1</sup>.

<sup>1</sup>Facultad de Química-Materiales, Universidad Autónoma de Querétaro, Querétaro, México. <sup>2</sup>Departamento de Física, CINVESTAV-IPN, México D.F., México. <sup>3</sup>SEES departamento de Ingeniería Eléctrica CINVESTAV-IPN. <sup>4</sup>ESFM-IPN, México D.F., México.

■ **S3B-P019 IMPLEMENTATION OF NANOPARTICLES FOR SOLAR CELLS IMPROVEMENT**

Rafael Austreberto Sabory-García<sup>a</sup>, Ignacio Enrique Zaldivar-Huerta<sup>b</sup>, Armando Gregorio Rojas-Hernández<sup>a</sup>.

<sup>a</sup>Departamento de Investigación en Física, Universidad de Sonora, <sup>b</sup>Instituto Nacional de Astrofísica Óptica y Electrónica,

■ **S3B-P020 INFLUENCE OF GROWTH PARAMETERS ON PHYSICAL PROPERTIES OF In<sub>2</sub>S<sub>3</sub> THIN FILMS GROWN BY CHEMICAL BATH DEPOSITION**

P. Rodríguez-Hernández<sup>1</sup>, J. Aguilar-Gutiérrez<sup>1</sup>, E. Campos-González<sup>2</sup>, A. Guillen-Cervantes<sup>2</sup>, J. Santoyo-Salazar<sup>2</sup>, M. de la L. Olvera<sup>3</sup>, J. Santos-Cruz<sup>1</sup>, S. Mayen-Hernández<sup>1</sup>, O. Zelaya-Angel<sup>2</sup>, L.A. Hernández-Hernández<sup>2</sup>, G. Contreras-Puente<sup>4</sup>, F. de Moure-Flores<sup>1</sup>.

<sup>1</sup>Facultad de Química-Materiales, Universidad Autónoma de Querétaro, Querétaro, México. <sup>2</sup>Departamento de Física, CINVESTAV-IPN. <sup>3</sup>SEES departamento de Ingeniería Eléctrica CINVESTAV-IPN. <sup>4</sup>ESFM-IPN, México D.F., México.

■ **S3B-P021 IMPROVING PHOTOVOLTAIC PROPERTIES BY ZnO NANOCRYSTALS ON TiO<sub>2</sub> in CdS QUANTUM DOT SENSITIZED SOLAR CELLS**

Emmanuel Sánchez<sup>1,2</sup>, Diego Esparza<sup>1</sup>, Tzarara López-Luke<sup>1</sup>, Ruben A. Rodríguez-Rojas<sup>2</sup>, Elder de la Rosa<sup>1</sup>, Alejandro Martínez<sup>1</sup> and Andrea Cerdán<sup>1</sup>.

<sup>1</sup>Centro de Investigaciones en Óptica. <sup>2</sup>Universidad de Guadalajara. Centro Universitario de los Lagos.

■ **S3B-P022 IMPROVING BACK CONTACTS ON CdS/CdTe SOLAR CELLS BY USING A Te AND ZnTe INTERFACE**

C. Hernandez-Vasquez<sup>1</sup>, M.L. Albor-Aguilera<sup>1</sup>, M.A. González-Trujillo<sup>2</sup>, J.M. Flores-Márquez<sup>1</sup>, D. Jiménez-Olarte<sup>3</sup>, G. Ortega-Cervantes<sup>1</sup>, Y. Matsumoto-Kuwabara<sup>4</sup>

<sup>1</sup>ESFM-IPN, Depto. de Física, U.P.A.L.M. <sup>2</sup>ESCOM-IPN, Depto. de Formación Básica, U.P.A.L.M. <sup>3</sup>ESIME-IPN, Depto. Com. y Elec., U.P.A.L.M. <sup>4</sup>CINVESTAV-SEES-IPN,

■ **S3B-P023 PHOTOVOLTAIC PROPERTIES OF CDS:HG QUANTUM DOTS SENSITIZED SOLAR CELL WITH HIGH CONVERSION EFFICIENCY**

Alejandro Martínez-Benitez<sup>1</sup>, Elder de la Rosa<sup>1</sup>, Tzarara Lopez-Luke<sup>1</sup>, Andrea Cerdan<sup>1,2</sup>, Diego Esparza<sup>1</sup>

<sup>1</sup>Centro de Investigaciones en Óptica, <sup>2</sup>Universidad Autonoma de Guanajuato, Mexico.

■ **S3B-P024 HYDROTHERMAL SYNTHESIS OF CuSbS<sub>2</sub> NANOCRYSTALS FOR THEIR APPLICATION AS ABSORBER MATERIAL IN THIN FILM SOLAR CELLS**

Yessica Luna Torres<sup>1</sup>, Mou Pal<sup>2</sup>, Umapada Pal<sup>2</sup>, N. R. Mathews<sup>3</sup>

<sup>1</sup>Facultad de Ciencias de la Electrónica, BUAP, Ciudad Universitaria, Puebla, Mexico. <sup>2</sup>Instituto de Física, BUAP; <sup>3</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México,

■ **S3B-P025 SYNTHESIS AND MICROSTRUCTURAL CHARACTERIZATION OF SnO<sub>2</sub>:F THIN FILMS DEPOSITED BY AACVD FOR ITS POSSIBLE APPLICATION FOR ELECTRODES IN SOLAR CELLS**

P. Amézagaga-Madrid<sup>1</sup>, K.A.Chavarria-Castillo<sup>2</sup>, O. Esquivel-Pereyra<sup>1</sup>, W. Antúnez-Flores<sup>1</sup>, P.Pizá Ruiz<sup>1</sup>, C. Ornelas-Gutiérrez<sup>2</sup>, M. Miki-Yoshida<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados S.C. Departamento de Física de Materiales, <sup>2</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Chihuahua,

■ **S3B-P026 OPTICAL AND STRUCTURAL PROPERTIES OF GAN GROWN BY SUBLIMATION INTO TUBE FURNACE.**

Luis Alberto Hernandez-Hernandez<sup>1</sup>, Gerardo Contreras-Puente<sup>1</sup>, Francisco de Moure-Flores<sup>2</sup>, Jorge Ricardo Aguilar-Hernandez<sup>1</sup>, Osvaldo de Melo-Pereira<sup>3</sup>, Karla Gutierrez-Z-B<sup>3</sup>, Máximo Lopez-Lopez<sup>4</sup>, Guillermo Santana-Rodriguez<sup>5</sup>

<sup>1</sup>Escuela Superior de Física y Matemáticas – Instituto Politécnico Nacional. <sup>2</sup>Facultad de Química, Universidad Autónoma de Querétaro, Querétaro. <sup>3</sup>Facultad de Física de la Universidad de La Habana. <sup>4</sup>Departamento de Física, Centro de Investigación y de Estudios Avanzados - I.P.N. <sup>5</sup>Instituto de Investigación en Materiales Universidad Nacional Autónoma de México,

■ **S3B-P027 COMPARISON OF THE PHYSICAL PROPERTIES OF THE SYNTHESIS PATWAYS ON SNS THIN FILMS**

Jacob Antonio Andrade-Arvizu<sup>1</sup>, Francisco Cruz-Gandarilla<sup>1</sup>, Maykel Courel-Piedrahita<sup>1</sup>, Mario Fidel Garcia-Sanchez<sup>2</sup>, and Osvaldo Vigil-Galán<sup>1</sup>

<sup>1</sup>Escuela Superior de Física y Matemáticas - Instituto Politécnico Nacional (IPN). <sup>2</sup>Unidad Profesional Interdisciplinaria de Ingeniería y Tecnología Avanzadas - Instituto Politécnico Nacional (IPN).

■ **S3B-P028 ACTIVATION PROCESS OF SOLAR CELLS OF CdS/CdTe USING A GAS MIXTURE N<sub>2</sub>-CHClF<sub>2</sub>-O<sub>2</sub>**

A. López-Sánchez<sup>1</sup>, V. Rejón<sup>1</sup>, R. Mis-Fernández<sup>1</sup>, E. Hernández-Rodríguez<sup>1</sup>, JL Peña<sup>1</sup>

<sup>1</sup>Applied Physics Department CINVESTAV-IPN,

■ **S3B-P029 SYNTHESIS OF NANOSTRUCTURES OF ZnO FOR CHARGE TRANSFER OPTIMIZATION IN OPVs**

G. Soto Pérez<sup>1</sup>, J. O. Flores Flores<sup>1</sup>, O. Morales Saavedra<sup>1</sup>

<sup>1</sup>CADET-UNAM,

■ **S3B-P030 EFFECT OF PARTIAL THERMAL OXIDATION ON THE OPTICAL PROPERTIES OF ANTI-REFLECTING MULTILAYERED POROUS SILICON STRUCTURES**

José Guadalupe Pereyra Hernández<sup>1</sup>, David Ariza Flores<sup>2</sup>, Joseph Sebastian Pathiyamatomm<sup>3</sup>, Vivechana Agarwal<sup>1</sup>

<sup>1</sup>CIICAp, Universidad Autónoma del Estado de Morelos,

<sup>2</sup>IICO, Universidad Autónoma de San Luis Potosí. <sup>3</sup>IER, Universidad Nacional Autónoma de México,

■ **S3B-P031 DEVELOPING A SOFTWARE FOR CALCULATING THE REFLECTANCE AND TRANSMITTANCE BY THE ALUMINUM 6061T6 AND 5182H19.**

M. A. Vázquez Pérez<sup>1</sup>, J. A. Soriano García<sup>1</sup>, L. A. Rosas Colula<sup>1</sup>, A. L. Muñoz Zurita<sup>1</sup>, E. Tepichín Rodríguez<sup>2</sup>, K. Monfil Leyva<sup>3</sup>.

<sup>1</sup>Universidad Politécnica Metropolitana de Puebla. Ingeniería en Sistemas Computacionales. <sup>2</sup>Instituto Nacional de Astrofísica, Óptica y Electrónica. Departamento de Óptica. <sup>3</sup>Benemérita Universidad Autónoma de Puebla. Instituto de Ciencias. Departamento de Semiconductores.

■ **S3B-P032 EFFECT OF SUBSTRATE TEMPERATURE ON THE POINT DEFECTS OF AL-N CO-DOPED ZNO THIN FILMS**

O. Salazar-García<sup>1</sup>, L. Zamora-Peredo<sup>1</sup>, L. García-González<sup>1</sup>, J. Hernández-Torres<sup>1</sup>, M. Tufiño-Velázquez<sup>2</sup>, G. Contreras-Puente<sup>2</sup>

<sup>1</sup>Centro de Investigación en Micro y Nanotecnología, Universidad Veracruzana. <sup>2</sup>Escuela Superior de Física y Matemáticas del IPN.

■ **S3B-P033 EFFICIENCY OF ORGANIC DYE ON DYE SENSITIZED SOLAR CELLS ACORDING TO THE EXTRACTION METHOD**

G. J. Zetina<sup>1</sup>, R. A. Rosas<sup>1</sup>, M. García-Guaderrama<sup>2</sup>, E. Anguiano Guzmán<sup>2</sup>, J. A. Herrera Pedroza<sup>3</sup>, J. E. Barba Llamas<sup>3</sup>

<sup>1</sup>Instituto Tecnológico de Estudios Superiores de Occidente A.C. <sup>2</sup>Centro de Investigación en Materiales, DIP, Universidad de Guadalajara, Guadalajara, Jal. México. <sup>3</sup>CUtonalá, Universidad de Guadalajara.

■ **S3B-P034 NANOPOROUS n-TiO<sub>2</sub> / p-CdTe HETEROJUNCTION SOLAR CELLS WITH ENHANCED RESPONSE IN THE NEAR-UV REGION OF THE SOLAR SPECTRUM**

Suraj Nagpure<sup>1</sup>, Sai Guduru<sup>2</sup>, Raghav Govindarajan<sup>2</sup>, Dr. Stephen<sup>1</sup>, Dr. Vijay Singh<sup>2</sup>, E. Rankin<sup>1</sup>

<sup>1</sup>Department of Chemical and Materials Engineering, University of Kentucky, <sup>2</sup> Department of Electrical and Computer Engineering and Center for Nanoscale Science and Engineering (CeNSE), University of Kentucky.

■ **S3B-P035 TUNGSTEN OXIDE PHOTOANODES FOR HYDROGEN GENERATION**

R. Acosta Méndez<sup>1</sup>, M. Acosta Díaz<sup>1</sup>, I. Riech Méndez<sup>1</sup>, M. Rodríguez Pérez<sup>2</sup>, G. Rodríguez Gattorno<sup>2</sup>

<sup>1</sup>Materials Science Laboratory, Faculty of Engineering, University of Yucatán. <sup>2</sup>Applied Physics Department, CINVESTAV-IPN.

■ **S3B-P036 DYNAMIC DEFORMATION ANALYSIS IN PHOTOVOLTAIC MODULES BY DIGITAL INTERFEROMETRY**

F. J. Casillas-Rodríguez<sup>1</sup>, J. Muñoz-Maciél<sup>1</sup>, M. Mora-González<sup>1</sup>, F. G. Peña-Lecona<sup>1</sup>, C. I. Medel-Ruiz<sup>1</sup>, G. Gómez-Rosas<sup>2</sup>

<sup>1</sup>Departamento de Ciencias Exactas y Tecnología, Centro Universitario de los Lagos, Universidad de Guadalajara, Lagos de Moreno Jalisco, México. <sup>2</sup>Departamento de Física, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara,

■ **S3B-P037 OPTICAL AND ELECTRICAL CHARACTERISTICS OF TIN MONOSELENIDE THIN FILMS DEPOSITED BY ULTRASONIC SPRAY PYROLYSIS APPLIED TO A THEORETICAL SnSe/CdS (P-N) JUNCTION**

J.S. Narro-Ríos<sup>1</sup>, A. Sánchez-Juárez<sup>1</sup>, D. Martínez-Escobar.<sup>1</sup>

S-3B



<sup>1</sup>Instituto de Energías Renovables (IER), UNAM

■ **S3B-P038 ANALYSIS OF DEGRADATION MECHANISMS IN CRYSTALLINE SILICON PV MODULES INSTALLED IN MÉXICO**

D. Martínez-Escobar<sup>1</sup>, P.A. Sánchez-Pérez<sup>1</sup>, R. Santos Magdaleno<sup>1</sup>, G. Tamizhmani<sup>2</sup>, Sai Tatapudi<sup>2</sup> and A. Sánchez Juárez<sup>1</sup>.

<sup>1</sup> Instituto de Energías Renovables, Universidad Nacional Autónoma de México. <sup>2</sup> Arizona State University, Mesa

■ **S3B-P039 FABRICATION OF DEVICES INTEGRATING CUINSE2 NANOWIRE ARRAYS ON MOLYBDENUM THIN FILMS**

Bhavananda Reddy Nadimpally<sup>1</sup>, Raghu Mangu<sup>2</sup>, Joshua Church<sup>3</sup>, Vijay P. Singh<sup>3</sup>

<sup>1</sup> SunEdison. <sup>2</sup> Microsoft, Studio B, NE. <sup>3</sup> CeNSE, Department of Electrical & Computer Engineering, University of Kentucky,

■ **S3B-P040 STUDY OF CdSe NANOPARTICLES IN P3HT:SWCNTs FIBERS AS BULK LAYER ACTIVE IN HYBRID SOLAR CELLS**

G. Alvarado-Tenorio<sup>1</sup>, M.E. Nicho<sup>1</sup>, P.A. Márquez<sup>1</sup>, D-Hernández<sup>1</sup>, S. Coria-Monroy<sup>2</sup>, Hailin Hu<sup>2</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas, Universidad Autónoma del Estado de Morelos, <sup>2</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México,

■ **S3B-P041 DEVELOPMENT AND CHARACTERIZATION OF PEROVSKITE LAYERS AS A FUNCTION OF ANNEALING TEMPERATURE**

Y. Kumar<sup>1</sup>, Eulises Regalado Pérez<sup>1</sup>, Arturo Martinez Ayala<sup>1</sup>, N. R. Mathews<sup>1</sup>, X. Mathew<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México, México

<sup>1</sup>Institute for Photon Science and Synchrotron Radiation (IPS), ANKA Synchrotron Radiation Facility, and Institute for Chemical Technology and Polymer Chemistry (ITCP), Karlsruhe Institute of Technology (KIT), Hermann-v.-Helmholtz-Platz 1., <sup>2</sup>Department of Chemistry and Biochemistry, University of Nevada, Las Vegas (UNLV),

■ **09:15 - 09:30 S3B-0013 STUDY OF SOLAR CELLS OF CdS/CdTe THIN FILMS GROWN BY CATHODE EROSION MAGNETOPLANAR IN 450 cm<sup>2</sup>**

H. Hernández-Contreras<sup>1</sup>, A.E. Delgadillo-López<sup>2</sup>, J.R. Aguilar-Hernández<sup>1</sup>, G. S. Contreras-Puente<sup>1</sup>, C. Mejía-García<sup>1</sup>

<sup>1</sup>Escuela Superior de Física y Matemáticas – Instituto Politécnico Nacional. <sup>2</sup>Ingeniería en Energía, Universidad Politécnica Metropolitana de Hidalgo,

■ **09:30 - 09:45 S3B-0014 MODELLING OF THE NANOWIRE CDS-CDTE DEVICE DESIGN FOR ENHANCED QUANTUM EFFICIENCY IN WINDOW-ABSORBER TYPE SOLAR CELLS**

Rasika Ganvir<sup>1</sup>, Hongmei Dang<sup>1</sup>, Praveen Sivakumar<sup>1</sup>, Karen Sampson<sup>1</sup> and Vijay P Singh<sup>1</sup>,

<sup>1</sup>Department of Electrical and Computer Engineering, and Center for Nanoscale Science and Engineering (CeNSE), University of Kentucky,

■ **09:45 - 10:00 S3B-0015 The CdS/CdTe SOLAR CELL WITH THE BACK CONTACT PROTECTED BY ITO/Mo**

Juan Luis Peña Chapa<sup>1</sup>, Víctor Rejón<sup>1</sup>, Eric Hernández-Rodríguez<sup>1</sup>.

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Merida, Mexico

■ **10:00 - 10:15 S3B-0016 IMPACT OF SULFUR DIFFUSION IN THE PERFORMANCE OF CDTE-BASED SOLAR CELLS DEPOSITED BY PLD**

JA Avila<sup>1</sup>, JI Mejia<sup>1</sup>, C Young<sup>1</sup>, MA Quevedo<sup>1</sup>

<sup>1</sup>The University of Texas at Dallas,

■ **10:15 - 10:30 S3B-0017 CONTROL OF CuPtB ORDERING IN In<sub>0.5</sub>Ga<sub>0.5</sub> PLAYERS FOR TANDEM SOLAR CELLS AS A FUNCTION OF Sb FLUX**

L. López-Conesa<sup>1</sup>, J. Rebled<sup>1</sup>, C. Coll<sup>1</sup>, E. Barrigón<sup>2</sup>, L. Barrutia<sup>2</sup>, I. Rey-Stolle<sup>2</sup>, S. Estradé<sup>1</sup>, E. Peiró<sup>1</sup>

<sup>1</sup>Laboratory of Electron Nanoscopies (LENS)-MIND/IN2UB, Dept. d'Electrònica, Universitat de Barcelona, <sup>2</sup>Instituto de Energía Solar (IES), Universidad Politécnica de Madrid.

ROOM: PALENQUE  
TUESDAY, AUGUST 18

👤 Session Chair: GERARDO CONTRERAS PUENTE

▶ **08:45- 09:15 S3B-0012 *Invited Talk* IMPACT OF ALTERNATIVE MATERIALS ON THE ELECTRONIC AND CHEMICAL STRUCTURE OF Cu(In,Ga)(S,Se)2 AND CdTe THIN FILM SOLAR CELLS**

C. Heske<sup>1,2</sup>



■ **10:30 - 10:45 S3B-0018 FIRST-PRINCIPLES STUDY OF DEFECT CONTROL IN THIN-FILM SOLAR CELLS**

Su-Huai Wei<sup>1</sup>

<sup>1</sup>National Renewable Energy Laboratory, Golden, Colorado, USA.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: GERKO OSKAM**

■ **12:30 - 12:45 S3B-0019 KESTERITE-BASED THIN FILM SOLAR CELLS: A METAL-INSULATOR-SEMICONDUCTOR (MIS) PERFORMANCE**

<sup>1</sup>Maykel Courel-Piedrahita, <sup>1</sup>Fabian Pulgarín-Agudelo, <sup>1</sup>Jacob Andrade-Arvizu, and <sup>1</sup>Oswaldo Vigil-Galán

<sup>1</sup>Escuela Superior de Física y Matemáticas-Instituto Politécnico Nacional (IPN),

■ **12:45 - 13:00 S3B-0020 MULTILAYERED QUANTUM ROT SENSITIZED SOLAR CELLS**

A. Cerdán-Pasarán<sup>1</sup>, T. López-Luke<sup>2</sup>, D. Esparza<sup>2</sup>, E. De la Rosa<sup>2</sup>, R. Fuentes-Ramírez<sup>1</sup> and A. Alatorre-Ordaz<sup>1</sup>.

<sup>1</sup>Universidad de Guanajuato. <sup>2</sup>Centro de Investigaciones en Óptica,

✂ **14:00- 16:00 LUNCH**

ROOM: TERRACE  
TUESDAY, AUGUST 18

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S3B-P042 EFFECT OF VACUUM AS SINTERING ATMOSPHERE ON PROPERTIES OF COPPER OXIDE THIN FILMS OBTAINED BY THE SOL-GEL TECHNIQUE**

J. Avendano-Juárez<sup>1</sup>, R. Castanedo-Pérez<sup>1</sup>, G. Torres Delgado<sup>1</sup>, O. Zelaya Angel<sup>2</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del I.P.N.<sup>2</sup>Depto. de Física., Centro de Investigación y de Estudios Avanzados del I.P.N.

■ **S3B-P043 DESIGN OF PHOTOVOLTAIC THIN FILM CELL BASED ON METALLOPROTEINS**

L. E. Serrano<sup>1</sup>, M. Pacio<sup>1</sup>, H. Juarez-Santiesteban<sup>1</sup>, A. Moreno<sup>2</sup>

<sup>1</sup>IC-CIDS Benemérita Universidad Autónoma de Puebla.

<sup>2</sup>Instituto de Química, Universidad Nacional Autónoma de México.

■ **S3B-P044 EFFECTS OF THERMAL TREATMENT ON THE STRUCTURAL AND OPTICAL PROPERTIES OF CdS:O THIN FILMS DEPOSITED BY RF-SPUTTERING**

M. Loeza-Poot<sup>1</sup>, E. Hernández-Rodríguez<sup>1</sup>, V. Rejón<sup>1</sup>, I. Riech<sup>2</sup>, J.L. Peña<sup>1</sup>

<sup>1</sup>Applied Physics Department, CINVESTAV-IPN., <sup>2</sup>Materials Science Laboratory, Faculty of Engineering, University of Yucatán,

■ **S3B-P045 CuInSe2 THIN FILMS ON FLEXIBLE METALLIC SUBSTRATES PREPARED BY ELECTRODEPOSITION WITH IMPROVED MORPHOLOGY**

C. Castillo-Abritz<sup>1</sup>, S. De La Luz Merino<sup>1</sup>, M. E. Calixto<sup>1</sup>, A. Méndez-Blas<sup>1</sup>, G. Casados-Cruz<sup>2</sup>, A. Morales-Acevedo<sup>2</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla. <sup>2</sup>CINVESTAV-IPN, Departamento de Ingeniería Eléctrica,

■ **S3B-P046 SNS THIN FILM SOLAR CELLS: A THEORETICAL OUTLOOK**

Jacob Antonio Andrade-Arvizu<sup>1</sup>, Maykel Courel-Piedrahita<sup>1</sup>, Mario Fidel Garcia-Sanchez<sup>2</sup>, and Oswaldo Vigil-Galán<sup>1</sup>

<sup>1</sup>Escuela Superior de Física y Matemáticas - Instituto Politécnico Nacional (IPN). <sup>2</sup>Unidad Profesional Interdisciplinaria de Ingeniería y Tecnología Avanzadas - Instituto Politécnico Nacional (IPN).

■ **S3B-P047 SOLAR SELECTIVE MATERIALS AND ITS INFLUENCE ON IMPORTANT DESIGN PARAMETERS OF SOLAR COLLECTORS**

Barrera Calva<sup>1</sup>, F. González García<sup>1</sup>, R. Rosas C<sup>1</sup>, E. Sánchez Cruces<sup>1</sup>, C. Álvarez M<sup>1</sup>. and C. Hernández P.<sup>1</sup>

<sup>1</sup> Universidad Autónoma Metropolitana, Iztapalapa, México

■ **S3B-P048 PHASE TRANSFORMATION OF CaF<sub>2</sub> DOPED WITH Tb<sup>3+</sup>: STRUCTURAL STUDY AND OPTICAL SPECTROSCOPY**

A. Méndez-Blas<sup>1</sup>, M. E. Calixto<sup>1</sup>, E. Lopez<sup>1</sup> and B. Mari-Soucace<sup>2</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, <sup>2</sup>IDF-Departament de Física Aplicada, Universitat Politècnica de València,

■ **S3B-P049 PHOTOVOLTAIC EFFECT IN KNN-BASED FERROELECTRIC THIN FILM**



**Ricky Burgos<sup>1</sup>, L. Cichetto Junior<sup>1</sup>, M. Venet<sup>2</sup>, F. M. Araújo-Moreira<sup>1</sup>**

<sup>1</sup>Grupo de Materiais e Dispositivos, Departamento de Física, Universidade Federal de São Carlos, <sup>2</sup>Grupo de Materiais Funcionais Avançados, Departamento de Física, Universidade Federal de São Carlos,

■ **S3B-P050 SYNTHESIS AND FABRICATION OF TiO<sub>2</sub> DOUBLE-LAYERED FILMS FOR ITS APPLICATIONS GRÄTZEL SOLAR CELLS**

**K. Portillo-Cortez<sup>1</sup>, E.I. Medina-Reyes<sup>2,3</sup>, J.O. Flores-Flores<sup>3</sup>, J.Á. Chávez-Carvayar<sup>1</sup>**

<sup>1</sup>Instituto de Investigaciones en Materiales, UNAM, <sup>2</sup>Facultad de Estudios Superiores Iztacala, UNAM, <sup>3</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, UNAM, <sup>1</sup>

■ **S3B-P051 A STUDY OF SELENIUM ELECTRODEPOSITION ONTO FTO SUBSTRATES. MICROSTRUCTURE AND OPTICAL PROPERTIES.**

**A. Palacios-Padrós<sup>1</sup>, L. Arvizu-Rodríguez<sup>2</sup>, I. Díez-Pérez<sup>1,3</sup>, F. Sanz<sup>3,1,4</sup>, U. Páramo-García<sup>2</sup>, F. Chalé-Lara<sup>5</sup>, J. Guerrero-Contreras<sup>5</sup> and F. Caballero-Briones<sup>5</sup>**

<sup>1</sup>Departament de Química Física, Universitat de Barcelona, <sup>2</sup>Instituto Tecnológico de Ciudad Madero, División de Estudios de Postgrado e Investigación, <sup>3</sup>Institute for Bioengineering of Catalonia (IBEC), <sup>4</sup>CIBER-BBN, <sup>5</sup>Instituto Politécnico Nacional, Laboratorio de Materiales Fotovoltaicos, CICATA

■ **S3B-P052 CHARACTERIZATION OF THIN FILMS BASED ON CZTS GROWN BY SPUTTERING METHOD FOR APPLICATIONS IN SOLAR CELLS**

**J. Quintero-García<sup>1</sup>, G. Pérez-Hernández<sup>2</sup>, S. Avendaño-Guín<sup>1</sup>, E. Ramirez-Morales<sup>2</sup>, E. Ponce-Recinos<sup>3</sup>, R. Castillo-Palomera<sup>3</sup>.**

<sup>1</sup>Maestría en Energías Renovables, Universidad Politécnica de Chiapas. <sup>2</sup>División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco. <sup>3</sup>Cuerpo Académico de Energía y Sustentabilidad, Universidad Politécnica de Chiapas.

■ **S3B-P053 RTA AND CRYSTALLIZATION OF UNHYDROGENATED AMORPHOUS SILICON THIN FILMS DEPOSITED BY RF SPUTTERING SYSTEM**

**A. Pacio Castillo<sup>1</sup>, H. Juárez<sup>1</sup>, X. Mathew<sup>2</sup>, N Budini<sup>3,4</sup>, M. Pacio<sup>1</sup>, J. A. Garcia<sup>5</sup>, C. Guarneros<sup>6</sup>, E. Rosendo<sup>1</sup>, T. Díaz<sup>1</sup>**

<sup>1</sup>Centro de Investigación en Dispositivos Semiconductores, Benemérita Universidad Autónoma de Puebla, <sup>2</sup>Instituto de energías Renovables Universidad Nacional Autónoma de México, Temixco, <sup>3</sup>Instituto de Física del Litoral

(UNL-CONICET), <sup>4</sup>Facultad de Ingeniería Química (UNL),

<sup>5</sup>Preparatoria "Gral. Lázaro Cárdenas del Río", BUAP,

<sup>6</sup>Instituto Politécnico Nacional,

■ **S3B-P054 INFLUENCE OF SUBSTRATE TEMPERATURE ON THE STRUCTURAL AND PHOTOLUMINESCENCE PROPERTIES OF Cu<sub>x</sub>CdTeO<sub>y</sub> THIN FILMS FROM Cu<sub>20</sub>-CdO-TeO<sub>2</sub> COMPOSITE TARGET**

**J. A. Beristain-Bautista<sup>1</sup>, F. Rodríguez-Melgarejo<sup>1</sup>, M. A. Hernández-Landaverde<sup>1</sup>, and S. J. Jiménez-Sandoval<sup>1</sup>.**

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del I. P. N., Libramiento Norponiente.

■ **S3B-P055 THEORETICAL CHARACTERIZATION OF DONOR-p-ACCEPTOR ORGANIC SEMICONDUCTORS**

**N Flores-Holguín<sup>1</sup>, N.A. Sánchez-Bojorge<sup>1</sup> and L.M. Rodríguez-Valdez<sup>2</sup>**

<sup>1</sup>Grupo NANOCOSMOS- Centro de Investigación en Materiales Avanzados, S.C. <sup>2</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Chihuahua.

■ **S3B-P056 COMPARISON OF TiO<sub>2</sub> MATRICES IN LOW-COST PEROVSKITE-BASED SOLAR CELLS**

**P.C. Bedotto<sup>1</sup>, J.C. Calva-Yáñez<sup>1</sup>, M.E. Rincón<sup>1</sup>**

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México.

■ **S3B-P057 DESIGN, SYNTHESIS AND PROPERTIES OF 'PHOTOCHROMIC TORSIONAL SWITCHES' (PTS)**

**G. Sforazzini<sup>1</sup>, A. Claveau<sup>1</sup>, J. Maciejewski<sup>1</sup>**

<sup>1</sup>Institute of Materials, École Polytechnique Fédérale de Lausanne (EPFL) Laboratory of Macromolecular and Organic Materials Lausanne Switzerland

■ **S3B-P058 MICROELECTRODES FABRICATION USING A LOW-COST LASER**

**J. López,<sup>1</sup> A. Cruz-Ramírez<sup>1</sup>, M. Hautefeuille<sup>1</sup>.**

<sup>1</sup>Departamento de Física, Facultad de Ciencias,

■ **S3B-P059 THEORETICAL INVESTIGATION OF THE ELECTRONIC AND CHARGE-TRANSPORT PROPERTIES IN ORGANIC SEMICONDUCTORS**

**L. M. Rodríguez Valdez<sup>1</sup>, D. A. Lamelas-Flores<sup>1</sup>, R. M.**

**Gutiérrez-Pérez<sup>2</sup>, A. Perales-Escobedo<sup>1</sup>, M. I. Villa-Pando<sup>1</sup>, N. R. Flores-Holguín<sup>2</sup>.**

<sup>1</sup>Universidad Autónoma de Chihuahua. <sup>2</sup>Centro de Investigación en Materiales Avanzados S. A. de C. V. Chihuahua, Chihuahua. México.

■ **S3B-P060 THE EFFECTS OF BLEND COMPOSITION AND FILM THICKNESS OF ACTIVE LAYER ON THE PHOTOVOLTAIC PARAMETERS IN OPVs.**

M. A. Ramírez-Gómez<sup>1</sup>, E. González-Juárez<sup>1</sup>, A. Romero-Borja<sup>3</sup>, A. Espinosa-Roa<sup>3</sup>, M. Melgoza-Ramírez<sup>3</sup>, M. Güizado-Rodríguez<sup>1</sup>, V. Barba<sup>2</sup>, M. Rodríguez<sup>3</sup>, J. L. Maldonado<sup>3</sup>.

<sup>1</sup>UAEM.<sup>2</sup>CIO

■ **S3B-P061 SYNTHESIS AND CHARACTERIZATION OF COMPACT TiO<sub>2</sub> FILMS AND THEIR APPLICATION IN DYE SENSITIZED SOLAR CELLS**

M.D. Marín-Núñez<sup>1</sup>, A. E. Jiménez-González<sup>2</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales IIM-UNAM,<sup>2</sup>Instituto de Energías Renovables.

■ **S3B-P062 ELECTRICAL AND OPTICAL PROPERTIES OF Cu-O CO-DOPED CdTe FILMS DEPOSITION BY MAGNETRON SPUTTERING FROM Cu<sub>20</sub>-CdTe COMPOSITE TARGETS**

J. A. Beristain-Bautista<sup>1</sup>, F. Rodríguez-Melgarejo<sup>1</sup>, M. A. Hernández-Landaverde<sup>1</sup> and S. J. Jiménez-Sandoval<sup>1</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del I. P. N.

■ **S3B-P063 STUDY OF Cu<sub>20</sub> FILMS DEPOSITED BY HFCVD TECHNIQUE**

L. Hill Pastor<sup>1</sup>, T. Díaz-Becerril<sup>1</sup>, R. Peña Sierra<sup>2</sup>, C. Morales Ruiz<sup>1</sup>, G. García-Salgado<sup>1</sup>, Rosendo Andres<sup>1</sup>, R. Galeazzi<sup>1</sup>, R. Romano Trujillo<sup>1</sup>.

<sup>1</sup>CIDS-ICUAP Benemérita Universidad Autónoma de Puebla. <sup>2</sup>Centro de Investigación y Estudios Avanzados del IPN, Departamento de Ingeniería Eléctrica

■ **S3B-P064 Characterization of CZTS/ZnS coupling as absorber/buffer thin films system using different ZnS synthesis methods.**

Hurtado-Morales, Mikel<sup>1,2</sup>, Romero, Eduard<sup>1,2</sup>, Ramírez, Edwin<sup>1,3</sup>, Gordillo, Gerardo<sup>1</sup>

<sup>1</sup>Grupo de Materiales Semiconductores y Energía Solar, Universidad Nacional de Colombia,<sup>2</sup>Departamento de Química, Universidad Nacional de Colombia. <sup>3</sup>Facultad de Ingeniería Universidad Nacional de Colombia

■ **S3B-P065 PHYSICAL PROPERTIES OF In<sub>2</sub>S<sub>3</sub> AS WINDOW MATERIAL FOR SOLAR CELLS APPLICATION**

C.I. Flores Calixto<sup>1</sup>, U. Galarza Gutiérrez<sup>2</sup>, M.L. Albor Aguilera<sup>2</sup>, M.A. González Trujillo<sup>3</sup>, C. Hernández Vásquez<sup>2</sup>, Y. Matsumoto Kuwabara<sup>4</sup>.

<sup>1</sup>ESIQIE-IPN, Depto. Ing. Quím. Indus. U.P.A.L.M.<sup>2</sup>ESFM-IPN, Depto. Física, U.P.A.L.M. <sup>3</sup>ESCOM-IPN, Depto. De formación Básica, U.P.A.L.M. <sup>4</sup>CINVESTAV-SEES-IPN,

■ **S3B-P066 BixTe<sub>1-x</sub> THIN FILMS PREPARED BY CSVT AND SEQUENTIAL THERMAL EVAPORATION TECHNIQUES AS BACK CONTACT FOR CDTE THIN FILMS SOLAR CELLS**

E.A. Santiago-Jaimes<sup>1</sup>, J.G. Santoyo-Morales<sup>1</sup>, M. Courel-Piedrahita<sup>1</sup>, F. Cruz-Gandarilla<sup>1</sup> and O. Vigil-Galán<sup>1</sup>

<sup>1</sup>Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional (IPN).

■ **S3B-P067 IMPROVEMENT IN THE OPTICAL AND ELECTRICAL PROPERTIES OF FIBERS POLY (3-HEXYLTHIOPHENE) - POLYETHYLENE OXIDE BY THE INCORPORATION OF CARBON NANOTUBES AND THEIR APPLICATION IN SOLAR CELLS**

D-Hernández<sup>1</sup>, M.E Nicho<sup>1</sup>, G. Alvarado-Tenorio<sup>2</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas, Universidad Autónoma del Estado de Morelos. (UAEM). <sup>2</sup>Centro de Investigación en Energía, UNAM,

■ **S3B-P068 OPTICAL PROPERTIES AND DFT STUDIES OF W<sub>1-x</sub>Mo<sub>3-x</sub> • 0.33H<sub>2</sub>O SOLID SOLUTIONS WITH TUNABLE BAND GAPS**

A. Arzola-Rubio<sup>1</sup>, J. Camarillo-Cisneros<sup>1</sup>, and F. Paraguay-Delgado<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMA), Laboratorio Nacional de Nanotecnología,

■ **S3B-P069 OPTICAL PROPERTIES OF TITANIA-BASED SILVER DECORATED AND HYDROGENISED ONE-DIMENSIONAL NANOSTRUCTURES**

Gajovic<sup>1</sup>, M. Plodinec<sup>1</sup>, M. Ceh<sup>2</sup>, M. Willinger<sup>3</sup>

<sup>1</sup>Ruder Bošković Institute, <sup>2</sup>Institute Jožef Stefan, Jamova. <sup>3</sup>Fritz-Haber-Institute der Max-Planck-Gesellschaft, Berlin, Germany

■ **S3B-P070 COMPLETE SERIAL INTERCONNECTION OF CdS/CdTe SOLAR CELLS USING A 532 NM LASER**

D. Jiménez-Olarte<sup>1,2</sup>, O. Vigil-Galán<sup>1</sup>, G. Contreras-Puente<sup>1</sup>, M. L. Albor-Aguilera<sup>1</sup>, C. Hernández-Vásquez<sup>1</sup>, J. Santoyo-Morales<sup>1</sup>, J. M. Flores-Márquez<sup>1</sup>, J. de la Rosa<sup>2</sup>.

<sup>1</sup>Escuela Superior de Física y Matemáticas-IPN, México D. F., <sup>2</sup>Escuela Superior de Ingeniería Mecánica y Eléctrica-IPN, México D. F.

■ **S3B-P071 STUDY OF ZnO:Zr THIN FILMS ANNEALED IN NITROGEN ATMOSPHERE**



**A. Miguel-Hernandez<sup>1</sup>, S. Jimenez-Sandoval<sup>2</sup>, A. Beristain<sup>2</sup>, F. Rodríguez-Melgarejo<sup>2</sup>, M. A. Hernandez-Landaverde<sup>2</sup>, R. Lozada-Morales<sup>3</sup>, E. Rubio-Rosas<sup>4</sup>, C. de la Cerna-Hernandez<sup>4</sup>, R. Agustin-Serrano<sup>4</sup>, S. Gonzalez-Martinez<sup>1</sup>, G. Juarez-Lopez<sup>1</sup>, R. Martinez-Martinez, J. Carmona-Rodríguez<sup>1</sup>.**

<sup>1</sup>Instituto de Física y Matemáticas, Universidad Tecnológica de la Mixteca. <sup>2</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Querétaro. <sup>3</sup>Benemérita Universidad Autónoma de Puebla. <sup>4</sup>Postgrado en Física Aplicada. Facultad de Ciencias Físico-Matemáticas. <sup>5</sup>Centro Universitario de Vinculación y transferencia de Tecnología,

■ **S3B-P072 DEPOSITION OF CHALCOGENIDE NANOSTRUCTURES BY SILAR FOR SOLAR CELLS APPLICATIONS**

**Raquel Garza-Hernández<sup>1</sup>, Eduardo Martínez-Guerra<sup>1</sup>, F. Servando Aguirre-Tostado<sup>1</sup>.**

<sup>1</sup>Centro de Investigación en Materiales Avanzados, S.C.

■ **S3B-P073 INFLUENCE OF ANNEALING TEMPERATURE ON RAMAN MODE PROPERTIES OF AL-N CO-DOPED ZNO FILMS**

**A. Martínez<sup>1</sup>, L. Zamora-Peredo<sup>1</sup>, L. García-González<sup>1</sup>, J. Hernández-Torres<sup>1</sup>, G. Contreras-Puente<sup>2</sup>, A. Hernández<sup>3</sup>, G. Santana-Rodríguez<sup>2</sup>, y M. López-López<sup>4</sup>**

<sup>1</sup>Centro de Investigación en Micro y Nanotecnología, Universidad Veracruzana. <sup>2</sup>Superior de Física y Matemáticas del IPN. <sup>3</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. <sup>4</sup>Departamento de Física, Centro de Investigación y de Estudios Avanzados del IPN,

■ **S3B-P074 MODIFICATION OF THIN Si AND ZnO FILMS BY He ION BOMBARDMENT**

**L.Pentecoste<sup>1</sup>, D.Meljanac<sup>2</sup>, M.R. Ammar<sup>3</sup>, H. Bahman<sup>4</sup>, A.-L. Thomann<sup>1</sup>, D.Gracin<sup>2</sup>**

<sup>1</sup>Gremi-Polytech<sup>1</sup>orléans. <sup>2</sup>Rudjer Boskovic Institute. <sup>3</sup>Cemhti-Cnrs. <sup>4</sup>Cemhti-Cnrs.

■ **S3B-P075 EFFECT OF SURFACTANT ON THE MORPHOLOGICAL EVOLUTION OF Sb2S3 NANOSTRUCTURES**

**Mou Pal<sup>1,2</sup>, N. R. Mathews<sup>1</sup>, X. Mathew<sup>1</sup>**

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México, <sup>2</sup>Instituto de Física, BUAP.

■ **S3B-P076 SEMICONDUCTOR THIN FILMS OF SnO<sub>2</sub>, CdS AND CdTe FOR ULTRA-THIN SOLAR CELLS.**

**K. Gutierrez Z-B<sup>1,2</sup>, F. de Moure<sup>3</sup>, J. Sastré<sup>1</sup>, S. Gallardo-Hernández<sup>4</sup>, A M Salomón-Preciado<sup>1</sup>, G. Contreras-Puente<sup>1</sup>.**

<sup>1</sup>Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, Unidad Profesional "ALM". <sup>2</sup>Facultad de Física, Universidad de La Habana. <sup>3</sup>Facultad de Química-Materiales, Universidad Autónoma de Querétaro, Querétaro, México. <sup>4</sup>Sección de Electrónica del Estado Sólido, Departamento de Ingeniería Eléctrica, CINVESTAV, IPN, México

■ **S3B-P077 PROCESSING OF GALLIUM NITRIDE FILMS BY PECVD IN AN ATMOSPHERE OF NH<sub>3</sub>.**

**K. Gutierrez Z-B<sup>1,2</sup>, G. Santana<sup>3</sup>, J. Sastré<sup>1</sup>, L. Lartundo-Rojas<sup>4</sup>, F. de Moure<sup>5</sup>, A M Salomón-Preciado<sup>1</sup>, O. de Melo<sup>2</sup>, G. Contreras-Puente<sup>1</sup>.**

<sup>1</sup>Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, Unidad Profesional "ALM". <sup>2</sup>Facultad de Física, Universidad de La Habana. <sup>3</sup>Instituto de Investigación en Materiales, Universidad Nacional Autónoma de México, <sup>4</sup>Instituto Politécnico Nacional, Centro de Nanociencias y Micro y Nanotecnologías, UPALM. <sup>5</sup>Facultad de Química-Materiales, Universidad Autónoma de Querétaro, Querétaro, México.

■ **S3B-P078 STUDY OF THE EFFECT OF POLYMER CONCENTRATION ON THE P3HT:PCBM STRUCTURE FOR ORGANIC SOLAR CELLS APPLICATIONS**

**D. Canto-Reyes<sup>1</sup>, M. Acosta-Díaz<sup>1</sup>, I. Riech-Méndez<sup>1</sup>, J. Méndez-Gamboa<sup>1</sup>, S. Díaz-Ceballos<sup>1</sup>**

<sup>1</sup>Materials Science Laboratory, Faculty of Engineering, University of Yucatán.

■ **S3B-P079 CdTe NANOWIRE ARRAYS AS WINDOW LAYERS FOR THIN-FILM CdTe SOLAR CELL APPLICATIONS**

**S. Guduru<sup>1</sup>, V. P. Singh<sup>1</sup>, S. Rajaputra<sup>1</sup>, B. Nadimpally<sup>1</sup>, R. Mangu<sup>2</sup>, H. Dang<sup>1</sup>, R. A. Badhan<sup>1</sup>, M. Bresin<sup>1</sup>, T. Hastings<sup>1</sup>**

<sup>1</sup>Center for Nanoscale Science and Engineering, Department of Electrical & Computer Engineering, University of Kentucky, <sup>2</sup>IBM, East Fishkill,

## Symposium 3C

# RENEWABLE ENERGY AND SUSTAINABLE DEVELOPMENT

Joseph Sebastian P. / MEXICO / IER-UNAM

Carlos Guerrero / COLOMBIA / Universidad Nacional de Colombia

Oumarou Savadogo / CANADA / École Polytechnique de Montréal

Ibrahim Dincer / CANADA / Faculty of Engineering and Applied Science, UOIT

ROOM: CHICHEN ITZA I  
MONDAY, AUGUST 17

👤 Session Chair: **SEBASTIAN JOSEPH P.**,  
**INSTITUTO DE ENERGÍAS RENOVABLES-UNAM.**

▶ **08:30 - 09:00 S3C-0001 *Invited Talk* RAPID SOLID STATE HYDROGEN GENERATION FROM NOVEL NANOSTRUCTURED COMPLEX HYDRIDE SYSTEMS**

**Robert A. Varin<sup>1</sup>**

<sup>1</sup>University of Waterloo, Department of Mechanical and Mechatronics Engineering, Waterloo, Ontario, Canada

■ **09:00 - 09:15 S3C-0002 MODELING AND SIMULATION OF A COOLING SYSTEM FOR HYDROGEN STORAGE PROCESS WITH SODIUM ALANATE CATALYZED BY TITANIUM CHLORIDE**

**J. Parra-Santiago<sup>1</sup>, C. Guerrero-Fajardo<sup>2</sup>**

<sup>1</sup>Chemical Engineering (C), Universidad Nacional de Colombia, Bogotá, Colombia. <sup>2</sup>Chemical Engineering and Mechanical, Universidad Nacional de Colombia, Bogotá, Colombia

▶ **09:15 - 09:45 S3C-0003 *Invited Talk* ECOLOGICAL ANALYSIS OF HYDROGEN PRODUCTION FROM CASSAVA PROCESSING WASTEWATER**

**Jonni Guiller Ferreira Madeira<sup>1</sup>Ronney Arismel Mancebo Boley<sup>1</sup>. Angel Ramon Sanchez Delgado<sup>2</sup>**

<sup>1</sup>University Federal Rural of Rio de Janeiro – Rio de Janeiro, RJ, Brazil Federal Center of Technological Education of Rio de Janeiro (CEFET/RJ) Research Group- Geemat (Energy

Group Entrepreneurship, Environment And Technology)/ Cefet/Rj. <sup>2</sup>University Federal Rural of Rio de Janeiro – Rio de Janeiro, RJ, Brazil Department of Mathematics

▶ **09:45 - 10:15 S3C-0004 *Invited Talk* INTRODUCING ORGANIC AND HYBRID SEMICONDUCTORS FOR PHOTOELECTROCHEMICAL WATER SPLITTING**

**Fumagalli<sup>1</sup>, S. Bellani<sup>1</sup>, M. Schreier<sup>2</sup>, S. Leonardi<sup>1</sup>, H. Comas Rojas<sup>1</sup>, M. Mayer<sup>2</sup>, A. Tacca<sup>3</sup>, L. Meda<sup>3</sup>, M. Grätzel<sup>2</sup>, G. Lanzani<sup>1</sup>, M.R. Antognazza<sup>1</sup> and F. Di Fonzo<sup>1</sup>**

<sup>1</sup>Center for Nano Science and Technology (Italy). <sup>2</sup>Institut des Sciences et Ingénierie Chimiques, Lausanne (Switzerland). <sup>3</sup>Eni S.p.A. Istituto ENI Donegani via G. Novara (NO) (Italy)

■ **10:15 - 10:30 S3C-0005 CULTURE MEDIUM OPTIMIZATION FOR MAINTENANCE AND BIOPROSPECTING OF THE BACTERIA RUMINOCOCCUS ALBUS FOR CELLULOSE DEGRADATION AND HYDROGEN PRODUCTION**

**P. Sanabria-Lozano<sup>1,3</sup>, J. P. Magnin<sup>2</sup>, C. A. Guerrero-Fajardo<sup>3</sup>**

<sup>1</sup>Posgrado Interfacultades de Microbiología. Facultad de Ciencias, Universidad Nacional de Colombia. Bogotá D. C., Colombia. <sup>2</sup>Laboratoire d'Electrochimie et de Physicochimie des Materiaux et des Interfaces – LEPMI. Grenoble, France. <sup>3</sup>Grupo Aprovechamiento Energético de los Recursos Naturales - APRENA. Departamento de Química, Facultad de Ciencias, Universidad Nacional de Colombia. Bogotá D.C., Colombia.

■ **10:30 - 10:45 S3C-0006 STUDY OF DRYING OF DIFFERENT KIND OF LEAVES IN A SOLAR DRYER WITH EVACUATED TUBE AIR COLLECTORS**





**J. Conde<sup>1</sup>, J. Moreira<sup>1</sup>, J. Pantoja<sup>1</sup>, A. Caballero Roque<sup>2</sup>, G. Palacios Pola<sup>2</sup> and J. P. Sebastian<sup>3</sup>**

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Energías Renovables, Universidad de Ciencias y Artes de Chiapas, México. <sup>2</sup>Laboratorios de Alimentación Sustentable, Facultad de Ciencias de la Nutrición y Alimentos, Universidad de Ciencias y Artes de Chiapas, México. <sup>3</sup>Instituto de Energías Renovables-UNAM, Temixco, Morelos, México.

■ **10:45 - 11:00 S3C-0007 MODELLING SOLAR DRYING COLECTOR FOR AGRICOLA PRODUCT FROM TABASCO**

**Gabriel Martínez-Pereyra<sup>1</sup>, Manuel González-Solano<sup>1</sup>, Germán Pérez-Hernández<sup>1</sup>, Erik Ramírez-Morales<sup>1</sup>, Lizeth Rojas-Blanco<sup>1</sup>, Cristino Ricardez-Jiménez<sup>1</sup>, Juan Gabriel Álvarez-Ramírez**

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, México.

☐ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: CARLOS A. GUERRERO-FAJARDO. UNIVERSIDAD NACIONAL DE COLOMBIA-BOGOTÁ.**

■ **12:30 - 12:45 S3C-0008 DESARROLLO DE LAS ESTRUCTURAS DE CARBONO MESOPOROSAS PARA EL APOYO DE catalizador bifuncional Zn - La EN LA PRODUCCIÓN DE BIODIESEL**

**MP Triviño R. <sup>1</sup>, CA Guerrero F. <sup>2</sup>**

<sup>1</sup>Escuela de Ingeniería Ambiental, Universidad Pedagógica y Tecnológica de Colombia, Tunja, Colombia.

<sup>2</sup>Departamento de Química, Universidad Nacional de Colombia, Bogotá Colombia

■ **12:45 - 13:00 S3C-0009 MESOPOROUS SILICA (SBA-15) AND CARBON MATERIALS IMPREGNATED WITH TETRAALKYLAMMONIUM HYDROXIDES FOR OBTAINING BIODIESEL FROM WASTE OIL**

**Medina, L<sup>1,2</sup>, C.A Guerrero-Fajardo<sup>1</sup>**

<sup>1</sup>Universidad Nacional de Colombia. Bogotá- Colombia

<sup>2</sup>Universidad Manuela Beltrán. Bogotá - Colombia

▶ **13:00 - 13:30 S3C-0010 Invited Talk FINANCIAL AND ECONOMIC ANALYSIS OF PHOTOVOLTAIC ENERGY PLANTS IN MEXICO**

**I. Guaita-Pradas<sup>1</sup>, B. Mari Soucase<sup>2</sup>, I. Marqués-Pérez<sup>1</sup>**

<sup>1</sup>Departament de Economia i Ciències Socials, Universitat Politècnica de València, Spain. <sup>2</sup>Departament de Física Aplicada-IDF, Universitat Politècnica de València, Spain

■ **13:30 - 13:45 S3C-0011 EXPERIMENTAL PERFORMANCES OF A SOLAR DRYING SYSTEM FOR DRYING MALANGA**

**Manuel González-Solano<sup>1</sup>, Germán Pérez-Hernández<sup>1</sup>, Erik Ramírez-Morales<sup>1</sup>, Lizeth Rojas-Blanco<sup>1</sup>, Gabriel Martínez-Pereyra<sup>1</sup>, Marcela Arrellano-Cortaza<sup>1</sup>, Domitilo Martínez-Hernández<sup>1</sup>, Cristino Ricardez-Jiménez<sup>1</sup>**

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, México.

■ **13:45 - 14:00 S3C-0012 DEVELOPMENT OF AN AUTOREGRESSIVE INTEGRATED MOVING AVERAGE (ARIMA) MODELS TO PREDICT THE SHORT TERM SOLAR RADIATION.**

**E. Rangel Heras<sup>1</sup>, E. Cadenas Calderón<sup>2</sup>, J. Tena García<sup>3</sup>.**

<sup>1,2,3</sup>Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México.

✕ **14:00- 16:00 LUNCH**

👤 **Session Chair: SEBASTIAN JOSEPH P. INSTITUTO DE ENERGÍAS RENOVABLES-UNAM.**

▶ **16:00 - 16:30 S3C-0013 Invited Talk PYROLYSIS PRODUCTS OF RUSH GRASS AND DIFFERENT WOOD SAMPLES INVESTIGATED BY TG-GC-MS**

**Ekkehard Post<sup>1</sup>, Erwin Kaisersberger<sup>1</sup>, Carolin Fischer<sup>1</sup>, Bob Fidler<sup>2</sup>**

<sup>1</sup>NETZSCH Geraetebau GmbH, Germany, <sup>2</sup>NETZSCH Instruments North America, Burlington

■ **16:30 - 16:45 S3C-0014 THE CONCEPT OF A BIOREFINERY**

**D. De la Merced-Jimenez<sup>1</sup>, P. J. Sebastian<sup>1</sup>**

<sup>1</sup>Instituto de Energías Renovables UNAM, Temixco, Morelos, Mexico

■ **16:45 - 17:00 S3C-0015 OXIDATIVE DESULFURIZATION OF ORGANOSULFUR COMPOUNDS IN A MODEL MIXTURE OF SCRAP TIRE PYROLYSIS OIL**

**Gómez-Ibáñez<sup>1</sup>, V. Rojas-García<sup>1</sup>**

<sup>1</sup>Universidad Industrial de Santander, Facultad de Ingenierías Físicoquímicas, Escuela de Ingeniería Química, Grupo de Investigación en Química Estructural -GIQUE, Colombia-Bucaramanga, Colombia.

■ **17:00 - 17:15 S3C-0016 CULTURE MEDIUM OPTIMIZATION FOR MAINTENANCE AND BIOPROSPECTING OF Pseudomonas syringae FOR**

**CARBOHYDRATES DEGRADATION AND ETHYLENE PRODUCTION**

Y. Santos-Panqueva<sup>1,2</sup>, C. A. Guerrero-Fajardo<sup>2</sup>, I. Contreras-Andrade<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Sinaloa. Facultad de Ciencias Químico Biológicas, México. <sup>2</sup>Universidad Nacional de Colombia. Facultad de Ciencias, Colombia

**ROOM: TERRACE**  
**MONDAY, AUGUST 17**

**▶ 18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S3C-P001 EVALUATION OF KAOLIN WASTE AS ADSORBENT OF ORGANICS COMPOUNDS**

G. C. Oliveira<sup>1</sup>, A. C. L. Patrício<sup>1</sup>, A. N. A. Martins<sup>1</sup>, G. T. Araújo<sup>1</sup>

<sup>1</sup>Federal University of Campina Grande, Academic Unity of Chemical Engineering, Chemistry and Biomass Laboratory, Brazil.

■ **S3C-P002 DESIGN, CONSTRUCTION AND EVALUATION OF A WETLAND WITH WATER HYACINTH TO IMPROVE THE QUALITY OF WASTEWATER UPEG**

Brenda Paloma Mazón Bahena<sup>1</sup>, Elina Juárez Brito<sup>1</sup>, Brenda Trinidad Mena Barrera<sup>1</sup>, Leticia Morelos Aguirre, M.A. Rivera<sup>1</sup>

<sup>1</sup>Universidad Politécnica del Estado de Guerrero,

■ **S3C-P003 PREPARATION AND CHARACTERISATION OF SUPPORTED ZEOLITES ON CARBONS USING AGRO-INDUSTRIAL RESIDUES FOR HEAVY METALS REMOVAL**

D.A. De Haro-Del Río<sup>1,2</sup>, S. Rizvi<sup>1</sup>, K. McGlacken<sup>1</sup>, I. E. Castañeda-Robles<sup>2</sup>, and S. M. Holmes<sup>1</sup>

<sup>1</sup>School of Chemical Engineering and Analytical Science, The University of Manchester, Oxford Road, Manchester, UK. <sup>2</sup>Instituto Tecnológico Superior de Jerez, Mexico.

■ **S3C-P004 HIGH QUALITY BIOGAS PRODUCED FROM MAGUEY BAGASSE (AFTER PULQUE PRODUCTION)**

G. Corro<sup>1</sup>, M. Navarrete<sup>1</sup>, F. Bañuelos<sup>1</sup>, M. Rodríguez<sup>1</sup>, V. Serkin<sup>1</sup>

<sup>1</sup>Benemérita Universidad Autónoma de Puebla

■ **S3C-P005 SERVICIO COMUNITARIO PARA BRINDAR ASESORIA EN EL USO DE ENERGIAS RENOVABLES E HIGIENE Y SEGURIDAD EN LOS SERVICIOS BASICOS DE LOS HABITANTES DE LAS ZONAS MARGINADAS**

A. P. Treviño Betancourt<sup>1</sup>

<sup>1</sup>Instituto Tecnológico De Cd. Victoria

■ **S3C-P006 DEVELOPMENT OF AN AUTONOMOUS H<sub>2</sub>O PURIFIER FOR RURAL AND DISASTER AREAS**

D.K. Becerra Paniagua<sup>1</sup>, J. P. Enríquez<sup>1</sup>, G. I. Duharte<sup>1</sup>, J. M. Acosta<sup>1</sup>, J.Y. G. Díaz<sup>1</sup>, Y. H. Portillo<sup>1</sup>, L.E. Z. Ovando, P.J. Sebastian<sup>2</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Energías Renovables. Universidad de Ciencias y Artes de Chiapas, México. <sup>2</sup>Instituto de Energías Renovables-UNAM, Morelos, México

■ **S3C-P007 DESIGN, CONSTRUCTION AND EVALUATION OF A THERMAL SYSTEM BY NATURAL CONVECTION**

Ballinas Morales<sup>1</sup>, M. Ruiz Ruiz<sup>1</sup>, C. Camacho Fernández<sup>1</sup>, P.J. Sebastian<sup>2</sup>, L. Rodríguez Hernández<sup>1</sup>, E. Caballero Gutiérrez<sup>1</sup>, E. Mendoza Cruz<sup>1</sup>, N. Ovando Santos<sup>1</sup>, J. Zavala Ulloa<sup>1</sup>, L. López Ángel<sup>1</sup>, C. Munguía Ballinas<sup>1</sup>.

<sup>1</sup>Instituto Tecnológico Superior de Cintalapa, Ingeniería en Energías Renovables, Chiapas, México. <sup>2</sup>Instituto de Energías Renovables-UNAM, Morelos, México

■ **S3C-P008 OBTAINING AN EDIBLE VEGETABLE OIL FROM SEED ACAHUAL ( *Simsialexicaulis* (Cav) pers).**

B. Ortiz Aguilar<sup>1</sup>, M. Avendaño Rodríguez<sup>1</sup>, P. Robles Salgado<sup>1</sup>, M. García Flores<sup>1</sup>, K. López Maldonado<sup>1</sup>, C. Cano Ochoa<sup>1</sup>.

<sup>1</sup>Instituto Tecnológico de Zacatepec, Morelos.

■ **S3C-P009 WASTEWATER TREATMENT AND LIPID PRODUCTION BY THE MICROALGAE VERRUCODESMUS VERRUCOSUM**

E.G. Arenas<sup>1</sup>, M. C. Rodríguez-Palacio<sup>2</sup>, A.U. Juantorena<sup>3</sup>, P.J. Sebastian<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables. Universidad Nacional Autónoma de México., <sup>2</sup>Universidad Autónoma Metropolitana, <sup>3</sup>Universidad Autónoma del Estado de Morelos. UAEM.

■ **S3C-P010 EVALUATION OF THE GEOMETRY OF TESLA TURBINE USING COMPRESSED AIR.**

J.Y. Galindo Díaz<sup>1</sup>, J. Moreira acosta<sup>1</sup>, Y. Hernández Portillo<sup>1</sup>, L.E. Zepeda Ovando<sup>1</sup>, P. López de Paz<sup>1</sup>, D.K. Becerra Paniagua<sup>1</sup>, K.G. Zambrano Solís<sup>1</sup>, J.I. Toledo Gómez<sup>1</sup>, P.J. Sebastian<sup>2</sup>.

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Energías Renovables. Universidad de Ciencias y Artes de Chiapas. <sup>2</sup>Universidad Nacional Autónoma de México.



■ **S3C-P011 ECOLOGICAL VEHICLE POWERED BY COMPRESSED AIR. DESIGN OF THE POWER GENERATING SYSTEM.**

L.E. Zepeda Ovando<sup>1</sup>, J. Moreira acosta<sup>1</sup>, Y. Hernández Portillo<sup>1</sup>, J.Y. Galindo Díaz<sup>1</sup>, D.K. Becerra Paniagua<sup>1</sup>.

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Energías Renovables. Universidad de Ciencias y Artes de Chiapas.

■ **S3C-P012 BIODIESEL PRODUCTION VIA TRANSESTERIFICATION OF SUNFLOWER OIL USING ZEOLITE SUPPORTED CATALYSTS**

J. Estephane<sup>1</sup>, T. Saba<sup>1</sup>, B. El Khoury<sup>2</sup>, M. El Khoury<sup>1</sup>, H. El Zakhem<sup>1</sup>, S. Aouad<sup>2</sup>

<sup>1</sup>Department of Chemical Engineering, University of Balamand, Lebanon. <sup>2</sup>Department of Chemistry, University of Balamand, Tripoli, Lebanon

■ **S3C-P013 DEVELOPMENT OF THE POTENTIAL FOR HYDRAULIC POWER GENERATION OF ELECTRICITY IN THE RIVER SAN VICENTE, APPLICABLE TO USE IN RURAL AREAS**

Reinier Fenton Peñalver<sup>1</sup>, Joel Moreira Acosta<sup>1</sup>, Nein Farrera Vázquez<sup>1</sup>, Agustín Osuna Rodríguez<sup>1</sup>

<sup>1</sup>University of Sciences and Arts of Chiapas, México.

■ **S3C-P014 DESULFURIZATION OF DIBENZOTHIOPHENE SULFONE ON PLATINUM ELECTRODES IN AN ACETONITRILE-WATER SYSTEM**

M. González-Perea<sup>1</sup>, J. A. Zarate-Reyes<sup>2</sup>, E. Rubio-Rosas<sup>2</sup>, P. Ruíz-Gutiérrez<sup>1,3</sup>, M. P. Elizalde-González<sup>3</sup>, M. M. Dávila-Jiménez.

<sup>1</sup>Facultad de Ciencias Químicas, <sup>2</sup>Centro Universitario de Vinculación y Transferencia de Tecnología, Centro de Química <sup>3</sup>. Benemérita Universidad Autónoma de Puebla, Puebla, México.

■ **S3C-P015 COAL AS A SOURCE OF MICROORGANISMS WITH POTENTIAL TO REMOVE SULPHUR**

M. Corona Romo<sup>1</sup>, M. Rodríguez Garza<sup>1</sup>, J. E. Camporredondo Saucedo<sup>2</sup>, R. H. Rodríguez Sanchez<sup>1</sup>, A. M. García Lara<sup>2</sup>.

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Coahuila, México. <sup>2</sup>Facultad de Ingeniería Mecánica y Eléctrica UN, Universidad Autónoma de Coahuila, México.

■ **S3C-P016 ASSESSMENT OF WIND ENERGY POTENTIAL IN CERRO DE LA VIRGEN IN ZACATECAS, MÉXICO**

E.O. Ángel Ruiz<sup>1</sup>, S. Rojas López Salazar<sup>1</sup>, O. Sánchez Santillán<sup>1</sup>, R. Campos Amezua<sup>1</sup>, A.C. Peláez Hernández, A. Sánchez Juárez

<sup>1</sup>Instituto de Energías Renovables-UNAM, Temixco, México.

■ **S3C-P017 DESIGN AND OPTIMIZATION OF A 15 MW WIND FARM**

S. Rojas López Zalasari<sup>1</sup>, E.O. Ángel Ruiz<sup>1</sup>, O. Sánchez Santillán<sup>1</sup>, R. Campos Amezua<sup>1</sup>, A. Sánchez Juárez<sup>1</sup>.

<sup>1</sup>Instituto de Energías Renovables-UNAM, Temixco, Morelos, México.

■ **S3C-P018 TECHNICAL AND ECONOMIC ASSESSMENT FOR A WIND FARM OF 15 MW**

O. Sánchez Santillán<sup>1</sup>, S. Rojas López Zalasari<sup>1</sup>, E. O. Ángel Ruiz<sup>1</sup>, R. Campos Amezua<sup>1</sup>.

<sup>1</sup>Instituto de Energías Renovables, UNAM. Temixco, Morelos, México.

■ **S3C-P019 POWER FACTOR ANALYSIS - SUSTAINABLE USE OF ELECTRICAL ENERGY**

J.A. Alanís-Navarro<sup>1</sup>, M.Y. Bahena-Landa<sup>1</sup>, V. Andraca-Carteño<sup>1</sup>, L. Ixtlilco Cortés<sup>1</sup>

<sup>1</sup>Universidad Politécnica del Estado de Guerrero, México.

■ **S3C-P020 EVALUACIÓN DE ESTUFAS ECOLÓGICA CON METODOLOGÍA CON BASE EN LA INTEGRAL EFICIENCIA TÉRMICA, CRITERIOS AMBIENTALES Y SOCIALES.**

O Martínez Aguirre<sup>1</sup>, J.I. Toledo Gómez<sup>1</sup>, J. Moreira Acosta<sup>1</sup>, N. Farrera<sup>1</sup>, P. López de Paz<sup>1</sup>, L. Ramírez Rodas<sup>1</sup>, J. Hernández Sánchez<sup>1</sup>, K.G. Zambrano Solís<sup>1</sup>

<sup>1</sup>Universidad de Ciencias y Artes de Chiapas.

■ **S3C-P021 EVALUATE THE PALM OIL PURIFIED AS DIELECTRIC FLUID FOR ELECTRICAL TRANSFORMERS**

F.A. Aguilar-Aguilar<sup>1</sup>, J.S. Pathiyamattom<sup>1</sup>, J.C. Álvarez<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables UNAM

■ **S3C-P022 STOCHASTIC ANALYSIS OF TIME SERIES AS A TOOL TO PREDICT METEOROLOGICAL VARIABLES. HURST COEFFICIENT.**

J. Tena-García<sup>1</sup>, E. Cadenas-Calderón<sup>1</sup>, E. Rangel-Heras<sup>1</sup>

<sup>1</sup>Universidad Michoacana de San Nicolás e Hidalgo, Facultad de Ingeniería Mecánica, División de estudios de Posgrado.

■ **S3C-P023 SAVING FUEL STOVE WITH INSIDE WATER HEATING SYSTEM (ECSICA)**

Morales Sánchez<sup>1</sup>, E. Sarmiento Vázquez<sup>1</sup>, C. Camacho Fernández<sup>1</sup>, L. Rodríguez Hernández<sup>1</sup>, J. Cruz Pérez<sup>1</sup>, G. Gómez Gómez<sup>1</sup>, J. Espinosa Martínez<sup>1</sup>, C. Arellano Giron<sup>1</sup>, P.J. Sebastian<sup>2</sup>, L. López Ángel<sup>1</sup>, C. Munguía Ballinas<sup>1</sup>.

<sup>1</sup>Instituto Tecnológico Superior de Cintalapa, Ingeniería en Energías Renovables, México. <sup>2</sup>Instituto de Energías Renovables-UNAM,

■ **S3C-P024 EVALUATION OF ARTIFICIAL WETLANDS IN REMOVING CONTAMINANTS USING DIFFERENT SPECIES OF MACROPHYTE VEGETATION**

Rudy Solís Silván<sup>1</sup>, Raúl Germán Bautista Margulis<sup>1</sup>, Gaspar Lopez Ocaña<sup>1</sup>, Israel Avila Lazaro<sup>1</sup>, Lucia Hernández Hernández<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco

■ **S3C-P025 THERMOKINETIC AND MICROSTRUCTURAL ANALYSIS OF THE CO<sub>2</sub> CHEMISORPTION ON K<sub>2</sub>CO<sub>3</sub>-NAZZRO<sub>3</sub>**

Pedro Sánchez-Camacho,<sup>1</sup> Issis C. Romero-Ibarra<sup>1</sup> and Heriberto Pfeiffer<sup>1</sup>.

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México,

■ **S3C-P026 PREPARATION NANOSTRUCTURED METAL OXIDE FOR APPLICATION IN THE DEGRADATION OF PESTICIDES**

Ramos González Dulcecita Monzerrat<sup>2</sup>, Bahena Zamilpa Alejandra<sup>2</sup>, Suarez Parra Raul<sup>1</sup>, Ocampo Gaspar Maribel<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México. <sup>2</sup>Universidad Politécnica del Estado de Guerrero.

■ **S3C-P027 DEGRADATION OF PHENOL DERIVATIVES WITH COMPOUNDS OF Fe<sub>2</sub>O<sub>3</sub> NPs**

Aranda Valladares Daniela<sup>1</sup>, Suarez Parra Raul<sup>2</sup>, Payan Luis<sup>2</sup>, Nava Figueroa Miguel Antonio<sup>1</sup>, Romero Martínez Diego<sup>1</sup>

<sup>1</sup>Universidad Politécnica del Estado de Guerrero. <sup>2</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México.,

■ **S3C-P028 VALORIZATION OF NUTRIENTS IN WASTEWATER: CHALLENGES AND OPPORTUNITIES FOR RECOVERY PHOSPHORUS AND NITROGEN AS STRUVITE IN SUPERNATANTS FROM ANAEROBIC DIGESTERS.**

B. Arroyo<sup>1</sup>, J. Chanona<sup>1</sup>, M. Gamboa<sup>1</sup>, C. Blanco<sup>1</sup>, E. Ponce<sup>1</sup>, K. De La Cruz<sup>1</sup>

<sup>1</sup>Universidad Politécnica de Chiapas

■ **S3C-P029 CRYSTALLIZATION AND PHOSPHORUS RECOVERY IN FORM OF STRUVITE OF A SUPERNATANT FROM A DIGESTER ANAEROBIC**

Karina de la Cruz Velázquez<sup>1</sup>, Josué Chanona Soto<sup>1</sup>, Minerva Gamboa Sánchez<sup>1</sup>, Cristina Blanco González<sup>1</sup>, Edith Ponce Recinos<sup>1</sup>, Berenice Arroyo Serena<sup>1</sup>

<sup>1</sup>Universidad Politécnica de Chiapas, Tuxtla Gutiérrez Chiapas, México.

■ **S3C-P030 COLLECTION AND USE OF PRODUCTS PRODUCED IN THE CITY TRAIL BIODIGESTOR CUNDUACÁN, TABASCO.**

Lucia Hernández Hernández<sup>1</sup>, Rudy Solís Silván<sup>1</sup>, José Ramón Laines Canepa<sup>1</sup>, Israel Ávila Lázaro<sup>1</sup>

<sup>1</sup>División Académica de Ciencias Biológicas Universidad Juárez Autónoma de Tabasco

■ **S3C-P031 Cd AND Zn REMOVAL USING CHEMICALLY MODIFIED ZEOLITES EXPOSED TO MAGNETIC FIELD**

González-Vázquez Omar Francisco<sup>1</sup>, Escudero-Derat Roberto<sup>2</sup>, Moreno-Virgen Ma. del Rosario<sup>1</sup>, Hernández-Montoya Virginia<sup>1</sup>, Tovar-Gómez Rigoberto<sup>1</sup>.

<sup>1</sup>Instituto Tecnológico de Aguascalientes, <sup>2</sup>Instituto de Investigaciones en Materiales UNAM, México.

■ **S3C-P032 DEVELOPMENT AND CHARACTERIZATION OF GRAPHEN BY THE METHOD OF LIQUID EXFOLIATION USING BIODEGRADABLE AGENTS AND SONIFICATION**

B.R. Flores-Hernández<sup>1</sup>, S.A. Mayén-Hernández<sup>1</sup>, L. Gómez-Herrera<sup>1</sup>, J. Santos-Cruz<sup>1</sup>

<sup>1</sup>Autonomous University of Queretaro, México.

■ **S3C-P033 POTENTIAL OF INDIGENOUS BACTERIA WASTEWATER OF THE SUGAR INDUSTRY FOR USE IN MICROBIAL FUEL CELLS**

Córdova-Bautista<sup>1</sup>, E. Ramírez-Morales<sup>1</sup>, G. Pérez-Hernández<sup>1</sup>, J. G. Alvarez-Ramirez<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, México.

■ **S3C-P034 DEVELOPMENT AND EVALUATION OF A PORTABLE CYLINDRICAL PARABOLIC SOLAR CONCENTRATOR WITH SYSTEM MAINTENANCE OF TEMPERATURE BY PHASE CHANGE MATERIALS**

Ph.D.H.H. Rodríguez<sup>1</sup>, Eng. C.M. Campos Pérez<sup>2</sup>, Eng. J. M. Álvarez Rodríguez<sup>2</sup>, M.Sc. M. Acosta Flores<sup>4</sup>, Ph.D. Y. Guadalupe Maldonado<sup>5</sup>

<sup>1,2,3,4</sup> Universidad Politécnica de Guanajuato, <sup>5</sup> CENAM.



- **S3C-P035 PHOTOELECTROCHEMICAL AND PHOTOCATALYTIC HYDROGEN PRODUCTION BY BIOMIMETIC  $\text{In}_2\text{77S}_4$**   
O. Carrasco-Jaim<sup>1</sup>, C. Gómez-Solis<sup>1</sup>, I. Juárez-Ramírez<sup>1</sup>, L. Torres-Martínez<sup>1</sup>  
<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil, Departamento de Ecomateriales y Energía,
- **S3C-P036 SYNTHESIS OF Ag-, Cu- and La-doped ZnO FROM NITAL SOLUTION AND ITS APPLICATION IN THE PHOTOCATALYTIC REDUCTION OF  $\text{CO}_2$**   
A. Torres-Sánchez<sup>1</sup>, C. Gómez-Solis<sup>1</sup>, L. M. Torres-Martínez<sup>1</sup>  
<sup>1</sup>Universidad Autónoma de Nuevo León
- **S3C-P037 CHARACTERIZATION OF NATURAL CHICLE (Manilkara zapota) AND ITS MODIFICATION VIA METATHESIS REACTIONS**  
S. Reyes-Gómez<sup>1</sup>, M. A. Tlenkopatchev<sup>1</sup>  
<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México,
- **S3C-P038 THE HELMHOLTZS POTENTIAL IN THE IAPWS-95 FORMULATION FOR THE SUPERCRITICAL CONDITIONS OF GEOTHERMAL WATER IN AN EFFICIENT GRAPHICAL INTERFACE**  
J. D. Rojas-Hernández<sup>1</sup>  
<sup>1</sup>Universidad Nacional Autónoma de México, Instituto de Energías Renovables, IER-UNAM.
- **S3C-P039 CHARACTERIZATION OF ELECTRODEPOSITED COPPER TELLURIDE THIN FILMS**  
Sethuramachandran Thanikaikarasan<sup>1</sup>, Paulraj Jeyakumar<sup>2</sup>, Balan Natarajan<sup>2</sup>, Thaiyan Mahalingam<sup>3</sup>, Pathiyamattom Joseph Sebastian<sup>4</sup>  
<sup>1</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>2</sup>Post Graduate and Research Department of Physics, Raja Dorai Singam Government Arts College, Sivagangai, India. <sup>3</sup>Department of Electrical and Computer Engineering, Ajou University, Republic of Korea. <sup>4</sup>Instituto de Energías Renovables, Temixco, Morelos, México.
- **S3C-P040 EVALUATION OF A SMALL WIND POWER SYSTEM FOR RURAL APPLICATIONS**  
L. Ramírez-Rodas<sup>1</sup>, J. Moreira<sup>1</sup>, P. López<sup>1</sup>, N. Farrera<sup>1</sup>, J. Pioquinto<sup>1</sup>, R. Gómez<sup>1</sup>  
<sup>1</sup>Universidad de Ciencias y Artes de Chiapas, México
- **S3C-P041 NOVEL BIMETALLIC ELECTROCATALYSTS FOR OXYGEN REDUCTION AND HYDROGEN OXIDATION: A NON-NOBLE METAL SUBSTITUTION APPROACH**  
María Lizbeth Barrios-Reyna<sup>1</sup>, Omar Jiménez-Sandoval<sup>1</sup> and Jorge Uribe Godínez<sup>1</sup>  
<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Querétaro. México.
- **S3C-P042 NEW BIMETALLIC ELECTROCATALYSTS BASED ON METAL CARBONYL CLUSTERS AND A NON-NOBLE TRANSITION METALS FOR OXYGEN REDUCTION REACTION IN AN ACID ELECTROLYTE**  
María Lizbeth Barrios-Reyna<sup>1</sup>, Omar Jiménez-Sandoval<sup>1</sup> and Jorge Uribe-Godínez<sup>1</sup>  
<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Querétaro. México.
- **S3C-P043 SYNTHESIS, STRUCTURAL AND MORPHOLOGICAL CHARACTERIZATION OF  $\text{Ce}_{1-x}\text{Sm}_x\text{O}_{2-\delta}$  OBTAINED BY ULTRASONIC SPRAY PYROLYSIS**  
R. Martínez-Bautista<sup>1</sup>, J.Á. Chávez-Carvayar<sup>1</sup>  
<sup>1</sup>Instituto de Investigaciones en Materiales (IIM), UNAM, México, D. F.
- **S3C-P044 INVESTIGATION OF KAOLIN WASTE PROMOTING ITS APPLICATION AS ADSORBENT MATERIALS**  
C. L. Patrício<sup>1</sup>, G. C. Oliveira<sup>1</sup>, A. N. A. Martins<sup>1</sup>, G. T. Araújo<sup>1</sup>  
<sup>1</sup>Federal University of Campina Grande, Academic Unity of Chemical Engineering, Chemistry and Biomass Laboratory. Aprígio Velosost., Bodocongó, Campina Grande, PB, Brazil.
- **S3C-P045 EVALUATION OF THERMAL ACTIVATION OF KAOLIN WASTE ON ORGANIC COMPOUNDS ADSORPTION**  
C. Oliveira<sup>1</sup>, A. C. L. Patrício<sup>1</sup>, A. N. A. Martins<sup>1</sup>, G. T. Araújo<sup>1</sup>  
<sup>1</sup>Federal University of Campina Grande, Academic Unity of Chemical Engineering, Chemistry and Biomass Laboratory. Aprígio Veloso, Bodocongó, Campina Grande, PB, Brazil.
- **S3C-P046 USE OF PHOTOSEMICONDUCTOR  $\text{Bi}_2\text{WO}_6$  UNDER UV LIGHT TO IMPROVE MICROBIAN ACTIVITY IN THE FERMENTATION OF CRUDE GLYCEROL.**  
A. Mendoza-Chávez<sup>1</sup>, J. Saucedo-Luna<sup>2</sup>, A. J. Castro-Montoya<sup>3</sup>, J. Campos-García<sup>4</sup>, R. Rangel-Segura<sup>5</sup>, V.J. Cedeño-Garcidueñas<sup>6</sup>



<sup>12,35,6</sup>Facultad de Ingeniería Química, Posgrado en Ciencias en Ingeniería Química, Universidad Michoacana de San Nicolás de Hidalgo, México.

<sup>4</sup>Investigaciones Químico-Biológicas, Universidad Michoacana de San Nicolás de Hidalgo, México.

■ **S3C-P047 STUDY OF THE POROSITY AND THE COMPOSITION OF THE PHASES OF NIYSZ IN ANODES FOR SOFC**

R. Sánchez Reyes<sup>1</sup>, A. Barón Jaimes<sup>1</sup>, D. De la Merced Jimenez<sup>1</sup>, J. Moreira Acosta<sup>2</sup>, P.J. Sebastian<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables, UNAM, México.

<sup>2</sup>Universidad de Ciencias y Artes de Chiapas, México.

■ **S3C-P048 OPERATION CONDITIONS FOR REACTIVE EXTRACTION PROCESS OF THE ESTERIFICATION OF OLEIC ACID WITH METHANOL**

M.A. Olán-Acosta<sup>1</sup>, M.A. Pantoja-Castro<sup>1</sup>, J.S. López-Lázaro<sup>1</sup>, J. Barajas-Fernández<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, México.

■ **S3C-P049 ELECTROCHEMICAL SYNTHESIS AND EVALUATION OF A MANGANESE OXIDE (MnO<sub>2</sub>) CATALYST TO IMPROVE THE CATHODIC REDUCTION OF OXYGEN (O<sub>2</sub>)**

Elizabeth Alemán Gama<sup>1</sup>, Alberto Álvarez Gallegos<sup>1</sup>, Joseph Sebastian Pathiyamattom<sup>2</sup>, Luis Ixtlilco Cortés<sup>3</sup>

<sup>1</sup>Centro de Investigación en Ingenierías y Ciencias aplicadas (CIICAp-UAEM), <sup>2</sup>Instituto de Energías Renovables (IER-UNAM), <sup>3</sup>Universidad Politécnica del Estado de Guerrero (UPEG).

■ **S3C-P050 DESIGNING A BATTERY CHARGER WITH MAXIMUM POWER POINT TRACKING FOR LOW POWER WIND TURBINE.**

A. Verde A.<sup>1</sup>, O.D. Lastres<sup>2</sup>, S. P. Sebastian<sup>1</sup>, L.E. Vereá<sup>1</sup>, Campos-Álvarez<sup>1</sup>,

<sup>1</sup>Departamento de materiales solares. Instituto de Energías Renovables, Universidad Nacional Autónoma de México., <sup>2</sup>División de estudio de posgrado, Universidad del Istmo, campus Tehuantepec.

■ **S3C-P051 IMPLEMENTATION OF MATERIALS BASED ON METALLIC-OXIDE IN TREATMENT OF REMOVAL OF ACID SULFIDE ON BIOGAS.**

K.G. Zambrano Solís<sup>1</sup>, Francisco Pola-Albores<sup>1</sup>, Joel Pantoja E<sup>1</sup>, Joel Moreira A.<sup>1</sup>, E. Lara Morales<sup>1</sup>, J. Y. Galindo Díaz<sup>1</sup>, Y. Hernández Portillo<sup>1</sup>, J. I. Toledo Gómez<sup>1</sup>, O. Martínez Aguirre<sup>1</sup>.

<sup>1</sup>Maestría en Materiales y Sistemas Energéticos Renovables. Universidad de Ciencias y Artes de Chiapas.

■ **S3C-P052 ELECTROCHEMICAL SYNTHESIS AND EVALUATION OF A MANGANESE OXIDE (MnO<sub>2</sub>) CATALYST TO IMPROVE THE CATHODIC REDUCTION OF OXYGEN (O<sub>2</sub>)**

Elizabeth Alemán Gama<sup>1</sup>, Alberto Álvarez Gallegos<sup>1</sup>, Joseph Sebastian Pathiyamattom<sup>2</sup>, Luis Ixtlilco Cortés<sup>3</sup>.

<sup>1</sup>Centro de Investigación en Ingenierías y Ciencias aplicadas (CIICAp-UAEM). <sup>2</sup>Instituto de Energías Renovables (IER-UNAM). <sup>3</sup>Universidad Politécnica del Estado de Guerrero (UPEG).

■ **S3C-P053 Pt/C SYNTHESIZED BY ULTRASONIC FOR OXYGEN REDUCTION REACTION**

Ruiz-Camacho<sup>1</sup>, R. Fuentes-Ramírez<sup>1</sup>, O. Martínez-Álvarez<sup>2</sup>

<sup>1</sup>Departamento de Ingeniería Química, Universidad de Guanajuato, División de Ciencias Naturales y Exactas, Noria, <sup>2</sup>Universidad Politécnica de Guanajuato,

■ **S3C-P054 SMALL SCALE BIODIESEL PRODUCTION FROM USED COOKING OIL AND TESTING IN A DIESEL ENGINE**

Melanie Ayala Sánchez<sup>1</sup>, Mayra Lizbeth Bustos Brito<sup>1</sup>, Jesus Faustino Sánchez Cabrera<sup>1</sup>, Melissa Ayala Sánchez<sup>1</sup>, Yuri Ramos Reynoso,<sup>1</sup>Marisol Hernández Gutiérrez<sup>1</sup>, Edgar Pedro Ramírez<sup>1</sup>

<sup>1</sup>Universidad Politécnica del Estado de Guerrero

■ **S3C-P055 USE OF EGGSHELL PHYSICOCHEMICALLY MODIFIED AS CATALYST IN THE PRODUCTION OF BIODIESEL**

N.L. Gutiérrez-Ortega<sup>1</sup>, E. Ramos-Ramírez<sup>2</sup>, J. Aguilar-Pliego<sup>3</sup>, T. González-Cruz<sup>1</sup>, F.A. Horta-Rangel<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Civil, División de Ingenierías, Universidad de Guanajuato. <sup>2</sup>Departamento de Química, División de Ciencias Naturales y Exactas, Universidad de Guanajuato. <sup>3</sup>Departamento de Química, Universidad Autónoma Metropolitana Azcapotzalco,

■ **S3C-P056 VERMICULTURE FOR THE PRODUCTION OF ORGANIC FERTILIZER**

Osiris Cuevas Benítez<sup>1</sup>, José Campos Alvarez<sup>2</sup>, Diego de la Merced Jiménez<sup>2</sup>, P.J. Sebastian<sup>2</sup>;

<sup>1</sup>Universidad Politecnica del Estado de Guerrero, Taxco, Guerrero, Mexico, ; <sup>2</sup>Instituto de Energias Renovables, Temixco, Morelos, Mexico.



■ **S3C-P057 ENTROPY ANALYSIS IN A MAGNETOHYDRODYNAMIC NANOFLOW FLOW THROUGH A MICROCHANNEL**

Guillermo Ibáñez Duharte<sup>1</sup>, Aracely López Grijalva<sup>1</sup>, Joel Pantoja Enríquez<sup>1</sup>, Joel Moreira Acosta<sup>1</sup>

<sup>1</sup>Universidad de Ciencias y Artes de Chiapas, Tuxtla Gutiérrez, Chiapas, México

■ **S3C-P058 SULFONATED AROMATIC COPOLY(ETHER-AMIDE) MEMBRANES: PREPARATION AND CHARACTERIZATION FOR POSSIBLE APPLICATION IN PEM FUEL CELLS**

R. Palí-Casanova<sup>1</sup>, W. Sosa-González<sup>2</sup>, J. Tamayo-Zapata<sup>3</sup>, M. Aguilar-Vega<sup>4</sup>

<sup>1</sup>Instituto Tecnológico Superior de Escárcega. <sup>2</sup>Instituto Tecnológico Superior de Champotón; México. <sup>3</sup>Facultad de Ciencias Químico-Biológicas, Universidad Autónoma de Campeche; México. <sup>4</sup>Unidad de Materiales, Centro de Investigación Científica de Yucatán, México.

■ **S3C-P059 EFFECT OF REACTION PARAMETERS IN THE SYNTHESIS OF RENEWABLE FUELS BY CATALYTIC HYDROTREATMENT OF DIFFERENT OILS**

Martínez<sup>1</sup>, F. Trejo-Zárraga<sup>1</sup>, R. Sotelo-Boyás<sup>2</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, Unidad Legaria, IPN. <sup>2</sup>Centro Mexicano para la Producción más Limpia, IPN,

■ **S3C-P060 INCUBATION OF EGGS BY SOLAR ENERGY PHOTOVOLTAIC**

MF López Cordero<sup>1</sup>, DL García-Velázquez<sup>1</sup>, O. Martínez-Aguirre<sup>1</sup>, P. Ibarra González<sup>1</sup>, J. Moreira Acosta<sup>1</sup>, N. Farrera<sup>1</sup>, P. López<sup>1</sup>.

<sup>1</sup>Universidad de Ciencias y Artes de Chiapas (UNICACH),

■ **S3C-P061 SYNTHESIS OF ZSM-22 ZEOLITE TO BE USED IN CATALYSTS FOR THE HYDRODEOXYGENATION OF OILS AND FATS**

Fanny Vianney Rodríguez Lizama<sup>1</sup>, Marisol Castro Gómez<sup>1</sup>; Luis Carlos Ordoñez<sup>1</sup>; Juan Carlos Chavarría Hernández<sup>1</sup>

<sup>1</sup>Unidad de Energía Renovable, Parque Científico y Tecnológico de Yucatán (PCTY).

▶ **08:30 - 09:00 S3C-0017 Invited Talk COMMENTS ON HEAT MANAGEMENT AT THE CATHODE CATALYST LAYER OF PEMFC. NEW METHOD FOR ROUGH ESTIMATE OF THE REACTION ZONE TEMPERATURE IN THE CATHODIC CATALYST LAYER DURING NORMAL OPERATION OF THE FUEL CELL.**

M. R. Reda<sup>1,2</sup>

<sup>1</sup>CanadElectrochim, Calgary Alberta, CANADA. <sup>2</sup>Chemical Engineering, College of Engineering, Kuwait University, Kuwait

▶ **09:00 - 09:30 S3C-0018 Invited Talk SYNTHESIS AND CHARACTERIZATION OF CERIUM DIOXIDE (CeO<sub>2</sub>) FOR USE IN SOLID OXIDE FUEL CELLS**

D.A. Mendoza Muñiz<sup>1</sup>, M. Hinojosa Rivera<sup>1</sup>, A.M. Arato Tovar<sup>1</sup>, M. Cassir<sup>2</sup>,

<sup>1</sup>Departamento de Ciencias de los Materiales FIME-UANL, México. <sup>2</sup>Laboratoire d'Electrochimie, Chimie des Interfaces et Modélisation pour l'Energie, Ecole Nationale Supérieure de Chimie de Paris Chimie ParisTech – Paris, France.

■ **09:30 - 09:45 S3C-0019 MODELING OF DISTILLATION PROCESS IN A PETLYUK COLUMN FOR STYRENE-BENZENE-TOLUENE SYSTEM TO IMPROVE THE STYRENE PRODUCTION**

J. Parra-Santiago<sup>1</sup>, C.A. Guerrero-Fajardo<sup>2</sup>

<sup>1</sup>Chemical Engineering (C), Universidad Nacional de Colombia, Bogotá, Colombia. <sup>2</sup>Chemical Engineering and Mechanical, Universidad Nacional de Colombia, Bogotá, Colombia

▶ **09:45 - 10:15 S3C-0020 Invited Talk EFFECT OF THE ADDITION OF Nd<sub>2</sub>O<sub>3</sub>/Pr<sub>2</sub>O<sub>3</sub> ON THE IONIC CONDUCTIVITY OF GADOLINIUM-DOPED CERIA SOLID ELECTROLYTES OBTAINED BY MECHANICAL ALLOYING**

G. Pérez Zúñiga<sup>1</sup>, E.A. Aguilar Reyes<sup>1</sup>, C.A. Leon Patiño<sup>1</sup>

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo,

▶ **10:15 - 10:45 S3C-0021 Invited Talk DRINKING WATER DISINFECTION BY REUSABLE & BIO-COMPATIBLE NANODIAMOND MATERIAL**

A. Colón<sup>1</sup>, A. Arroyo<sup>4</sup>, J. Avalos<sup>3</sup>, B. R. Weiner<sup>5</sup>, G. Morell<sup>2</sup> & R. Rios<sup>1</sup>

<sup>1</sup> Department of Environmental Science, University of Puerto Rico, San Juan. <sup>2</sup> Department of Physics, University of Puerto Rico. <sup>3</sup> Department of Physics, University of

ROOM: CHICHEN ITZA I  
TUESDAY, AUGUST 18

👤 Session Chair: **SEBASTIAN JOSEPH P. INSTITUTO DE ENERGÍAS RENOVABLES-UNAM.**

Puerto Rico, Bayamón.<sup>4</sup>Department of Chemistry, University of Puerto Rico, San Juan,

■ **10:45 - 11:00 S3C-0022 OPTIMIZATION OF BIODIESEL PRODUCTION IN BATCH PROCESS USING WASTE COOKING OIL FOR USING IN HOTELS AND BOILERS**

E.A. Bulla Pereira<sup>1</sup>, C.A. Guerrero Fajardo<sup>2</sup>, J. Garzón Rodríguez<sup>3</sup>

<sup>1</sup>Faculty of Engineering, Mechanical Engineering, ECCI University, Researcher from GIDMyM Group Research of the University ECCI. <sup>2</sup>Faculty of Science, Department of Chemistry, National University of Colombia, APRENA Group Research Director of the National University of Colombia. <sup>3</sup>Faculty Technology, Distribution and Electrical Engineering networks, Francisco José de Caldas District University, Researcher from ARMOS Group Research of the District University.

☐ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **CARLOS A. GUERRERO-FAJARDO. UNIVERSIDAD NACIONAL DE COLOMBIA-BOGOTÁ.**

■ **12:30 - 12:45 S3C-0023 GLYCEROL PURIFYING METHOD BY MULTI-STEP PROCESS AND MONITORED BY 1H NMR**

Eliseo Avella-Moreno<sup>1</sup>, Carlos A. Guerrero-Fajardo<sup>1</sup>, Lizeth J. Martínez-Correales<sup>2</sup>, Jonathan F. Sierra-Cantor<sup>1</sup>

<sup>1</sup>Chemistry Department, Science Faculty, National University of Colombia, Colombia. <sup>2</sup>Chemistry and Environment Engineering Department, Engineering Faculty, National University of Colombia, Colombia

■ **12:45 - 13:00 S3C-0024 ASESORAR LOS HABITANTES DE LAS ZONAS MARGINADAS EN LA PREVENCIÓN DE ACCIDENTES EN EL USO DE LOS MATERIALES PARA ELIMINAR LOS DIFERENTES TIPOS DE RIESGOS**

A. P. Treviño Betancourt<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Cd. Victoria

☒ **14:00- 16:00 LUNCH**

**ROOM: TERRACE  
TUESDAY, AUGUST 18**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S3C-P062 COMPARATIVE STUDY OF KAOLIN RESIDUE AND ACTIVATED CARBON AS ADSORBENT OF ORGANIC POLLUTANTS**

A.C.L. Patrício<sup>1</sup>, G. C. Oliveira<sup>1</sup>, A. N. A. Martins<sup>1</sup>, G. T. Araújo<sup>1</sup>

<sup>1</sup>Federal University of Campina Grande, Academic Unity of Chemical Engineering, Chemistry and Biomass Laboratory Brazil.

■ **S3C-P063 EXTRACTION AND CHARACTERIZATION OF OIL SEED CARICA PAPAYA L. AGENT FOR USE AS INHIBITOR ON CORROSION OF METALS**

B.Ortiz Aguilar<sup>1</sup>, G. Brito Uribe<sup>1</sup>, K. Castillo Rosales<sup>1</sup>, D. García Valle<sup>1</sup>, A. Maldonado Valdez<sup>1</sup>, Meléndez Mendoza<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Zacatepec, Morelos.

■ **S3C-P064 HIGH ENERGY ION IRRADIATION OF TITANIUM FOR HYDROGEN STORAGE**

A. López-Suárez<sup>1</sup>, C. E. Valencia<sup>2</sup> and M. C. Vargas M<sup>2</sup>

<sup>1</sup>Instituto de Física. Universidad Nacional Autónoma de México. <sup>2</sup>Departamento de Matemáticas, Centro de Investigación y de Estudios Avanzados del IPN,

■ **S3C-P065 BIODIESEL PRODUCTION USING A SOLAR REACTOR AND WASTE RAW MATERIALS**

G. Corro<sup>1</sup>, N. Sánchez<sup>1</sup>, U. Pal<sup>2</sup>, F. Bañuelos<sup>1</sup>, R. Peña<sup>1</sup>

<sup>1</sup>Instituto de Ciencias, <sup>2</sup>Instituto de Física, Benemerita Universidad Autónoma de Puebla, México.

■ **S3C-P066 SYNTHESIS AND CHARACTERIZATION OF RUTHENIUM CATALYST SUPPORTED ON MESOPOROUS ALUMINA AND SILICA**

N. Zambrano-Urrutia<sup>1</sup>, V. García-Rojas<sup>1</sup>

<sup>1</sup>Universidad Industrial de Santander, Departamento de Ciencias Básicas, Escuela de Química, Colombia-Bucaramanga, Colombia.

■ **S3C-P067 OPTIMIZATION OF A SOLAR DRYER BASED ON THE EXERGETIC ANALYSIS**

F.J. Rodríguez<sup>1</sup>, Guillermo Ibáñez<sup>1</sup>, I. Zenteno<sup>1</sup>

<sup>1</sup>Universidad de Ciencias y Artes de Chiapas, México.

■ **S3C-P068 ENTROPY GENERATION IN A MAGNETOHYDRODYNAMIC FLOW OF A NANOFUID THROUGH A POROUS CHANNEL**



**I. Zenteno<sup>1</sup>, Guillermo Ibáñez<sup>1</sup>, F. J. Rodríguez<sup>1</sup>**

<sup>1</sup>Universidad de Ciencias y Artes de Chiapas, México.

■ **S3C-P069 SELECTIVE HETEROGENEOUS NUCLEATION OF PLATINUM NANOPARTICLES ONTO GRAPHITIC DOMAINS OF MULTI-WALLED CARBON NANOTUBES**

**CACampos-Roldán<sup>1,2,3</sup>, RG González-Huerta<sup>1</sup>, JR Vargas García<sup>2</sup>, Alonso-Vante<sup>3</sup>**

<sup>1</sup>Laboratorio de fotoelectrocatalisis, ESIQIE-IPN, México, <sup>2</sup>Depto. Ing. Metalurgia y Materiales, Instituto Politécnico Nacional, México DF, México, <sup>3</sup>IC2MP, Universidad de Poitiers,

■ **S3C-P070 SYNTHESIS AND CHARACTERIZATION OF ZINC OXIDE NANOPARTICLES USING SOFT BIO TEMPLATE**

**Chelladurai Amutha<sup>1</sup>, Balan Natarajan<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Thaiyan Mahalingam<sup>3</sup>, Pathiyamattom Joseph Sebastian<sup>4</sup>**

<sup>1</sup>Post Graduate and Research Department of Physics, Raja DoraiSingam Government Arts College, India, <sup>2</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India, <sup>3</sup>Department of Electrical and Computer Engineering, Ajou University, Republic of Korea, <sup>4</sup>Instituto de Energías Renovables, UNAM, Mexico, Temixco, Morelos, Mexico D.F.

■ **S3C-P071 GROWTH AND CHARACTERIZATION OF ZNO AND MG DOPED ZNO NANOPARTICLES**

**Alagarsamy Dhanalakshmi<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Balan Natarajan<sup>1</sup>, Venkadasamy Ramadas<sup>3</sup>, Thaiyan Mahalingam<sup>4</sup>, Pathiyamattom Joseph Sebastian<sup>5</sup>**

<sup>1</sup>Post Graduate and Research Department of Physics, Raja Doraisingam Government Arts College, Sivagangai, India, <sup>2</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tamil Nadu, India, <sup>3</sup>Post Graduate and Research Department of Zoology, Raja Doraisingam Government Arts College, Sivagangai, India, <sup>4</sup>Department of Electrical and Computer Engineering, Ajou University, Republic of Korea, <sup>5</sup>Instituto de Energías Renovables, UNAM, Morelos, Mexico.

■ **S3C-P072 A SIMPLE METHOD TO DETERMINE BIOETHANOL CONCENTRATION**

**Bianca Yadira Pérez-Sariñana<sup>1</sup>, Sergio Saldaña-Trinidad<sup>1</sup>, Carlos Alberto Guerrero-Fajardo<sup>2</sup>, Luis Fernando Santis-Espinosa<sup>3</sup>, Sebastian P. J.<sup>3</sup>**

<sup>1</sup>Universidad Politécnica de Chiapas, Tuxtla Gutiérrez, México. <sup>2</sup>Departamento de Química, Universidad Nacional de Colombia, Colombia. <sup>3</sup>Instituto de Energías Renovables-UNAM, México

■ **S3C-P073 BIOHYDROGEN FLOW WHICH FEEDS A PROTON EXCHANGE MEMBRANE FUEL CELL (PEMFC)**

**A.U. Juantorena<sup>1</sup>, O. Lastres<sup>2</sup>, G. Hernández<sup>2</sup>, A. Bustos<sup>4</sup>, S.A. Gamboa<sup>5</sup> and P.J. Sebastian<sup>5</sup>**

<sup>1</sup>Universidad Autónoma del Estado de Morelos. UAEM, México. <sup>2</sup>Instituto de Estudios de la Energía. UNISTMO, México. <sup>3</sup>Centro de Cambio Global y la Sustentabilidad en el Sureste, México. <sup>4</sup>Instituto de Ciencias Físicas. Universidad Nacional Autónoma de México. UNAM, México. <sup>5</sup>Instituto de Energías Renovables. Universidad Nacional Autónoma de México. UNAM, México.

■ **S3C-P074 GROWTH AND CHARACTERIZATION OF COPPER TELLURIDE THIN FILMS**

**Paulraj Jeyakumar<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Balan Natarajan<sup>1</sup>, Pathiyamattom Joseph Sebastian<sup>3</sup>**

<sup>1</sup>Post Graduate and Research Department of Physics, Raja Dorai Singam Government Arts College, India. <sup>2</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>3</sup>Instituto de Energías Renovables, Morelos, Mexico.

■ **S3C-P075 SOL-GEL SYNTHESIZE AND CHARACTERIZATION OF ZNO AND COBALT DOPED ZNO NANOPARTICLES**

**Alagarsamy Dhanalakshmi<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Balan Natarajan<sup>1</sup>, Venkadasamy Ramadas<sup>3</sup>, Thaiyan Mahalingam<sup>4</sup>, Pathiyamattom Joseph Sebastian<sup>5</sup>**

<sup>1</sup>Post Graduate and Research Department of Physics, Raja Dorai Singam Government Arts College, India. <sup>2</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>3</sup>Post Graduate and Research Department of Zoology, Raja Dorai Singam Government Arts College, India. <sup>4</sup>Department of Electrical and Computer Engineering, Ajou University, Republic of Korea. <sup>5</sup>Instituto de Energías Renovables, UNAM, Mexico D.F.

■ **S3C-P076 CATALYTIC STUDY OF ELECTRON BEAM IRRADIATED PD/C ON A, B UNSATURATED KETONE**

Vanmathi<sup>1</sup>, U.P.Senthilkumar<sup>2</sup>, S. Balakumar<sup>3</sup>, B. Suresh<sup>1</sup>, S.Thanikaikarasan<sup>3</sup>, P.J.Sebastian<sup>4</sup>

<sup>1</sup> Department of Chemistry, Kamaraj College, India. <sup>2</sup> Orchid Chemicals and Pharmaceuticals Ltd., Shollinganallur, India. <sup>3</sup> Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>4</sup> Instituto de Energias Renovables, UNAM, Mexico D.F.

■ **S3C-P077 IRON(III)-SALEN -CATALYZED H<sub>2</sub>O<sub>2</sub> OXIDATION OF BENZYL PHENYL SULFIDE IN REVERSE MICELLES**

Sweetlin Rajula Rubavathi<sup>1</sup>, Subramanian Balakumar<sup>2</sup>, Pathakaraimuthu Balakumar<sup>3</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Thaiyan Mahalingam<sup>4</sup>, Pathiyamattom Joseph Sebastian<sup>5</sup>

<sup>1</sup> Department of Chemistry, Loyola College, India. <sup>2</sup> Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>3</sup> Department of Chemistry, Dr. Sivanthi Aditanar College of Engineering, India. <sup>4</sup> Department of Electrical and Computer Engineering, Ajou University, Republic of Korea. <sup>5</sup> Instituto de Energias Renovables, UNAM, Mexico.

■ **S3C-P078 GROWTH AND CHARACTERIZATION OF Ag<sub>3</sub>Sb<sub>3</sub> THIN FILMS FOR PHOTOVOLTAIC APPLICATION**

Thanabalan Daniel<sup>1</sup>, Jhonson Henry<sup>1</sup>, Kannusamy Mohanraj<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Ganesan Sivakumar<sup>3</sup>, Thaiyan Mahalingam<sup>4</sup> and Pathiyamattom Joseph Sebastian<sup>5</sup>

<sup>1</sup> Department of Physics, Manonmaniam Sundaranar University, India. <sup>2</sup> Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>3</sup> Centralised Instrumentation and Service Laboratory, Department of Physics, Annamalai University, India. <sup>4</sup> Department of Electrical and Computer Engineering, Republic of Korea. <sup>5</sup> Instituto de Energias Renovables, UNAM, Mexico.

■ **S3C-P079 SYNTHESIS OF NANOPARTICLES OF CZTSe BY MICROWAVE-ASSITED CHEMICAL SYNTHESIS. Odin Reyes Vallejo<sup>1</sup>, Sebastian Pathiyamattom Joseph<sup>1</sup>**

<sup>1</sup> Instituto de Energias Renovables, México.

■ **S3C-P080 PREPARATION AND CHARACTERIZATION ON PEO BASED COMPOSITE GEL POLYMER ELECTROLYTE (CGPE) COMPLEXED WITH LICF3SO<sub>3</sub>**

J. Nagajothi<sup>1</sup>, R. Kannan<sup>1</sup>, S.Thanikaikarasan<sup>2</sup>, K. Lingadurai<sup>3</sup>, Pathiyamattom Joseph Sebastian<sup>4</sup>

<sup>1</sup> Department of Physics, Anna University, India. <sup>2</sup> Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tamil Nadu, India. <sup>3</sup> Department of Mechanical Engineering, Anna University, India. <sup>4</sup> Instituto de Energias Renovables, UNAM, Mexico.

■ **S3C-P081 LEAD TUNGSTATE NANOPARTICLES FOR SCINTILLATOR BY PRECIPITATION METHOD**

Thomas Shajini Rose<sup>1</sup>, Selvaraj Kannan<sup>1</sup>, Kannusamy Mohanraj<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Ganesan Sivakumar<sup>3</sup>, Thaiyan Mahalingam<sup>4</sup> Pathiyamattom Joseph Sebastian<sup>5</sup>

<sup>1</sup> Department of Physics, Manonmaniam Sundaranar University, India. <sup>2</sup> Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>3</sup> Centralised Instrumentation and Service Laboratory, Department of Physics, Annamalai University, India. <sup>4</sup> Department of Electrical and Computer Engineering, Republic of Korea. <sup>5</sup> Instituto de Energias Renovables, UNAM, Mexico.

■ **S3C-P082 CHEMICAL BATH DEPOSITION AND CHARACTERIZATION OF COPPER CADMIUM TIN SULPHIDE THIN FILMS**

Pasunkili Prema<sup>1</sup>, Johnson Henry<sup>1</sup>, Kannusamy Mohanraj<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Ganesan Sivakumar<sup>3</sup>, Pathiyamattom Joseph Sebastian<sup>4</sup>

<sup>1</sup> Department of Physics, Manonmaniam Sundaranar University, Tirunelveli – Nadu, India. <sup>2</sup> Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>3</sup> Centralised Instrumentation and Service Laboratory, Department of Physics, Annamalai University, India. <sup>4</sup> Instituto de Energias Renovables, UNAM, Mexico.

■ **S3C-P083 DESIGN AND OPTIMIZATION OF BIODIESEL PRODUCTION PROCESSES USING RENEWABLE ENERGY**

P. Ibarra González<sup>1</sup>, J. E. Conde Díaz<sup>1</sup>, J. Moreira Acosta<sup>1</sup>, P. Ibarra Castro<sup>2</sup>, Ben-Guang Rong<sup>3</sup>

<sup>1</sup> Instituto de Ciencias Básicas y Aplicadas, CIDTER - Energías Renovables, Universidad de Ciencias y Artes de Chiapas, Mexico. <sup>2</sup> Unidad Académica de Ciencias Químicas, Universidad Autónoma de Zacatecas, México. <sup>3</sup> Department of Chemical Engineering, Biotechnology and Environmental Technology, University of Southern Denmark,

S-3C





■ **S3C-P084 PHYSICOCHEMICAL TREATMENT TO ELECTRODES FOR EFFICIENT AND SELECTIVE FORMATION OF BIOFILMS WITH EXOELECTROGEN BACTERIA**

M.P. Mejía-López<sup>1</sup>, P. J. Sebastian<sup>1</sup>, L. Vereá<sup>2</sup>, J. Campos<sup>1</sup>, B. Lara<sup>1</sup>, M. Jaramillo<sup>1</sup>

<sup>1</sup>Departamento de materiales solares. Instituto de Energías Renovables, Universidad Nacional Autónoma de México, México. <sup>2</sup>Departamento de materiales energéticos. Centro de investigación y desarrollo tecnológico en energías renovables. Universidad de ciencias y artes de Chiapas. México

■ **S3C-P085 Sb<sub>2</sub>S<sub>3</sub>:Bi THIN FILMS FOR SOLAR CELL ABSORBER COATINGS BY THERMAL EVAPORATION METHOD**

Durai Chella Priya<sup>1</sup>, Johnson Henry<sup>1</sup>, Kannusamy Mohanraj<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Ganesan Sivakumar<sup>3</sup>, Pathiyamattom Joseph Sebastian<sup>4</sup>

<sup>1</sup>Department of Physics, Manonmaniam Sundaranar University, India. <sup>2</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>3</sup>Centralised Instrumentation and Service Laboratory, Department of Physics, Annamalai University, India. <sup>4</sup>Instituto de Energías Renovables, UNAM, Mexico.

■ **S3C-P086 Sb<sub>2</sub>S<sub>3</sub>:Bi THIN FILMS FOR SOLAR CELL ABSORBER COATINGS BY THERMAL EVAPORATION METHOD**

Durai Chella Priya<sup>1</sup>, Johnson Henry<sup>1</sup>, Kannusamy Mohanraj<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Ganesan Sivakumar<sup>3</sup>, Pathiyamattom Joseph Sebastian<sup>4</sup>

<sup>1</sup>Department of Physics, Manonmaniam Sundaranar University, India. <sup>2</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>3</sup>Centralised Instrumentation and Service Laboratory, Department of Physics, Annamalai University, India. <sup>4</sup>Instituto de Energías Renovables, UNAM, Mexico.

■ **S3C-P087 SYNTHESIS, CHARACTERIZATION AND UV - LIGHT IRRADIATION OF CONGORED DYE BY PVC/ ZNO NANOCOMPOSITE**

Linda<sup>1</sup>, S. Muthupoongodi<sup>2</sup>, S.Thanikaikarasan<sup>2</sup>, X. Sahaya Shajan<sup>2</sup>, S. Balakumar<sup>2</sup>, P.J. Sebastian<sup>3</sup>

<sup>1</sup>Department of Chemistry, Marthandam College of Engineering, India. <sup>2</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN

College of Engineering and Technology, India. <sup>3</sup>Instituto de Energías Renovables, UNAM, Mexico.

■ **S3C-P088 DEVELOPMENT OF ENVIRONMENTAL BARRIER COATINGS FOR CORROSION PROTECTION OF METALLIC STRUCTURES IN OFFSHORE WIND FARMS**

P. Hernández-Rodríguez<sup>1</sup>, E. López-Honorato<sup>1</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN (CINVESTAV), Unidad Saltillo.

■ **S3C-P089 TESTING OF A STEELMAKING SLAG BASED CO<sub>2</sub> ABSORBER**

Ortiz Rojas Martha<sup>1</sup>, Alejandro Rogel Ramírez<sup>1</sup>, José Antonio Zamora Plata<sup>1</sup>, Angel Díaz Damián<sup>1</sup>

<sup>1</sup>Chemical Engineering Department, Faculty of Higher Studies Zaragoza –U.N.A.M.

■ **S3C-P090 HYDROTHERMAL SYNTHESIS AND CHARACTERIZATION OF CuFeO<sub>2</sub> DELAFOSSITE CRYSTALS**

M.A. Sarabia-Vallejos<sup>1</sup>, S.D. Rojas<sup>1</sup>, Z. Lopez-Cabana<sup>2</sup>, R. Villalba<sup>3</sup>, G. Gonzalez<sup>2</sup>, A.L. Cabrera<sup>1</sup>

<sup>1</sup>Physics Institute, Pontifical Catholic University of Chile, Santiago, Chile. <sup>2</sup>Laboratory of Asymmetric Synthesis, Chemistry Institute of Natural Resources, University of Talca, Talca, Chile. <sup>3</sup>Materials Laboratory, Center of Materials Engineering and Nanotechnology, Instituto Venezolano de Investigaciones Científicas, Caracas, Venezuela.

■ **S3C-P091 ACCELERATED PHOTO-THERMAL DEGRADATION OF WASTE POLYMERS USING A COMPOUND PARABOLIC SOLAR CONCENTRATOR (CPC)**

M. Sánchez<sup>1</sup>, I. Mejía<sup>1</sup>, I Martínez I.<sup>1</sup>

<sup>1</sup>Department of Engineering in Sustainable Energy Systems, Faculty of Engineering, Autonomous University of the State of México, Toluca, State of Mexico.

■ **S3C-P092 PRODUCING OIL CHILACAYOTE PLANT SEED (CUCURBITA FICIFOLIA) AND TREE OF HUIZACHE (ACACIA FARNESIANA) BY THE METHOD SOXHLET, THROUGH THE REFLUX OF SOLVENT (HEXANOS) FOR ITS POTENTIAL APPLICATION IN THE BIODIESEL PRODUCTION.**

F. Vázquez<sup>1</sup>, A. Islas<sup>1</sup>, V. L. Padilla<sup>1</sup>, M. A. Cerón<sup>1</sup>, M. Herrera<sup>1</sup>

<sup>1</sup>Cuerpo Académico de Fuentes alternas de energía y nuevos materiales, Universidad Tecnológica de Tula-Tepeji,

■ **S3C-P093 MICROWAVE ASSISTED SYNTHESIS OF Cu<sub>2</sub>ZnSnS<sub>4</sub> SEMICONDUCTOR FOR SOLAR CELL APPLICATION**

F. Sánchez<sup>1</sup>, P.J. Sebastian<sup>1</sup>  
<sup>1</sup>IER-UNAM, Mexico.

■ **S3C-P094 AN ELECTROCHEMICAL INVESTIGATION ON THE PERFORMANCE COATED ALUMINUM ALLOY AS BIPOLAR PLATE MATERIAL FOR PEM FUEL CELLS**

A.G. González-Gutiérrez<sup>1</sup>, P. J. Sebastian<sup>1</sup>, Edgar de Jesús Borja Arco<sup>2</sup>, M.A. Lucio-García<sup>3</sup>  
<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México, México. <sup>2</sup>Facultad de Química, Universidad Autónoma de México. <sup>3</sup>Universidad Autónoma del Estado de Morelos-CIICAP,

■ **S3C-P095 MODIFICATION OF PBI MEMBRANE WITH YTTRIA-STABILIZED ZIRCONIA**

A. Baron Jaimes<sup>1</sup>, R. Sanchez Reyes<sup>2</sup>, P. J. Sebastian<sup>2</sup>  
<sup>1</sup>Posgrado en Ciencia e Ingeniería de los Materiales-UNAM, México. <sup>2</sup>Instituto de Energías Renovables-UNAM, México.

■ **S3C-P096 ANALYSIS OF THE OXYGEN REDUCTION REACTION ON Pt-zn/C ALLOY SYNTHESIZED BY MICROEMULSION FOR DIRECT ALCOHOL FUEL CELL APPLICATIONS**

C.K. Zagal-Padilla<sup>1</sup>, M.A. Rivera-Martínez<sup>2</sup>, L. Ixtlilco-Cortes<sup>2</sup>, S.A Gamboa<sup>1</sup>  
<sup>1</sup>Instituto de Energías Renovables-UNAM, México., <sup>2</sup>Universidad Politécnica del Estado de Guerrero, Comunidad de Puente Campuzano,

■ **S3C-P097 MICROALGAE CULTURE SYSTEMS AS AN ALTERNATIVE FOR BIODIESEL AND FOOD GENERATION**

C. Rodríguez-Palacio<sup>1</sup>, C. Lozano Ramirez<sup>1</sup>, R. Ramírez Rodríguez<sup>2</sup>, O. Cortes Pichón<sup>2</sup>, O. García Gómez<sup>2</sup> y E.G. Arenas<sup>3</sup>  
<sup>1</sup>Universidad Autónoma Metropolitana Unidad Iztapalapa, <sup>2</sup>Laboratorio de Biomasa Microalgal y Vegetal. Instituto de Innovación y Desarrollo Tecnológico (IDIT). Universidad Iberoamericana Puebla (UIAP). <sup>3</sup>Instituto de Energías Renovables. Universidad Nacional Autónoma de México.

■ **S3C-P098 PRODUCTION OF SYNTHETIC DIESEL FROM SHORT FIBERS OF CELLULOSE USING CARBON NANOTUBES DOPED WITH MANGANESE AS CATALYST.**

K.A. Morales Vázquez<sup>1</sup>, J.F. Pérez Robles<sup>1</sup>, M.R. Estevez González<sup>2</sup>, A.V. Rentería Rodríguez<sup>3</sup>, Y. Rodríguez Escobar<sup>3</sup>  
<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional - Querétaro, Libramiento. <sup>2</sup>Centro de Física Aplicada y Tecnología Avanzada-UNAM, Boulevard. <sup>3</sup>Universidad Tecnológica de Querétaro,

■ **S3C-P099 CAPACITIVE PROPERTIES OF CONDUCTING POLYANILINE FILMS.**

O. Martínez-Alvarez<sup>1</sup>, M. C. Arenas-Arocena<sup>2</sup>, B. Ruiz-Camacho<sup>3</sup>  
<sup>1</sup>Ingeniería en Energía, Universidad Politécnica de Guanajuato. <sup>2</sup>Escuela Nacional de Estudios Superiores Unidad León, UNAM. <sup>3</sup>Departamento de Ingeniería Química, Universidad de Guanajuato, División de Ciencias Naturales y Exactas.

■ **S3C-P100 EFFICIENT CATALYST FOR THE SIMULTANEOUS ESTERIFICATION/ TRANSESTERIFICATION REACTION OF LIPIDS AND FREE FATTY ACIDS FOR AN EFFECTIVE PRODUCTION OF BIODIESEL FROM LOW COST FEEDSTOCK**

M.E. Borges<sup>a</sup>, P. Esparza<sup>b</sup>, P. Martín-Zarza<sup>b</sup>, J.C. Ruiz-Morales<sup>b</sup>, M.C. Alvarez-Galván<sup>c</sup>, J.L.G. Fierro<sup>d</sup>  
<sup>a</sup>Chemical Engineering Department, University of La Laguna, <sup>b</sup>Inorganic Chemistry Department, University of La Laguna; AvdaSpain, <sup>c</sup>Institute of Catalysis and Petroleum Chemistry, CSIC, Spain

■ **S3C-P101 BIOETHANOL PRODUCTION FROM SUGAR MOLASSES USING COMMERCIAL SACCHAROMYSES CEREVISIAE IN FERMENTATION**

R. Espinal<sup>1</sup>, J. Pathiyamattom<sup>1</sup>  
<sup>1</sup>Instituto de Energías Renovables de la UNAM.

■ **S3C-P102 STUDY OF ELECTRO-OXIDATION REACTION OF BIO-ETHANOL TAILS ON BIFUNCTIONAL ELECTRODES IN A DIRECT ETHANOL FUEL CELL**

Nallely Tellez Mendez<sup>1</sup>, M. Gamboa<sup>2</sup> and S.A. Gamboa<sup>1</sup>  
<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México. <sup>2</sup>Universidad Politécnica de Chiapas,

■ **S3C-P103 THEORETICAL AND EXPERIMENTAL RESULTS OF A 4 KWp PHOTOVOLTAIC SYSTEM INTERCONNECTED TO THE GRID.**

S-3C



**Mario Arturo Rivera Martínez<sup>1</sup>, Alanís-Navarro J. A.<sup>1</sup>, Luis Ixtlilco Cortés<sup>1</sup>, Felipe Avilés Domínguez<sup>1</sup>, David Becerra García<sup>1</sup>.**

<sup>1</sup>Universidad Politécnica del Estado de Guerrero.

■ **S3C-P104 NEW MODEL OF ECOLOGICAL STOVE BASED ON THE USE OF HYDROGEN AS FUEL**

**Y. Hernández Portillo<sup>1</sup>, J. Moreira Acosta<sup>1</sup>, J.Y. Galindo Díaz<sup>1</sup>, L.E. Zepeda Ovando<sup>1</sup>, K.G. Zambrano Solís<sup>1</sup>, J.I. Toledo Gómez<sup>1</sup>, D.K. Becerra Paniagua<sup>1</sup>, N. Farrera Vázquez<sup>1</sup>, P.J. Sebastian Pathiyamattom.<sup>2</sup>**

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Energías Renovables. Universidad de Ciencias y Artes de Chiapas. <sup>2</sup>Universidad Nacional Autónoma de México

■ **S3C-P105 ELECTRO-OXIDATION OF ETHANOL ON Pd-Cu/C NANOPARTICLES IN ALKALINE MEDIUM FOR DIRECT ETHANOL FUEL CELL APPLICATIONS**

**S. Irazoque-Castañeda<sup>1</sup>, S.A. Gamboa.<sup>1</sup>**

<sup>1</sup>Departamento de Materiales Solares. Instituto de Energías Renovables, Universidad Nacional Autónoma de México.

■ **S3C-P106 A NOVEL HETEROJUNCTION BASED ON MACRO-POROUS SILICON AND ZINC OXIDE FOR SOLAR CELL APPLICATIONS.**

**N. Mendoza-Agüero<sup>1</sup>, V. Agarwal<sup>2</sup>, H. I. Villafán-Vidales<sup>1</sup>, J. Campos-Alvarez<sup>1</sup> and P.J. Sebastian<sup>1</sup>**

<sup>1</sup>Instituto de Energías Renovables, IER-UNAM. <sup>2</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas, CIICAP-UAEM,

■ **S3C-P107 DESIGN, CONSTRUCTION AND EVALUATION OF A TUBULAR SOLAR COLLECTOR FOR NATURAL CONVECTION**

**K. Sánchez García<sup>1</sup>, M. Martínez Santos<sup>1</sup>, A. López Cruz<sup>1</sup>, L. Rodríguez Hernández<sup>1</sup>, C. Camacho Fernández<sup>1</sup>, P.J. Sebastian<sup>2</sup>, L. López Ángel<sup>1</sup>, C. Munguía Ballinas<sup>1</sup>**

<sup>1</sup>Instituto Tecnológico Superior de Cintalapa, Ingeniería en Energías Renovables. <sup>2</sup>Instituto de Energías Renovables-UNAM,

■ **S3C-P108 DESIGN, CONSTRUCTION AND CHARACTERIZATION OF A PARABOLIC CONCENTRATION.**

**Alfredo Olea Rogel<sup>1</sup>, J. Pérez<sup>1</sup>, R. Castillo<sup>1</sup>, O. Muñoz<sup>1</sup> and J. Campos<sup>2</sup>**

<sup>1</sup>Universidad Politécnica de Chiapa. <sup>2</sup>Instituto de Energías Renovables, área materiales solares.

■ **S3C-P109 DEVELOPMENT OF GOLD ELECTRODES FOR MICROBIAL FUEL CELL**

**M.J. Torres<sup>1</sup>, P.J. Sebastian<sup>1</sup>, L.Verea<sup>2</sup>, M.P. Mejía-López<sup>1</sup>, J. Campos<sup>1</sup>, B. Lara<sup>1</sup>**

<sup>1</sup>Departamento de materiales solares. Instituto de Energías Renovables, Universidad Nacional Autónoma de México. <sup>2</sup>Departamento de materiales energéticos. Centro de investigación y desarrollo tecnológico en energías renovables. Universidad de ciencias y artes de Chiapas.

■ **S3C-P110 DRYING MANGO (MANGIFERA INDICA L.) AND PLATANO WITH SOLAR ENERGY AS A PRETREATMENT FOR BIOETHANOL PRODUCTION**

**L. Fernando Santis-Espinosa,<sup>1</sup> Bianca Yadira Perez-Sariñana,<sup>1</sup> Sebastian P.J.,<sup>1</sup> Sergio Saldaña-Trinidad<sup>2</sup> and Carlos A. Guerrero-Fajardo<sup>3</sup>.**

<sup>1</sup>Instituto de Energías Renovables UNAM; <sup>2</sup>Universidad Politécnica de Chiapas, Tuxtla Gutiérrez, Chiapas, México. <sup>3</sup>Universidad Nacional de Colombia, Facultad de Ciencias, Departamento de Química Bogotá, Colombia;

■ **S3C-P111 EASY AND CHEAP WAY TO OBTAIN METAL-FREE ELECTROCATALYSTS FROM ORGANIC WASTE AND THEIR ELECTROCHEMICAL EVALUATION AS CATHODE FOR PEM FUEL CELL**

**Alonso-Lemus IL<sup>1</sup>, Lardizabal-Gutiérrez D<sup>2</sup>, Hernández-Ramírez A<sup>1</sup>, González-Quijano D<sup>1</sup>, Escobar-Morales B<sup>3</sup>, Rodríguez-Varela FJ<sup>1</sup>**

<sup>1</sup>Centro de Investigación y Estudios Avanzados del IPN (CINVESTAV-Saltillo). Grupo de Sustentabilidad de los Recursos Naturales y Energía. <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMAV S.C.), Departamento de Materiales Nanoestructurados. <sup>3</sup>Centro de Investigación Científica de Yucatán (CICY). Unidad de Energía Renovable.

■ **S3C-P112 HYDROPONIC CULTURE SYSTEMS ASSISTED BY PHOTOVOLTAIC WATER-PUMPING**

**Elsa Daniela García Mundo<sup>1</sup>, Blanca Estela Ramírez Cortes<sup>1</sup>, Juan Martínez Acevedo<sup>1</sup>, María Adriana García López<sup>1,2</sup>, Francisco Gínez Carbajal<sup>1</sup>, Felipe Avilés Domínguez<sup>1</sup>, Sergio Alberto Gamboa Sánchez<sup>2</sup>.**

<sup>1</sup>Universidad Politécnica del Estado de Guerrero, Carretera <sup>2</sup>Instituto de energías Renovables – UNAM.

■ **S3C-P113 SYNTHESIS OF SILICON CARBIDE USING CONCENTRATED SOLAR ENERGY**

**L.G. Ceballos-Mendivil<sup>1</sup>, R.E. Cabanillas-López<sup>2</sup>, J.C. Tánori-Córdova<sup>3</sup>, R. Murrieta-Yescas<sup>3</sup>, C.A. Pérez-Rábago<sup>4</sup>, H.I. Villafán-Vidales<sup>4</sup>, C.A. Arancibia-Bulnes<sup>4</sup>, C.A. Estrada<sup>4</sup>.**

<sup>1</sup>Facultad de Ingeniería Mochis, Universidad Autónoma de Sinaloa, México, <sup>2</sup>Depto. de Ingeniería Química y Metalurgia, Universidad de Sonora, México, <sup>3</sup>Depto. de Investigación en Polímeros y Materiales, México, <sup>4</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México, México.

■ **S3C-P114 PERFORMANCE STUDY OF A GRID CONNECTED PV CENTRAL INSTALLED IN "CU UNICACH"**

A.C. Peláez Hernández<sup>1</sup>, P. López de Paz<sup>1</sup>, J. Moreira Acosta<sup>1</sup>, E.O. Ángel Ruiz<sup>2</sup>, J.S. Pathiyamattom<sup>2</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Energías Renovables. Universidad de Ciencias y Artes de Chiapas. <sup>2</sup>Instituto en Energías Renovables-UNAM,

■ **S3C-P115 SOLAR TRACKING SYSTEM ASTRONOMICAL APPLIED TO A HUB WITH STIRLING GENERATOR**

J.I. Toledo Gómez<sup>1</sup>, J. Conde<sup>1</sup>, J. Moreira<sup>1</sup>, Guillermo Ibañez<sup>1</sup>, J. Pantoja<sup>1</sup>, O. Martínez Aguirre<sup>1</sup>, K.G. Zambrano Solis<sup>1</sup>, J. Y. Galindo Diaz<sup>1</sup> and Y. Hernandez Portillo<sup>1</sup>.

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Energías Renovables, Universidad de Ciencias y Artes de Chiapas, México.

■ **S3C-P116 FRESNEL CONCENTRATING PHOTOVOLTAIC MODULE (FCPV)**

J.A. Alanís-Navarro,<sup>1</sup> O.M Rivera-Román,<sup>1</sup> M.Y. Bahena-Landa,<sup>1</sup> M.A. Rivera-Martínez,<sup>1</sup> F. Avilés-Domínguez,<sup>1</sup> L. Ixtlilco Cortés.<sup>1</sup>

<sup>1</sup>Universidad Politécnica del Estado de Guerrero,.

■ **S3C-P117 DIMENSIONED OF A PHOTOVOLTAIC-THERMAL HYBRID SOLAR DRYER.**

Cristian Geovani Coutiño Utrilla<sup>1</sup>, Bianca Yadira Pérez Sariñana<sup>1</sup>, Oscar Fernando Muñoz Gumeta<sup>1</sup>, Sergio Saldaña Trinidad<sup>1</sup>, Roger Castillo Palomera<sup>1</sup>.

<sup>1</sup>Universidad Politécnica de Chiapas,

■ **S3C-P118 DEVELOPMENT OF A GRAPHICAL USER INTERFACE TOOL TO TRAIN ARTIFICIAL NEURAL NETWORKS IN MATLAB TO PREDICT THE SOLAR RADIATION**

E. Rangel Heras<sup>1</sup>, E. Cadenas Calderón<sup>2</sup>, J. Tena García<sup>3</sup>.

<sup>1,2,3</sup>Universidad Michoacana de San Nicolás de Hidalgo.

■ **S3C-P119 SMART SELECTION OF PHOTOVOLTAIC CELLS**

Tena-García<sup>1</sup>, E. Cadenas-Calderón<sup>1</sup>, E. Rangel-Heras<sup>1</sup>

<sup>1</sup> Universidad Michoacana de San Nicolas e Hidalgo, Facultad de Ingeniería Mecánica, División de estudios de Posgrado,

■ **S3C-P120 DESIGN AND EVALUATION OF A SOLAR DRYER HEXAGONAL, FOR SEED DRYING PROCESS.**

Cervantes Aguilar<sup>1</sup>, C. Camacho Fernández<sup>1</sup>, L. Rodríguez Hernández<sup>1</sup>, P.J. Sebastian<sup>2</sup>, N. Posada Cordova<sup>1</sup>, A. Cal y Mayor Diaz<sup>1</sup>, P. Zacarias Velázquez<sup>1</sup>, O. González Martínez<sup>1</sup>, L. López Ángel<sup>1</sup>, C. Munguía Ballinas<sup>1</sup>.

<sup>1</sup>Instituto Tecnológico Superior de Cintalapa, Ingeniería en Energías Renovables,

■ **S3C-P121 THEORETICAL AND EXPERIMENTAL STUDY OF A SOLAR DRYER FOR ATAULFO MANGO**

Roilan Iglesias Díaz<sup>1</sup>, Enrique A. Mojica Castillo<sup>1</sup>, Juana María Hernández Jarquín<sup>1</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Energías Renovables, Universidad de Ciencias y Artes de Chiapas.

■ **S3C-P122 RURAL ELECTRIFICATION WITH SOLAR-WIND POWER TOWARDS SUSTAINABLE DEVELOPMENT IN VILLA DEL RÍO, CINTALAPA CHIAPAS.**

Joel Pantoja Enriquez<sup>1</sup>, Luis A. Hernández Domínguez<sup>1</sup>, Eduardo Lara Morales<sup>1</sup>, Juana María Hernández Jarquín<sup>1</sup>, Enrique A. Mojica Castillo<sup>1</sup>.

<sup>1</sup> Centro de Investigación y Desarrollo Tecnológico en Energías Renovables, Universidad de Ciencias y Artes de Chiapas.

## Symposium 4A

# ADVANCES IN COMPUTATIONAL MATERIALS SCIENCE

**J. Ulises Reveles** / USA / Virginia Commonwealth University

**Noa Maron** / USA / Tulane University

**Gabriel Merino** / MEXICO / CINVESTAV-Mérida

**Thomas Heine** / GERMANY / Jacobs University

ROOM: TULUM H  
MONDAY, AUGUST 17

 Session Chair: **NOA MARON (TULANE, USA)**

▶ **08:30 - 09:00 S4A-0001 *Invited Talk* SCAN: STRONGLY CONSTRAINED & APPROPRIATELY NORMED SEMILOCAL DENSITY FUNCTIONAL**

[J. Sun](#), [A. Ruzsinszky](#)<sup>1</sup>, and [J.P. Perdew](#)<sup>1</sup>

<sup>1</sup>Department of Physics, Temple University, Philadelphia.

▶ **09:00 - 09:30 S4A-0002 *Invited Talk* THE RANDOM PHASE APPROXIMATION FOR DELICATE GROUND-STATE ENERGY DIFFERENCES IN MATERIALS SCIENCE**

[Adrienn Ruzsinszky](#)<sup>1</sup>, [Savio Laricchia](#)<sup>1</sup>, [Jefferson E. Bates](#)<sup>1</sup>

<sup>1</sup>Temple University.

▶ **09:30 - 10:00 S4A-0003 *Invited Talk* ELECTRON AFFINITIES AND DYSON ORBITALS OF LARGE ACCEPTOR MOLECULES**

[J. V. Ortiz](#)<sup>1</sup>

<sup>1</sup>Department of Chemistry and Biochemistry, Auburn University.

■ **10:00 - 10:15 S4A-0004 ORBITAL-FREE DENSITY FUNCTIONAL THEORY IMPLEMENTATION WITHIN THE PROJECTOR-AUGMENTED WAVE-METHOD**

[Olga Lopez-Acevedo](#)<sup>1</sup>

<sup>1</sup>COMP Centre of Excellence in Computational Nanoscience and Applied Physics Department, Aalto University.

▶ **10:15 - 10:45 S4A-0005 *Invited Talk* SPIN CROSSOVERS IN IRON IN EARTH'S INTERIOR**


[Renata M. Wentzcovitch](#)<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering and Materials Science, Minnesota Supercomputing Institute, University of Minnesota.

■ **10:45 - 11:00 S4A-0006 MOLECULAR DESIGN OF NEW BIOCOMPATIBLE AURIVILLIUS-LIKE LAYERED PEROVSKITE FERROELECTRICS BY FIRST-PRINCIPLE CALCULATION**

[Y. Fujimoto](#)<sup>1</sup>, [E. Nakamachi](#)<sup>1</sup>, [Y. Morita](#)<sup>1</sup>

<sup>1</sup>Dept. of Biomedical Engng., Doshisha University, Tatara Miyakodani, Kyotanabe.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **ULISES REVELES (VCU AND UTEP, USA)**

▶ **12:30 - 13:00 S4A-0007 *Invited Talk* ELECTRONIC AND MAGNETIC MOLECULAR PROPERTIES FROM AUXILIARY DENSITY FUNCTIONAL THEORY**

[Andreas M. Köster](#)<sup>1</sup>

<sup>1</sup>Departamento de Química, Centro de Investigación y de Estudios Avanzados.

▶ **13:00 - 13:30 S4A-0008 *Invited Talk* EXCITED STATES WITH REAL-TIME TDDFT: MOLECULAR COMPLEXES, DOPED METAL OXIDES, CORE EXCITATIONS, AND NON-HERMITIAN DYNAMICS**



**Niri Govind<sup>1</sup>**

<sup>1</sup>Environmental Molecular Sciences Laboratory Pacific Northwest National Laboratory Richland,

- ▶ **13:30 - 14:00 S4A-0009 *Invited Talk* SELF INTERACTION CORRECTED DFT CALCULATIONS ON A FEW ORGANIC MOLECULES**

T. Baruah<sup>1</sup>, R. Zope<sup>1</sup>, and M. R. Pederson<sup>1</sup>

- **14:00 - 14:15 S4A-0010 DFT CALCULATIONS OF THE INTERACTION BETWEEN THIOPHENE, FURAN OR PYRROLE AND IONIC LIQUIDS**

R. Gómez-Balderas<sup>1</sup>, A. Solano-Domínguez<sup>1</sup>, A. M. Rodríguez-Martínez<sup>1</sup>, A. K. Flores-Osorio<sup>1</sup>

<sup>1</sup>Lab. Físicoquímica Analítica, UIM, FES Cuautitlán, UNAM.



**14:00- 16:00 LUNCH**

- 👤 Session Chair: **AMIR NATAN (TEL-AVIV UNIV., ISRAEL)**

- ▶ **16:00 - 16:30 S4A-0011 *Invited Talk* MATERIALS CARTOGRAPHY: REPRESENTING AND MINING MATERIALS SPACE USING STRUCTURAL AND ELECTRONIC FINGERPRINTS**

Stefano Curtarolo<sup>1</sup>

<sup>1</sup>Duke University, Durham.

- ▶ **16:30 - 17:00 S4A-0012 *Invited Talk* STRUCTURING INTUITION WITH THEORY AND DATA MINING**

Andrew Supka<sup>1</sup>, Troy Lyons<sup>1</sup>, Rabih Al Rahal Al Orabi<sup>1</sup>, Laalitha Liyanage<sup>2,3</sup>, Priya Gopal<sup>1,3</sup>, Ichiro Takeuchi<sup>3,4</sup>, Stefano Curtarolo<sup>3,5</sup>, Marco Buongiorno Nardelli<sup>2,3</sup>, Marco Fornari<sup>1,3,5</sup>

<sup>1</sup>Department of Physics, Central Michigan University.

<sup>2</sup>Department of Physics and Department of Chemistry, University of North Texas. <sup>3</sup>Center for Materials Genomics, Duke University. <sup>4</sup>Department of Materials Science and Engineering, University of Maryland. <sup>5</sup>Materials Science, Electrical Engineering, Physics and Chemistry, Duke University.

<sup>6</sup>Science of Advanced Materials Program, Central Michigan University,

- 👤 Session Chair: **MIKE WIDOM (CARNEGIE-MELLON UNIV., USA)**

- ▶ **17:00 - 17:30 S4A-0013 *Invited Talk* INTEGRATED MATERIALS DISCOVERY ENGINE**

**Ichiro Takeuchi<sup>1</sup>**

<sup>1</sup>Department of Materials Science and Engineering, University of Maryland

- ▶ **17:30 - 18:00 S4A-0014 *Invited Talk* TEN-FOLD SPEED UP OF DFT FOR METALS: IMPROVING K-POINT INTEGRATION**

Gus L. W. Hart<sup>1</sup>

<sup>1</sup>Brigham Young University

- **18:00 - 18:15 S4A-0015 HIGH-THROUGHPUT COMPUTATIONAL DESIGN OF PEROVSKITE-BASED TWO-DIMENSIONAL ELECTRON GAS SYSTEMS**

K. Yang<sup>1</sup>

<sup>1</sup>Department of NanoEngineering, University of California

- ▶ **18:15 - 18:45 S4A-0016 *Invited Talk* NOVEL TOOLS FOR ACCELERATED MATERIALS DISCOVERY IN THE AFLOWLIB.ORG REPOSITORY: BREAKTHROUGHS AND CHALLENGES IN THE MAPPING OF THE MATERIALS GENOME**

Marco Buongiorno Nardelli<sup>1</sup>

<sup>1</sup>Department of Physics and Chemistry, University of North Texas, USA

**ROOM: TERRACE  
MONDAY, AUGUST 17**

- ▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

- **S4A-P001 EFFICIENT COMPUTER IMPLEMENTATION OF A POSITIVE MODEL IN THE DYNAMICS OF ACTIVE AND INERT BIOMASS WITHIN AN EXTRACELLULAR POLYMERIC MATRIX**

J. E. Macías-Díaz<sup>1</sup>, I. E. Medina-Ramírez<sup>2</sup>, Siegfried Macías<sup>1</sup>

<sup>1</sup>Departamento de Matemáticas y Física, Universidad Autónoma de Aguascalientes. <sup>2</sup>Departamento de Química, Universidad Autónoma de Aguascalientes,

- **S4A-P002 ELECTRONIC STRUCTURE OF THE SEMICONDUCTORS ALLOYS  $\text{Sn}_{1-x}\text{Ti}_x\text{O}_2$**

A.V. Gil Rebaza<sup>1,3</sup>, A.M. Mudarra Navarro<sup>1</sup>, L. Errico<sup>1,2</sup>, E.L. Peltzer y Blancá<sup>3</sup>

<sup>1</sup> Dpto de Física, Facultad de Ciencias Exactas – UNLP. Instituto de Física La Plata IFLP – CONICET. <sup>2</sup> Universidad Nacional del Noroeste de la Provincia de Buenos Aires - UNNOBA, <sup>3</sup> Grupo de Estudio de Materiales y Dispositivos Electrónicos (GEMyDe), Facultad de Ingeniería – UNLP.



■ **S4A-P003 AB-INITIO STUDY OF THE ELECTRONIC AND MAGNETIC PROPERTIES FOR HCP NI**

R.A. Duarte-Barahona<sup>1</sup>, M.E. Cifuentes-Quintal<sup>1</sup> and R. de Coss<sup>1</sup>

<sup>1</sup>Departament of Applied Physics, Cinvestav-Mérida, Yucatán, México.

■ **S4A-P004 VISCO-PLASTIC ANALYSIS WITH THE BOUNDARY ELEMENT METHOD FOR STATISTICAL LOAD BEHAVIOR**

Ernesto Pineda Leòn<sup>1</sup>, Rosa Maria Musito<sup>1</sup>, Dante Tolentino<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, Escuela Superior de Ingeniería y Arquitectura Unidad Zacatenco.

■ **S4A-P005 AB INITIO CALCULATIONS OF BENZENE ADSORBED ON Co HCP (0001)**

José Guadalupe Ibarra-Armenta<sup>1</sup>, Raúl Enrique Félix-Medina<sup>1</sup>, Manuel Andrés Leyva-Lucero<sup>1</sup> and Salvador Meza-Aguilar<sup>1</sup>

<sup>1</sup>Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Sinaloa.

■ **S4A-P006 BILATU: A PROGRAM FOR RANDOM MOLECULAR STRUCTURE SEARCHING**

Jose Luis Cabellos<sup>1</sup>, Saul H. Martínez-Treviño<sup>1</sup>, Filiberto Ortiz-Chi<sup>2</sup> and Gabriel Merino<sup>1</sup>

<sup>1</sup>Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados, Unidad Mérida. <sup>2</sup>Instituto Tecnológico Superior de Calkiní.

■ **S4A-P007 GRANULAR DEPLETION FORCES EXPLORED BY EFFECTIVE POTENCIAL INTERACTIONS**

Stephanie Velázquez-Pérez<sup>1,2</sup>, Yuri Nahmad-Molinari<sup>1</sup>, Gabriel Pérez-Ángel<sup>2</sup>

<sup>1</sup>Instituto de Física, Universidad Autónoma de San Luis Potosí. <sup>2</sup>Departamento de Física Aplicada, CINVESTAV del IPN.

■ **S4A-P008 DEGENERATE REARRANGEMENTS OF CARBOCATIONS**

Said Jalife<sup>1</sup>, María A. Fernández<sup>1</sup>, Claudia Zavala-Oseguera<sup>1</sup>, Gabriel Merino<sup>1</sup>

<sup>1</sup>Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados,

■ **S4A-P009 THE RICH AND COMPLEX POTENTIAL ENERGY SURFACE OF THE ETHANOL DIMER**

Alba Vargas-Caamal<sup>1</sup>, Filiberto Ortiz-Chi<sup>2</sup>, Diego Moreno<sup>1</sup>, Albeiro Restrepo<sup>3</sup>, Gabriel Merino<sup>1</sup> and José Luis Cabellos<sup>1</sup>

<sup>1</sup>Departamento de Física Aplicada, Centro de Investigación y Estudios Avanzados. <sup>2</sup>Instituto Tecnológico de Calkiní

en el Estado de Campeche. <sup>3</sup>Instituto de Química, Universidad de Antioquia UdeA.

■ **S4A-P010 THE EFFECT OF LDA + U EXCHANGE CORRELATION POTENTIAL ON THE DENSITY OF STATES OF THE REBaCuO SUPERCONDUCTORS**

Puch Ceballos F.<sup>1</sup>, Esparza García I.<sup>1</sup>, Tototzintle Huitle H.<sup>1</sup>, Araiza Ibarra J.<sup>1</sup>, Ortiz Saavedra J.<sup>1</sup>, Perez Arrieta L.<sup>1</sup>

<sup>1</sup>Unidad Académica de Física, Universidad Autónoma de Zacatecas. Calzada.

■ **S4A-P011 NONLINEAR ELECTRON TRANSPORT PROPERTIES IN AI NANOCHEAINS**

Gregorio H. Coccoletzi<sup>1</sup>, G. Canto<sup>2</sup>, F. Sánchez-Ochoa<sup>1</sup>

<sup>1</sup>Instituto de Física “Ing. Luis Rivera Terrazas,” Benemérita Universidad Autónoma de Puebla. <sup>2</sup>Centro de Investigación en Corrosión, Universidad Autónoma de Campeche,

■ **S4A-P012 INCREASING THE Pt3 CLUSTER REACTIVITY IN THE N2O DISSOCIATION**

H. Francisco<sup>1</sup>, V. Bertin<sup>1</sup> and E. Poulain<sup>2</sup>

<sup>1</sup>Departamento de Química, Universidad Autónoma Metropolitana-Iztapalapa <sup>2</sup>Área de Física Atómica Molecular Aplicada (FAMA), CBI, Universidad Autónoma Metropolitana-Atzacapotzalco,

■ **S4A-P013 ATMOSPHERIC OXIDATION OF METHYL AND ETHYL TERT-BUTYL ETHERS INITIATED BY HYDROXYL RADICALS. A QUANTUM CHEMISTRY STUDY**

Osnaya Liliana<sup>(1)</sup> Iuga Cristina<sup>(2)</sup> Ortiz Elba<sup>(2)</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, UNAM, <sup>2</sup>Universidad Autónoma Metropolitana-Azcapotzalco.

■ **S4A-P014 HALF-METALLIC FERROMAGNETISM OF ZNXMN<sub>1-x</sub>O COMPOUNDS: A FIRST-PRINCIPLES STUDY**

Ricardo Eulises Báez Cruz<sup>1</sup>, Carlos Vargas Hernández<sup>1</sup>, Miguel Espitia Rico<sup>2</sup>

<sup>1</sup>Universidad Nacional de Colombia sede Manizales, Laboratorio de Propiedades Ópticas de Materiales (POM),

■ **S4A-P015 YTTRIUM MIGRATION AND NY NANOSTRUCTURE FORMATION ON GaN SURFACES**

Guerrero-Sánchez<sup>1</sup>, F. Sánchez-Ochoa<sup>1</sup>, J.F. Rivas-Silva<sup>1</sup>, Gregorio H. Coccoletzi<sup>1</sup>, and Noboru Takeuchi<sup>2</sup>

<sup>1</sup>Benemérita Universidad Autónoma de Puebla, Instituto de Física “Ing Luis Rivera Terrazas.” <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México,

■ **S4A-P016 COMPARATIVE STUDY OF Pt8 AND Rh8 CLUSTERS IN THE N2O ACTIVATION**

E. Hernández-Vera<sup>1</sup>, V. Bertin<sup>1</sup>, J. González-Torres<sup>2</sup> and E. Poulain<sup>2</sup>

<sup>1</sup>Departamento de Química, Universidad Autónoma Metropolitana-Iztapalapa. <sup>2</sup>Área de Física Atómica Molecular Aplicada (FAMA), CBI, Universidad Autónoma Metropolitana-Atzacapotzalco,

■ **S4A-P017 AB-INITIO STUDY OF ELECTRONIC AND OPTICAL PROPERTIES OF In,Ru,Ir-DOPED CeO<sub>2</sub>**

R. Núñez-González<sup>1</sup>, R. Rangel-Segura<sup>2</sup>, D. H. Galván<sup>3</sup>, A. Posada-Amarillas<sup>4</sup>.

<sup>1</sup>Departamento de Matemáticas, Universidad de Sonora. <sup>2</sup>División de Estudios de Posgrado, Facultad de Ingeniería Química. U.M.S.N.H. <sup>3</sup>Centro de Nanociencias y Nanotecnología, U.N.A.M. Ensenada, México. <sup>4</sup>Departamento de Investigación en Física, Universidad de Sonora.

■ **S4A-P018 MOLECULAR DYNAMICS APPROACH FOR CRYSTAL STRUCTURES OF METHANE A AND B**

C. G. Galván<sup>1</sup>, S. E. Sánchez-Martínez<sup>1</sup>, J. M. Cabrera-Trujillo<sup>1</sup>

<sup>1</sup>Facultad de Ciencias, Universidad Autónoma de San Luis Potosí.

■ **S4A-P019 COMPUTATIONAL STUDY ON THE THIENO[3,4-B]PYRAZINES AND ITS DERIVATIVES BASED CONDUCTING POLYMERS.**

Wasihun Menberu<sup>1</sup>, Ahmed Mustafa<sup>2</sup>

<sup>1</sup>Chemistry Department, Haramaya University, Dire Dawa, Ethiopia. <sup>2</sup>Chemistry Department, Addis Ababa University, Addisababa, Ethiopia.

■ **S4A-P020 STRUCTURAL AND ELASTIC PROPERTIES OF SUPERCONDUCTING Mo2B UNDER PRESSURE**

Escamilla<sup>1,2</sup>, E. Carvajal<sup>2</sup>, M. Romero<sup>3</sup>, A. A. Castro<sup>1</sup>, F. Salazar<sup>2</sup>, A. Duran<sup>4</sup>, L. Huerta<sup>1</sup> and E. Verdin<sup>5</sup>.

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México; <sup>2</sup>ESIME-Culhuacán, Instituto Politécnico Nacional; <sup>3</sup>Facultad de Ciencias, Universidad Nacional Autónoma de México. <sup>4</sup>Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología; <sup>5</sup>Departamento de Física, Universidad de Sonora.

■ **S4A-P021 AB INITIO CALCULATIONS OF THE STRUCTURAL AND ELASTIC PROPERTIES OF MFeO<sub>3</sub> (M=Y, Eu, La) COMPOUNDS**

M. Romero<sup>1</sup>, R. Escamilla<sup>2</sup>, V. Marquina<sup>1</sup>, R. W. Gómez<sup>1</sup>, A. A. Castro<sup>2</sup> and L. Huerta<sup>2</sup>

<sup>1</sup> Facultad de Ciencias, Universidad Nacional Autónoma de México. <sup>2</sup> Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México.

■ **S4A-P022 FIRST PRINCIPLES STUDY OF STABLE GRAPHENE / GaN(0001) SURFACE**

Miguel J. Espitia R<sup>1,2</sup>, Jairo Arbey Rodríguez M.<sup>2</sup>, María Guadalupe Moreno-Armenta<sup>3</sup> and Noboru Takeuchi<sup>3</sup>

<sup>1</sup> Grupo GEFEM, Universidad Distrital Francisco José de Caldas, Bogotá Colombia. <sup>2</sup>GEMA Grupo de Estudio de Materiales, Universidad Nacional de Colombia, Bogotá Colombia. <sup>3</sup> Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México,

■ **S4A-P023 DFT STUDY OF WETTING BEHAVIOR OF IONIC LIQUIDS-ASFALTHENES-CALCITE SYSTEMS.**

R. Hernández Bravo<sup>1</sup>, A.D Miranda<sup>1</sup> and J.M Domínguez<sup>1</sup>

<sup>1</sup>Instituto Mexicano del Petroleo.

■ **S4A-P024 ROLE OF SULFONATION IN STABILITY, REACTIVITY AND SELECTIVITY OF POLY(ETHER-IMIDE) TO DEVELOP IONIC EXCHANGE MEMBRANES: DFT STUDY WITH APPLICATIONS IN FUEL CELLS**

L. C. de la Portilla-Maldonado<sup>1</sup>, E. López-Chávez<sup>2</sup>, F de L. Castillo-Alvarado<sup>3</sup>, A. Cruz-Torres<sup>3</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Azacapotzalco, División de Ciencias Básicas e Ingeniería, Departamento de Ciencias Básicas. <sup>2</sup>Colegio de Ciencia y Tecnología de la Universidad Autónoma de la Ciudad de México. <sup>3</sup>Escuela Superior de Física y Matemáticas del Instituto Politécnico Nacional, Unidad Profesional Adolfo López Mateos.

■ **S4A-P025 THE MOST STABLES MONO-LAYERS OF (111)-Pt (FCC) ON GRAPHENE: A FIRST-PRINCIPLE GGA+U STUDY**

José Otálora Acevedo<sup>1,2</sup>, Enrique Vera<sup>2</sup>, Guadalupe Moreno-Armenta<sup>3</sup> and Jairo Arbey Rodríguez<sup>1</sup>

<sup>1</sup>GEMA: Grupo de Estudio de Materiales, Universidad Nacional de Colombia, Bogotá, Colombia. <sup>2</sup> INCITEMA, GIEM: Grupo Integridad y Evaluación de Materiales, Universidad Pedagógica y Tecnológica de Colombia. <sup>3</sup>Centro de Nanociencias y Nanotecnología - CNyN, UNAM, Ensenada, BC, México.

■ **S4A-P026 FeO<sub>2</sub>/MgO(100) SUPPORTED CLUSTER: COMPUTATIONAL PURSUAL FOR A LOW-COST AND LOW-TEMPERATURE CO NANOCATALYST**

R. Mejía-Olvera<sup>1</sup>, J. U. Reveles<sup>2</sup>, A. Y. Zamora<sup>3</sup>, T. Baruah<sup>4</sup>, R. R. Zope<sup>4</sup>

<sup>1</sup>Universidad Politécnica de Cuautitlán Izcalli,



Cuautitlán Izcalli, Estado de México. <sup>1</sup>Department of Physics, Virginia Commonwealth University; <sup>2</sup>Universidad Politécnica del Valle de México. <sup>3</sup>Universidad Politécnica del Valle de México. <sup>4</sup> Department of Physics, University of Texas El Paso.

**ROOM: TULUM H**  
**TUESDAY, AUGUST 18**

Session Chair: **GABRIEL MERINO (CINVESTAV MERIDA, MEXICO)**

**▶ 08:30 - 09:00 S4A-0017 Invited Talk AUTOMATIC SEARCH VERSUS CHEMICAL RULES IN MATERIALS STRUCTURE STUDY**

Maosheng Miao<sup>1</sup>

<sup>1</sup>Department of Chemistry and Biochemistry, California State University Northridge CA, USA; Beijing Computational Science Research Center, Beijing, China

**▶ 09:00 - 09:30 S4A-0018 Invited Talk EVOLUTIONARY ALGORITHM APPLIED TO ORGANIC CRYSTAL STRUCTURE PREDICTION**

Qiang Zhu<sup>1</sup>, Artem R. Oganov<sup>2</sup>

<sup>1</sup>Department of Geosciences, Center for Materials by Design; <sup>2</sup>Stony Brook University, Stony Brook,

**■ 09:30 - 09:45 S4A-0019 COMPUTATIONAL DESIGN OF NANOCLOUDS BY PROPERTY-BASED GENETIC ALGORITHMS: TUNING THE ELECTRONIC PROPERTIES OF (TiO<sub>2</sub>)<sub>N</sub> CLUSTERS**

Noa Marom<sup>1</sup>, Saswata Bhattacharya<sup>2</sup>, Luca M. Ghiringhelli<sup>2</sup>

<sup>1</sup>Physics and Engineering Physics, Tulane University, New Orleans; <sup>2</sup>Fritz-Haber-Institut der Max-Planck-Gesellschaft.

**▶ 09:45 - 10:15 S4A-0020 Invited Talk DATA ASSISTED THEORETICAL MODELING OF METAL OXIDES**

Amir Natan<sup>1</sup>,

<sup>1</sup>Department of Physical Electronics, Tel-Aviv University, Tel-Aviv, Israel

**▶ 10:15 - 10:45 S4A-0021 Invited Talk LIFSHITZ AND OTHER TRANSITIONS IN ALKALINE-EARTH 122-PNICTIDES UNDER PRESSURE**

M. Widom<sup>1</sup> and K Quader<sup>2</sup>

<sup>1</sup>Department of Physics, Carnegie-Mellon University, Pittsburgh; <sup>2</sup>Department of Physics, Kent State University, Kent,

**■ 10:45 - 11:00 S4A-0022 CARBOCATION REARRANGEMENTS REVISITED**

Said Jalife<sup>1</sup>, Gerardo Martínez-Guajardo<sup>1</sup>, María A. Fernández-Herrera<sup>1</sup>, and Gabriel Merino<sup>1</sup>.

<sup>1</sup>Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados Unidad Mérida.

**11:00 - 11:30 COFFEE BREAK**

**11:30 - 12:30 PLENARY LECTURE**

Session Chair: **ROMEO DE COSS (CINVESTAV MERIDA, MEXICO)**

**▶ 12:30 - 13:00 S4A-0023 Invited Talk NOVEL SINGLE-SITE CATALYSTS.**

Shiv Khanna<sup>1</sup>, Sanjubala Sahoo<sup>1</sup>, Arthur Reber<sup>1</sup>

<sup>1</sup>Virginia Commonwealth University, Richmond, USA

**■ 13:00 - 13:15 S4A-0024 AB INITIO STUDY OF HYDROGEN ADSORPTION ON TITANIUM AND NICKEL CLUSTERS SUPPORTED ON GRAPHENE MONOVACANCIES**

C.M. Ramos-Castillo<sup>1</sup>, J.U. Reveles<sup>2</sup> and R. de Coss<sup>1</sup>

<sup>1</sup>Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados del IPN, Mérida, Yucatán, México; <sup>2</sup>Department of Physics Virginia Commonwealth University, Richmond, Virginia, USA.

**▶ 13:15 - 13:45 S4A-0025 Invited Talk ELECTRONIC EXCITATIONS USING PERTURBATIVE Δ-SCF METHOD**

R. R. Zope<sup>1</sup>, T. Baruah<sup>1</sup>, S. Bhusal<sup>1</sup>

<sup>1</sup>University of Texas at El Paso

**▶ 13:45 - 14:15 S4A-0026 Invited Talk MAIN-GROUP ELEMENTS EMBEDDED IN CATALYTIC SURFACES AND CLUSTERS**

A. N. Alexandrova<sup>1</sup>

<sup>1</sup>University of California, Los Angeles, and California NanoSystems Institute.

**14:00- 16:00 LUNCH**

Session Chair: **MAYTAL CASPARY-TOROKER (ISRAEL INSTITUTE OF TECHNOLOGY, ISRAEL)**

**▶ 16:00 - 16:30 S4A-0027 Invited Talk SIMULATION STUDY OF THE ROLE OF TWINS IN THE MECHANICAL RESPONSE OF FCC MATERIALS.**

Diana Farkas<sup>1</sup>

<sup>1</sup>MSE, Virginia Tech, Blacksburg, Virginia, USA

- ▶ **16:30 - 17:00 S4A-0028 *Invited Talk* COMPRESSED SYMMETRY-ADAPTED WANNIER MODES FOR REAL-SPACE ELECTRONIC STRUCTURE CALCULATIONS**  
J.-T. Chen<sup>1</sup>, K. Yin<sup>2</sup>, F. Barekat<sup>2</sup>, R. E. Caffisch<sup>2</sup>, S. Osher<sup>2</sup>, and V. Ozolins<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, University of California, Los Angeles; <sup>2</sup>Department of Mathematics, University of California, Los Angeles.

👤 Session Chair: **JIM CHELIKOWSKY (UNIVERSITY OF TEXAS AT AUSTIN, USA)**

- **17:00 - 17:15 S4A-0029 MORPHOLOGICAL FEATURES AND BAND BENDING AT NON-POLAR SURFACES OF ZnO: A PLANE WAVE HYBRID DENSITY FUNCTIONAL STUDY.**

D. Mora-Fonz<sup>1</sup> and C. R. A. Catlow<sup>1</sup>

<sup>1</sup>Kathleen Lonsdale Materials Chemistry, University College, UK

- ▶ **17:15 - 17:45 S4A-0030 *Invited Talk* DESIGNING TRANSITION METAL OXIDE HETEROSTRUCTURES**  
Alex Demkov<sup>1</sup>

<sup>1</sup>Department of Physics, The University of Texas, Austin, TX, USA

- ▶ **17:45 - 18:15 S4A-0031 *Invited Talk* RECENT ADVANCES IN MODELING TRANSITION METAL OXIDES FOR SOLAR ENERGY APPLICATIONS**  
Maytal Caspary Toroker<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, Technion - Israel Institute of Technology, Israel

- ▶ **18:15 - 18:45 S4A-0032 *Invited Talk* COMBINED THEORY AND EXPERIMENTAL STUDY OF Au<sub>n</sub>Rh<sub>m</sub> (n=1-7, m=1-2) CLUSTERS AND O<sub>2</sub>: MOLECULAR AND DISSOCIATIVE ADSORPTION**

Marcela R. Beltrán<sup>a</sup> Fernando Buendía<sup>a</sup>, Xinxing Zhang<sup>b</sup>, Gaoxiang Liu<sup>b</sup>, Allyson Buytendyk<sup>b</sup> and Kit Bowen.

<sup>a</sup>Universidad Nacional Autónoma de México, Instituto de Investigaciones en Materiales. <sup>b</sup> Department of Chemistry, Johns Hopkins University, Baltimore.

**ROOM: TULUM H  
WEDNESDAY, AUGUST 19**

👤 Session Chair: **THOMAS HEINE (UNIVERSITY OF LEIPZIG, GERMANY)**

- ▶ **08:30 - 09:00 S4A-0033 *Invited Talk* AB INITIO MD, LOWER RUNG FUNCTIONALS, AND NEAR-ORIGIN MISBEHAVIORS FROM PSEUDO-DENSITIES**

S.B. Trickey<sup>1</sup>

<sup>1</sup>QTP, Dept. of Physics, University of Florida, Gainesville FL, USA

- ▶ **09:00 - 09:30 S4A-0034 *Invited Talk* TACKLING THE CHARGE TRANSFER PROBLEM IN ORGANIC SYSTEMS AND AT ORGANIC/INORGANIC INTERFACES FROM FIRST PRINCIPLES**

Patrick Rinke<sup>1</sup>

<sup>1</sup>Aalto University School of Science, Aalto Finland.

- ▶ **09:30 - 10:00 S4A-0035 *Invited Talk* EFFICIENT, ACCURATE ALL ELECTRON DESCRIPTION OF LARGE NANOSYSTEMS: NEWS FROM THE FHI-AIMS CODE**

Volker Blum<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering and Materials Science, Duke University, Durham,

- ▶ **10:00 - 10:30 S4A-0036 *Invited Talk* QUANTUM FLUCTUATIONS AND NON-COVALENT INTERACTIONS IN MOLECULES AND MATERIALS**

Alexandre Tkatchenko<sup>1</sup>

<sup>1</sup>Fritz-Haber-Institut der MPG, Berlin, Germany

- ▶ **10:30 - 11:00 S4A-0037 *Invited Talk* ADDRESSING DIRACS CHALLENGE: PRACTICAL QUANTUM MECHANICS FOR THE NANOSCALE**

James R. Chelikowsky<sup>1</sup>

<sup>1</sup>Center for Computational Materials, Institute of Computational Engineering and Sciences, Department of Chemical Engineering, University of Texas at Austin, USA, Department of Physics, University of Texas at Austin, Austin.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**





**Session Chair: CARLOS QUINTANAR (UNAM, MEXICO)**

■ **12:30 - 12:45 S4A-0038 ELECTRON-PHONON COUPLING IN SILICENE UNDER BIAXIAL STRAIN**  
M. E. Cifuentes-Quintal<sup>1</sup>, O. de la Peña-Seaman<sup>2</sup>, and R. de Coss<sup>1</sup>

<sup>1</sup>Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados del IPN.<sup>2</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla.

■ **12:45 - 13:00 S4A-0039 ELECTRON QUANTUM OPTICS IN HOMOGENEOUSLY STRAINED GRAPHENE**  
Y. Betancur-Ocampo<sup>1</sup>, G. Cordourier-Maruri<sup>1</sup>, and R. de Coss<sup>1</sup>  
<sup>1</sup>Department of Applied Physics, Cinvestav-Mérida,

▶ **13:00 - 13:30 S4A-0040 Invited Talk AB-INITIO PREDICTION OF SURFACE MAGNETISM IN VANADIUM OVERLAYERS ON Nb(001)**

Romeo de Coss<sup>1</sup>, Alberto Rubio<sup>2</sup>, and Aarón Aguayo<sup>3</sup>  
<sup>1</sup>Departamento de Física Aplicada, Cinvestav-Mérida, Yucatán, México. <sup>2</sup>Departamento de Ciencias Básicas, UAM-Azcapotzalco, México D.F., México. <sup>3</sup>Facultad de Matemáticas, Universidad Autónoma de Yucatán, Mérida, México.

■ **13:30 - 13:45 S4A-0041 STRUCTURE OF GE-SB-TE LIQUIDS FROM CAR-PARRINELLO MOLECULAR DYNAMICS SIMULATIONS AND NEUTRON SCATTERING MEASUREMENTS**  
H. M. Flores-Ruiz<sup>1</sup>, M. Micoulaut<sup>1</sup>, M. V. Coulet<sup>2</sup>, A. Piarristeguy<sup>3</sup>, M. R. Johnson<sup>4</sup>, G. Cuello<sup>4</sup>, C. Bichara<sup>5</sup> and A. Pradel<sup>3</sup>

<sup>1</sup>Laboratoire de Physique Théorique des Liquides, Université Pierre et Marie Curie. <sup>2</sup>Aix-Marseille Université, CNRS. <sup>3</sup>Institut Charles Gerhardt, Université Montpellier II. <sup>4</sup>Institut Laue Langevin. <sup>5</sup>Centre Interdisciplinaire de Nanoscience de Marseille (CINaM), CNRS and Aix-Marseille Universities, Campus de Luminy,

■ **13:45 - 14:00 S4A-0042 ATOMIC AND ELECTRONIC STRUCTURES OF SILVER AND SILVER-INDUCED DEFECTS IN LEAD TELLURIDES**  
Byungki Ryu<sup>1</sup> and Su-Dong Park<sup>1</sup>

<sup>1</sup>Thermoelectric Conversion Research Center, Korea Electrotechnology Research Institute (KERI).



**14:00 - 16:00 LUNCH**

**Session Chair: ADRIENN RUZSINSZKY (TEMPLE UNIVERSITY, USA)**

▶ **16:00 - 16:30 S4A-0043 Invited Talk SELF ORGANISED PATTERN FORMATION IN CRYSTAL EPITAXY**

Nils. A. K. Kaufmann<sup>1</sup>, L. Lahoucade<sup>1</sup>, B. Hourahine<sup>2</sup>, D. Martin<sup>1</sup>, and N. Grandjean<sup>1</sup>

<sup>1</sup>Institute of Condensed Matter Physics, Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland. <sup>2</sup>Department of Physics, SUPA, University of Strathclyde, John Anderson Building,

■ **16:30 - 16:45 S4A-0044 DENSITY-FUNCTIONAL BASED TIGHT-BINDING (DFTB) FOR THE PERIODIC TABLE**

A. F. Oliveira<sup>1</sup>, T. Heine<sup>1</sup>

<sup>1</sup>Jacobs University Bremen gGmbH, Department of Physics and Earth Science,

■ **16:45 - 17:00 S4A-0045 MOLECULAR DYNAMICS STUDY OF SIZE AND ENVIRONMENTAL DEPENDENCE OF STRUCTURAL EVOLUTION IN ZNS NANOPARTICLES**

M. Khalkhali<sup>1</sup>, H. Zhang<sup>1</sup>

<sup>1</sup>Department of Chemical and Materials Engineering, University of Alberta, Edmonton, Canada.

**Session Chair: MARCELA BELTRAN (UNAM, MEXICO)**

▶ **17:00 - 17:30 S4A-0046 Invited Talk ELECTRONIC STRUCTURE OF Pd AND Au-Pd NANO CLUSTERS, BOTH FREE AND SUPPORTED ON MgO(100)**

E. Chavira<sup>1</sup>, Carlos Quintanar<sup>2</sup>, Reyna Caballero<sup>2</sup>, Magali Ugalde<sup>3</sup>, Francisco Espinosa<sup>3</sup>, and Samuel Trickey<sup>4</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Autónoma de México, <sup>2</sup>Facultad de Ciencias, Universidad Autónoma de México, <sup>3</sup>CIMAV-CHIHUAHUA, Chihuahua Chih., <sup>4</sup>University of Florida, Gainesville FL.

■ **17:15 - 17:30 S4A-0047 INELASTIC ELECTRON SPECTROSCOPY FOR TOPOLOGICAL INSULATORS: A FUNCTIONAL RENORMALIZATION GROUP APPROACH**

J. J. Ramos Cárdenas<sup>1</sup>

<sup>1</sup>Universidad de La Ciénega del Estado de Michoacán de Ocampo

■ **17:30 - 17:45 S4A-0048 STRUCTURE OF ALUMINOSILICATE CLUSTERS**

J. M. Mora-Fonz<sup>1</sup>, C. Yang<sup>2</sup>, C. R. A. Catlow<sup>3</sup>

<sup>1</sup>DACB, Universidad Juárez Autónoma de Tabasco, México,

<sup>2,3</sup>Department of Chemistry, University College London, United Kingdom

■ **17:45 - 18:00 S4A-0049 THE SHAPE OF TiO<sub>2</sub>-B NANOPARTICLES**

Pooja M. Panchmatia<sup>1,3</sup>, Yuri G. Andreev<sup>2</sup>, Zheng Liu<sup>2</sup>, Stephen C. Parker<sup>3</sup>, Saiful Islam<sup>3</sup> and Peter G. Bruce<sup>2</sup>

<sup>1</sup>Department of Chemistry, Loughborough University, Loughborough. <sup>2</sup>School of Chemistry, University of St. Andrews. <sup>3</sup>Department of Chemistry, University of Bath.

■ **18:15 - 18:30 S4A-0050 Ca, Ba, AND Sr HEXABORIDES PAIR POTENTIALS FROM DFT AND MD**

Victor R Vasquez<sup>1</sup>, Kevin M. Schmidt<sup>1</sup>, Olivia A. Graeve<sup>2</sup>

<sup>1</sup>Chemical and Materials Engineering Department, University of Nevada, Reno, <sup>2</sup>Department of Mechanical and Aerospace Engineering, University of California San Diego, La Jolla,

■ **18:30 - 18:45 S4A-0051 FRANCK-CONDON FACTORS FOR CaO**

A. Palma<sup>(1)</sup>, L. Sandoval<sup>(1)</sup>, J.F. Rivas-Silva<sup>(1)</sup>, and A. Berezhtnoy<sup>(3)</sup>

<sup>1</sup>Instituto de Física. <sup>2</sup>Facultad de Ciencias de la Computación, México. <sup>3</sup>Sternberg Astronomical Institute, University Prospekt 13, Moscow, Russia.

## Symposium 4B

# FROM STRUCTURAL TO MECHANICAL PROPERTIES OF DISORDERED SOLIDS

**Gerardo Garcia Naumis** / MEXICO / Instituto de Fisica, UNAM

**Matthieu Micoulaut** / FRANCE / LPTMC Université Pierre et Marie Curie

**John C. Mauro** / USA / Corning Inc.

ROOM: MAYA VI  
WEDNESDAY, AUGUST 19

 Session Chair: **P. BOOLCHAND**

 **09:00 - 09:30 S4B-0001 *Invited Talk* RADIATION-INDUCED DAMAGE IN QUARTZ: INSIGHTS FROM RIGIDITY THEORY**

**B. Wang<sup>1</sup>, Y. Yu<sup>1</sup>, M. Bauchy<sup>1</sup>**

<sup>1</sup>Physics of Amorphous and Inorganic Solids Laboratory (PARISlab), Los Angeles,

 **09:30 - 10:00 S4B-0002 *Invited Talk* CONNECTIVITY PATTERNS IN THE FRAGILITY OF NETWORK-FORMING GLASSES**


**D.L. Sidebottom<sup>1</sup>, T.D. Tran<sup>1</sup> and S.E. Schnell<sup>1</sup>**

<sup>1</sup>Physics Department, Creighton University,

 **10:00 - 10:15 S4B-0003 FRONTIERS IN CHEMICALLY STRENGTHENED GLASS**

**John C. Mauro<sup>1</sup>**


<sup>1</sup>Science and Technology Division, Corning Incorporated,

 **10:15 - 10:45 S4B-0004 *Invited Talk* CRYSTALLIZATION OF THE PROTOTYPE PHASE-CHANGE MATERIAL GE2SB2TE5: DENSITY FUNCTIONAL STUDY**

**J. Kalikka<sup>1</sup>, J. Akola<sup>2,3</sup>, and R.O. Jones<sup>4,5</sup>**


<sup>1</sup>Singapore University of Technology and Design (SUTD), Singapore. <sup>2</sup>Department of Physics, Tampere University of Technology, P.O. <sup>3</sup>COMP Centre of

Excellence, Department of Applied Physics, Aalto University, <sup>4</sup>Peter Grünberg Institut PGI-1 and JARA/HPC, Forschungszentrum Jülich. <sup>5</sup>German Research School for Simulation Sciences,

 **10:45 - 11:15 S4B-0005 *Invited Talk* ONSET OF RIGIDITY AND THRESHOLDS IN PHYSICAL PROPERTIES OF BARIUM-BORATE GLASSES<sup>1</sup>**

**C. Holbrook<sup>1</sup>, A. Czaja<sup>2</sup>, P. Boolchand<sup>3</sup>**

<sup>1</sup>College of Engineering and Applied Science, Engineering Research Center, Cincinnati, <sup>2</sup>A&S Geology, GEO-PHYS, Cincinnati., <sup>3</sup>College of Engineering and Applied Science, Rhodes Hall,

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **M. BAUCHY**

 **12:30 - 13:00 S4B-0006 *Invited Talk* AGING MECHANISMS IN PHASE CHANGE MATERIALS**

**J.Y. Raty<sup>1</sup>**

 <sup>1</sup>Physique des Solides, Interfaces et Nanostructures (SPIN), Université de Liège..

 **13:00 - 13:30 S4B-0007 *Invited Talk* PLASTIC DEFORMATION MECHANISMS AND THE HARDNESS OF CALCIUM-ALUMINOSILICATE GLASSES**

**L. A. Lamberson<sup>1,2</sup>, R. E. Youngman<sup>2</sup>, and S. P. Baker<sup>1</sup>**

<sup>1</sup>Cornell University, Department of Materials Science and Engineering, Bard Hall, Ithaca. <sup>2</sup>Corning Incorporated,

■ **13:30 - 13:45 S4B-0008 REVERSIBILITY IN GLASSES**

*M. Micoulaut*<sup>1</sup>, *M. Bauchy*<sup>2</sup>, *B. Mantis*<sup>1</sup>

<sup>1</sup>Paris Sorbonne Universités, UPMC, LPTMC, <sup>2</sup> University of California, Los Angeles Civil and Environmental Engineering Department



**14:00- 16:00 LUNCH**



Session Chair: **K. KELTON**

▶ **16:00 - 16:30 S4B-0010 Invited Talk EFFECT OF BORON SPECIATION ON DIFFUSIVITY, COMPRESSIBILITY, AND MECHANICS OF BOROSILICATE GLASSES**

*M. M. Smedskjaer*<sup>1</sup>, *J. C. Mauro*<sup>2</sup>

<sup>1</sup>Department of Chemistry and Bioscience, Aalborg University, Aalborg, Denmark, <sup>2</sup>Science and Technology Division, Corning Incorporated, Corning, USA

▶ **16:30 - 17:00 S4B-0011 Invited Talk OBSERVATION OF TOPOLOGICAL PHASES IN CHALCOGENIDE GLASSES, SUPERSTRONG CHARACTER OF MELTS, DELAYED HOMOGENIZATION AND EUTECTIC**

*P. Boolchand*<sup>1</sup>, *S. Ravindren*<sup>1</sup>, *K. Gunasekera*<sup>1</sup>, *S. Bhosle*<sup>1</sup>, *S. Chakraborty*<sup>1</sup>, *C. Holbrook*<sup>1</sup>, *P. Chen*<sup>1</sup> and *R. Bhageria*<sup>1</sup>

<sup>1</sup>Department of Electrical and Computing systems, College of Engineering and Applied Science, University of Cincinnati, Cincinnati,

▶ **17:00 - 17:30 S4B-0012 Invited Talk STRUCTURAL RELAXATION DYNAMICS AT THE ATOMIC SCALE ACROSS T<sub>g</sub> IN A SODIUM SILICATE GLASS**

*Benoit Rufflé*<sup>1</sup>

<sup>1</sup>Laboratoire Charles Coulomb (L2C),

■ **17:30 - 17:45 S4B-0013 DAMPING AND MODAL ANALYSIS OF POLIMERIC COMPOSITES WITH COOPER SPHERICAL MICROPARTICLES**

*M. Sanchez*<sup>1</sup>, *R. Muciño*<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Mecánica de la Facultad de Ingeniería de la Universidad Autónoma del Estado de México.

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S4B-P001 ULTRASONIC FATIGUE TESTING ON THE TITANIUM ALLOY Ti-6Al-4V, WITH PRE-CORROSION ATTACK**

*Gonzalo Mariano Domínguez Almaraz*<sup>1</sup>, *Ishvari.Fernanda Zuñiga Tello*<sup>1</sup>, *Juan Jesús Villalón López*<sup>1</sup>, *Manuel Guzmán Tapia*<sup>1</sup>

<sup>1</sup>Universidad Michoacana de San Nicolás de Hidalgo (UMSNH), Facultad de Ingeniería Mecánica, Santiago

■ **S4B-P002 TRIBOLOGICAL BEHAVIOR OF AN AUSTENITIC STEEL BASE, ALLOYED WITH MOLYBDENUM AND NITROGEN**

*M. Góngora-Hernández*<sup>1</sup>, *M de J. Castro-Román*<sup>1</sup>, *M Herrera-Trejo*<sup>1</sup>, *M.A.L. Hernández-Rodríguez*<sup>2</sup>, *I. Aguilera-Luna*<sup>1</sup>

<sup>1</sup>Cinvestav Unidad Saltillo. <sup>2</sup>Facultad de Ingeniería Mecánica y Eléctrica. Universidad Autónoma de Nuevo León,

■ **S4B-P003 STRAIN LOCALIZATION AND SURFACE EFFECTS IN A STOCHASTIC MODEL OF AMORPHOUS PLASTICITY**

*Stefan Sandfeld*<sup>1</sup> and *David Fernandez Castellanos*<sup>1</sup>

<sup>1</sup>Friedrich-Alexander University of Erlangen-Nuremberg (FAU),

■ **S4B-P004 EFFECT OF THE HEAT INPUT ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF AN AL-6XN/2205 DISSIMILAR WELD.**

*H. Lima Carrasco*<sup>1</sup>, *V. H. López-Morelos*<sup>1</sup>, *R. García-Hernández*<sup>1</sup>, *M. A. Garcia-Rentería*<sup>2</sup>, *F. F. Curiel-López*<sup>2</sup>, *A. Ruiz-Marines*<sup>1</sup>

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo. <sup>2</sup>Facultad de Metalurgia, Universidad Autónoma de Coahuila,

■ **S4B-P005 THEORETICAL AND COMPUTATIONAL STUDY OF MATERIALS IN THE SHALLOW LAYER BY GEOPHYSICAL METHODS, SUPPORT FOR SAFE CONSTRUCTION IN COLOMBIA AND MONITORING OF HOUSING**

*A.M. Muñoz*<sup>1</sup>, *M.E. Espitia*<sup>1</sup>, *A.J. Rojas*<sup>1</sup>, *J.E. Moncada*<sup>1</sup>



<sup>1</sup>Centro de Estudios e Investigación en Vivienda, Hábitat e Innovación Social (CENVIS), Corporación Universitaria Minuto de Dios (UNIMINUTO), Bogotá, Colombia.

■ **S4B-P006 TUNING OF GRAPHITIC BASAL PLANE FROM USED BATTERY GRAPHITE ROD BY LASER IRRADIATION**

Claudio Frausto Reyes<sup>1</sup>, Martin Ortiz-Morales<sup>1</sup>, Kamaraj Sathish-Kumar<sup>2</sup>, Sofia E. Acosta-Ortiz<sup>3</sup>

<sup>1</sup>Centro de Investigaciones en Óptica, <sup>2</sup>Universidad Politécnica de Aguascalientes, Ingeniería en Energía <sup>3</sup>Laser Tech, S.A. de C.V.

ROOM: MAYA VI  
THURSDAY, AUGUST 20

👤 Session Chair: **M. MICOULAUT**

▶ **08:45 - 09:00 S4B-0014 Invited Talk SIZE EFFECT ON THE SHORT RANGE ORDER AND THE CRYSTALLIZATION OF NANO-SIZED OXIDES: A BIO INSPIRED APPROACH**

B. Pokroy<sup>1,2</sup>, L. Bloch<sup>1</sup>, Y. Etinger<sup>1</sup>, Yaron Kauffmann<sup>1</sup> and A. Katzman<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, Technion – Israel Institute of Technology, <sup>2</sup>Russell Berrie Nanotechnology Institute, Technion – Israel Institute of Technology.

▶ **09:15 - 09:45 S4B-0015 Invited Talk MICROSCOPIC ORIGIN OF INTERNAL STRESS RELAXATION IN SOFT PARTICLE GLASSES**

Roger Bonnecaze<sup>1</sup>, Lavanya Mohan<sup>1</sup>, Michel Cloitre<sup>2</sup>

<sup>1</sup>Department of Chemical Engineering, The University of Texas at Austin, Austin,

▶ **09:45 - 10:15 S4B-0016 Invited Talk FRAGILITY IN METALLIC GLASS-FORMING LIQUIDS**

K. F. Kelton<sup>1</sup>

<sup>1</sup>Department of Physics and the Institute of Materials Science and Engineering, Washington University, One Brookings Drive,

■ **10:15 - 10:30 S4B-0017 Ab INITIO STUDY OF Si DOPING EFFECTS IN Pd-Ni-P BULK METALLIC GLASS**

J. A. Reyes-Retana<sup>1</sup>, Gerardo García Naumis<sup>1</sup>

<sup>1</sup>Departamento de Física-Química, Instituto de Física, Universidad Nacional Autónoma de México (UNAM)

▶ **10:30 - 11:00 S4B-0018 Invited Talk ELASTIC PROPERTIES OF DISORDERED ISOSTATIC NETWORKS**  
C.F. Moukarzel<sup>1</sup>

<sup>1</sup>CINVESTAV Mérida

☕ 11:00 - 11:30 COFFEE BREAK

📖 11:30 - 12:30 PLENARY LECTURE

👤 Session Chair: **C. MOUKARZEL**

▶ **12:30 - 13:00 S4B-0019 Invited Talk KINETIC MONTE CARLO MODELING OF ROOM TEMPERATURE STRUCTURAL RELAXATION IN AMORPHOUS SILICON**  
J. Joly<sup>1</sup>, N. Mousseau<sup>2</sup> and S. Roorda<sup>2</sup>

<sup>1</sup>Department of Mechanical and Aerospace Engineering, Carleton University. <sup>2</sup>Département de physique, Université de Montréal,

▶ **13:00 - 13:30 S4B-0020 Invited Talk NEAR THE ONSET OF RIGIDITY IN DISORDERED NETWORKS: FROM JAMMING GRAPHS TO ANISOTROPIC RIGIDITY PERCOLATION**

J. M. Schwarz<sup>1,2</sup>

<sup>1</sup>Department of Physics, Syracuse University, Syracuse, <sup>2</sup>Syracuse Biomaterials Institute, Syracuse University,

▶ **13:30 - 14:00 S4B-0021 Invited Talk NON-EQUILIBRIUM STATISTICAL THERMODYNAMIC THEORY OF THE FORMATION OF PHYSICAL GELS AND GLASSY MATERIALS**

M. Medina-Noyola<sup>1</sup>

<sup>1</sup>Instituto de Física “Manuel Sandoval Vallarta”, Universidad Autónoma de San Luis Potosí,

✕ 14:00- 16:00 LUNCH

👤 Session Chair: **G.G. NAUMIS**

▶ **16:00 - 16:15 S4B-0022 ROTATING BENDING AND TORSION FATIGUE ENDURANCE OF AISI 6063-T5 ALUMINUM ALLOY**

Gonzalo Mariano Domínguez Almaraz<sup>1</sup> Jorge Luis. Avila Ambriz<sup>1</sup>, Julio Cesar Verduzco Juárez<sup>1</sup>, Erasmo Correa Gómez<sup>1</sup>, Renato González Bernal<sup>1</sup>

<sup>1</sup>Universidad Michoacana de San Nicolás de Hidalgo (UMSNH), Facultad de Ingeniería Mecánica.



■ **16:15 - 16:45 S4B-0023 *Invited Talk* RECENT  
DEVELOPMENT OF FUNCTIONAL CRYSTALS IN CHINA**

Jiyang Wang<sup>1</sup>

<sup>1</sup>State Key Lab. of Crystal Materials, Shandong University,  
Jinan.

■ **16:45 - 17:00 S4B-0024 MATERIAL PROPERTIES  
AND THERMOMECHANICAL PERFORMANCE OF  
PRINTED CIRCUIT BOARDS**

C. Rodríguez<sup>1,2,3</sup>, <sup>1</sup>M. Hinojosa, <sup>2</sup>L. Montes, <sup>3</sup>B. Sood, <sup>3</sup>C.  
Morillo

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, <sup>2</sup>Yazaki  
Service (MTC 2), <sup>3</sup>Center of Advanced Life Cycling  
Engineering (CALCE)

## Symposium 4C

# FRONTIERS IN PLASMONIC MATERIALS

**Cecilia Noguez** / MEXICO / Universidad Nacional Autónoma de México

**George C. Schatz** / USA / Northwestern University

**Ana L. González** / MEXICO / Benemérita Universidad Autónoma de Puebla

### ROOM: VALLARTA TUESDAY, AUGUST 18

▶ **16:00 - 16:30 S4C-0001 *Invited Talk* FIELD GRADIENT OF LOCALIZED SURFACE PLASMONS TO MANIPULATE MOLECULES**

Kei Murakoshi<sup>1</sup>

<sup>1</sup>Department of Chemistry, Hokkaido University, Japan

▶ **16:30 - 17:00 S4C-0002 *Invited Talk* SERS APPLICATIONS IN CHEMICAL BIOLOGY**

Ramon Alvarez-Puebla<sup>1</sup>

<sup>1</sup>URV-ICREA

▶ **17:00 - 17:30 S4C-0003 *Invited Talk* A FANO-LIOUVILLE MODEL FOR SERS IN SEMICONDUCTOR-MOLECULE NANOHYBRIDS**

D. Finkelstein-Shapiro<sup>(1,2,3)</sup>, I. Urdaneta<sup>(2,3,4)</sup>, M. Calatayud<sup>(2,3,5)</sup>, O. Atabek<sup>(4)</sup>, V. Mujica<sup>(1)</sup>, and A. Keller<sup>(4)</sup>

<sup>1</sup>Department of Chemistry and Biochemistry, Arizona State University. <sup>2</sup>Sorbonne Universites, UPMC Univ Paris 06, Paris, France. <sup>3</sup>CNRS, Laboratoire de Chimie, Paris, France. <sup>4</sup>Institut des Sciences Moleculaires d'Orsay, CNRS-Universit'e Paris-Sud, France. <sup>5</sup>Institut Universitaire de France, France.

### ROOM: VALLARTA WEDNESDAY, AUGUST 19

▶ **8:30 - 9:00 S4C-0004 *Invited Talk* BIO-INSPIRED PLASMONICS**

Stephan Link<sup>1</sup>

<sup>1</sup>Department of Chemistry, Department of Electrical and Computer Engineering, Laboratory for Nanophotonics, Rice University

▶ **09:00 - 09:30 S4C-0005 *Invited Talk* GOLD NANOSTRUCTURE-DECORATED TiO<sub>2</sub> NANOWIRES FOR PHOTOELECTROCHEMICAL WATER SPLITTING**

Y.C. Pu<sup>1,2</sup>, W.H. Lin<sup>1,2</sup>, G. Wang<sup>2</sup>, K.D. Chang<sup>3</sup>, Y. Ling<sup>2</sup>, R.C. Fitzmorris<sup>2</sup>, C.M. Liu<sup>3</sup>, X.H. Lu<sup>4</sup>, Y. Tong<sup>4</sup>, J. Z. Zhang<sup>2</sup>, Y.J. Hsu<sup>1</sup>, and Y. Li<sup>2</sup>

<sup>1</sup>Department of Materials Science and Engineering, National Chiao Tung University, Taiwan. <sup>2</sup>Department of Chemistry and Biochemistry, University of California, United States. <sup>3</sup>Mechanical and Systems Research Laboratories and Green Energy and Environment Research Laboratories, Industrial Technology Research Institute, Taiwan. <sup>4</sup>KLGEI of Environment and Energy Chemistry, MOE of the Key Laboratory of Bioinorganic and Synthetic Chemistry, School of Chemistry and Chemical Engineering, People's Republic of China

■ **09:30 - 09:45 S4C-0006 OPTICAL AND STRUCTURAL PROPERTIES OF SILVER AND GOLD NANOPARTICLES AS A FUNCTION OF SIZE AND TEMPERATURE**

A. L. González<sup>1</sup>, Cecilia Noguez<sup>2</sup> and A. S. Barnard<sup>3</sup>

<sup>1</sup> Instituto de Física, Benemérita Universidad Autónoma de Puebla., <sup>2</sup> Instituto de Física, Universidad Nacional Autónoma de México. <sup>3</sup> CSIRO Materials Science and Engineering, Australia

- **09:45 - 10:00 S4C-0007 LARGE AREA PLASMONIC ELECTRODES AND ACTIVE PLASMONIC DEVICES GENERATED BY ELECTROCHEMICAL PROCESSES**  
Van-Quynh Nguyen<sup>1</sup>, Delphine Schaming<sup>1</sup>, Pascal Martin<sup>1</sup> and Jean-Christophe Lacroix<sup>1</sup>

<sup>1</sup>Université Paris Diderot, Sorbonne Paris Cité, France.

- ▶ **10:00 - 10:30 S4C-0008 Invited Talk PLASMONIC RESPONSE OF NESTED NANOPARTICLES OF ARBITRARY SHAPES**

R. Esquivel-Sirvent<sup>1</sup>, R. Díaz-HR<sup>1</sup> and C. Noguez<sup>1</sup>

<sup>1</sup>Instituto de Física, UNAM,

- ▶ **10:30 - 11:00 S4C-0009 Invited Talk TUNABLE LIGHT-MATTER INTERACTION WITH QUANTUM SPILLOVER AND 2D MATERIALS**

Dafei Jin<sup>1</sup>, Anshuman Kumar<sup>1</sup>, Qing Hu<sup>1</sup>, Jun Xu<sup>1</sup>, and Nicholas X. Fang<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, Massachusetts Institute of Technology, USA

- ☞ **11:00 - 11:30 COFFEE BREAK**

- 📖 **11:30 - 12:30 PLENARY LECTURE**

- **12:30 - 12:45 S4C-0010 EXTENDED-FRESNEL FORMULAS FOR TURBID COLLOIDS**

R.G. Barrera<sup>1</sup>, Morales-Luna<sup>1</sup>, E. Gutiérrez-Reyes<sup>2</sup> and A. García-Valenzuela<sup>3</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México, Mexico. <sup>2</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, Puebla, México. <sup>3</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, Universidad Nacional Autónoma de México, Distrito Federal, México

- **12:45 - 13:00 S4C-0011 NONLOCAL DIELECTRIC EFFECTS IN CORE-SHELL NANOWIRES**

J. M. McMahon<sup>1</sup>, S. K. Gray<sup>2</sup>, and G. C. Schatz<sup>1</sup>

<sup>1</sup>Department of Chemistry, Northwestern University, USA. <sup>2</sup>Center for Nanoscale Materials, Argonne National Laboratory, USA

- **13:00 - 13:15 S4C-0012 INFRARED NONLOCAL RESPONSE OF METAL-DIELECTRIC SUPERLATTICES**

F. Pérez-Rodríguez<sup>1</sup>, N. M. Makarov<sup>1</sup>

<sup>1</sup>Benemérita Universidad Autónoma de Puebla.



**14:00- 16:00 LUNCH**

- ▶ **16:00 - 16:30 S4C-0013 Invited Talk STRUCTURE VERSUS COMPOSITION: A SINGLE PARTICLE INVESTIGATION OF SYMMETRICALLY STELLATED BIMETALLIC NANOCRYSTALS**

S. E. Skrabalak<sup>1</sup>

<sup>1</sup>Indiana University - Bloomington, Department of Chemistry, USA

- ▶ **16:30 - 17:00 S4C-0014 Invited Talk STAR-LIKE GOLD NANOPARTICLES FOR SENSING LOW CONCENTRATION MOLECULES**

Elder De la Rosa<sup>1</sup>, Leonardo Pérez-Mayen<sup>1</sup>, Andrea Ceja<sup>1</sup>, Tzarara López-Luke<sup>1</sup>

<sup>1</sup>Centro de Investigaciones en Óptica, México

- **17:00 - 17:15 S4C-0015 SIZE DEPENDCE OF ADSORPTION PROPERTIES OF METHYLTHIO ON SILVER NANOPARTICLES**

D. Becerri<sup>1</sup>, C. Noguez<sup>1</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México,

- ▶ **17:15 - 17:45 S4C-0016 Invited Talk SUPERLUMINESCENCE FROM AN OPTICALLY PUMPED MOLECULAR TUNNELING JUNCTION BY INJECTION OF PLASMON INDUCED HOT ELECTRONS**

A. J. Meixner<sup>1</sup>, K. Braun<sup>1</sup>, X. Wang<sup>1</sup>, A. M. Kern<sup>1</sup>, H. Adler<sup>1</sup>, H. Peisert<sup>1</sup>, T. Chassé<sup>1</sup>, D. Zhang<sup>1</sup>

<sup>1</sup>Institute of Physical and Theoretical Chemistry, University of Tübingen, Germany

**ROOM: TERRACE  
WEDNESDAY, AUGUST 19**

- ▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

- **S4C-P001 MATHEMATICAL ASPECTS OF RECURSIVE EFFECTIVE MEDIUM THEORIES IN LAYERED NANOPARTICLES**

R. Díaz-HR<sup>1</sup>, R. Esquivel-Sirvent<sup>1</sup>, C. Noguez<sup>1</sup>

<sup>1</sup>Instituto de Física, UNAM, México



■ **S4C-P002 NUMERICAL CALCULATIONS OF THE PLASMONIC RESPONSE OF NESTED NANOPARTICLES OF COMPLEX GEOMETRIES**

H. Batiz-G<sup>1</sup>, R. Díaz-HR<sup>1</sup>, R. Esquivel-Sirvent<sup>1</sup> and C. Noguez<sup>1</sup>

<sup>1</sup>Instituto de Física, UNAM, Mexico.

■ **S4C-P003 LIGHT SCATTERING AND SURFACE PLASMON RESONANCE OF Au-Fe<sub>3</sub>O<sub>4</sub> NANOPARTICLES**

Abraham García<sup>1</sup>, Emmanuel Jiménez<sup>2</sup>

<sup>1</sup>Universidad Nacional Autónoma de México, Instituto de Investigaciones en Materiales. <sup>2</sup>Universidad Nacional Autónoma de México, Facultad de Ciencias,

■ **S4C-P004 PROPAGATION OF ELECTROMAGNETIC WAVES IN SUPERCONDUCTOR-DIELECTRIC SUPERLATTICES**

S. Cortés-López<sup>1</sup>, F. Pérez-Rodríguez<sup>1</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla,

■ **S4C-P005 SURFACE PLASMON MODES IN 1D METALDIELECTRIC MODULATED FIBONACCI STRUCTURES**

X. I. Saldaña<sup>1</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, México.

■ **S4C-P006 EFFECTS OF SOLUTION PH ON THE SIZE AND SHAPE CONTROL OF AU NANOPARTICLES IN TURKEVICH METHOD**

J. L. Montaña-Priede<sup>1</sup>, M. Figueroa-Colón<sup>2</sup>, U. Pal<sup>1</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, Mexico. <sup>2</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, Mexico.

■ **S4C-P007 SERS DETECTION OF RHODAMINE B AND α-GLUCOSE BY USING MULTI-BRANCHED GOLD NANOSTRUCTURES IN AQUEOUS SOLUTION**

Andrea Ceja-Fdez<sup>1</sup>, Tzarara López-Luke<sup>1</sup>, Alejandro Torres-Castro<sup>2</sup>, Jin Z. Zhang<sup>3</sup> and Elder De la Rosa<sup>1</sup>

<sup>1</sup>Centro de Investigaciones en Óptica, Guanajuato, México. <sup>2</sup>Universidad Autónoma de Nuevo León, Monterrey, México. Universidad Autónoma de Nuevo León, CIDIIT-FIME, UANL, México. <sup>3</sup>Department of Chemistry and Biochemistry, University of California, USA

■ **S4C-P008 ELECTROCHEMICALLY TUNABLE PLASMON RESONANCE OF GOLD NANOPARTICLES ARRAYS**

**FUNCTIONALIZED BY CONDUCTING POLYMERS AND OLIGOMERS**

D. Schaming<sup>1</sup>, V.-Q. Nguyen<sup>1</sup>, P. Martin<sup>1</sup>, J.-C. Lacroix<sup>1</sup>

<sup>1</sup>Université Paris Diderot, Sorbonne Paris Cité, ITODYS, France.

■ **S4C-P009 DESIGN AND CHALLENGES OF A TIP-ENHANCED RAMAN SPECTROSCOPY (TERS) SYSTEM OPERATED IN ULTRA-HIGH VACUUM AND AT LOW TEMPERATURE CONDITIONS.**

C. J. Villagómez<sup>1</sup>, G. Pirruccio<sup>1</sup>, C. Noguez<sup>1</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México, México

■ **S4C-P010 PLASMONIC SENSING OF Zn(II) IONS IN AQUEOUS MEDIA USING SILVER NANOPARTICLES SYNTHESIZED BY A Ficus benjamina LEAF EXTRACT**

C. Puente<sup>1</sup>, I. López<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, UANL, Facultad de Ciencias Químicas, Laboratorio de Materiales I, Mexico.

■ **S4C-P011 NONLINEAR OPTICAL PROPERTIES AND LIGHT GUIDING IN NONLINEAR OPTICAL DEVICES BASED ON SILVER NANOPARTICLES IN SILICA**

B. Can-Uc<sup>1</sup>, R. Rangel-Rojo<sup>1</sup>, H. M'arquez<sup>1</sup>, L. Rodríguez-Fernández<sup>2</sup> and A. Oliver<sup>2</sup>

<sup>1</sup>Departamento de Óptica, Centro de Investigación Científica y de Educación Superior de Ensenada. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México, México

■ **S4C-P012 OPTICAL PROPERTIES OF SILICA OPALS DOPED WITH GOLD NANOPARTICLES**

L. A. Romero Cruz<sup>1</sup>, M. Toledo-Solano<sup>1</sup>, M. Palomino-Ovando<sup>1</sup> and E. Sanchez-Mora<sup>2</sup>

<sup>1</sup>Facultad de Ciencias Físico-Matemáticas, Benemérita Universidad Autónoma de Puebla. México. <sup>2</sup>Instituto de Física "Luis Rivera Terrazas", Benemérita Universidad Autónoma de Puebla. México.

ROOM: VALLARTA  
THURSDAY, AUGUST 20

- **09:00 - 09:30 S4C-0017 *Invited Talk* SHAPE, SIZE, AND MATERIAL DEPENDENT PLASMONIC RESONANCES OF ORDERED METALLIC NANOSTRUCTURES AND THEIR SURFACE ENHANCED RAMAN SCATTERING APPLICATIONS**

Dietrich R.T. Zahn<sup>1</sup>, R. Rodriguez<sup>1</sup>, S. Moras<sup>1</sup>, E. Sheremet<sup>2</sup>, A. Milekhin<sup>2</sup>

<sup>1</sup>Technische Universität Chemnitz, Chemnitz, Germany.

<sup>2</sup>A.V. Rzhanov Institute of Semiconductor Physics, Novosibirsk, Russia

► **09:30 - 10:00 S4C-0018 *Invited Talk* EXPLAINING FANO-LIKE RESONANCES IN THE OPTICAL REFLECTIVITY SPECTRA DURING POLYMERIC FILM-FORMATION PROCESSES**

A García-Valenzuela<sup>1</sup>, J. A. Olivares<sup>2</sup>, J. M. Galván-Miyoshi<sup>2</sup>, F. L. S. Cuppo<sup>3</sup>, F. Zaldo<sup>2</sup>, E. R. Méndez<sup>4</sup>

<sup>1</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, Universidad Nacional Autónoma de México, <sup>2</sup>Centro de Investigación en Polímeros, COMEX, México, <sup>3</sup>Centro Universitário Senac - Santo Amaro, Brasil, <sup>4</sup>División de Física Aplicada, Centro de Investigación Científica y Educación Superior de Ensenada, México.

► **10:00 - 10:30 S4C-0019 *Invited Talk* PLASMONIC DIMERS AND TRIMERS: ON THE ROLE OF GAP SIZE AND SYMMETRY**

Haran<sup>1</sup>, N. Zohar<sup>1</sup>, L. Chuntonov<sup>2</sup>

<sup>1</sup>Department of Chemical Physics, Weizmann Institute of Science, Israel. <sup>2</sup>Faculty of Chemistry, Technion-Israel Institute of Technology, Haifa, Israel

► **10:30 - 11:00 S4C-0020 *Invited Talk* FROM THE PLASMONIC PROPERTIES OF SINGLE COMPLEX SHAPE NANOPARTICLES TO THOSE OF NANOPARTICLE AGGREGATES IN SOLUTION**

Eduardo A. Coronado<sup>1</sup>

<sup>1</sup>INFIQC, Departamento de Físicoquímica, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Argentina.

📅 **11:00 - 11:30 COFFEE BREAK**

📖 **11.30 - 12:30 PLENARY**

► **12:30 - 13:00 S4C-0021 *Invited Talk* NANOOPTICS OF SUBNANOMETRIC PLASMONIC GAPS**

Javier Aizpurua<sup>1</sup>

<sup>1</sup>Center for Materials Physics (CSIC-UPV/EHU) and Donostia International Physics Center DIPC, Spain

■ **13:00 - 13:15 S4C-0022 PRINCIPAL ELECTROMAGNETIC MODES OF NEAR FIELD SCANNING OPTICAL MICROSCOPY**

Hourahine<sup>1</sup>, D. McArthur<sup>1</sup>, F. Papoff<sup>1</sup>

<sup>1</sup>Department of Physics, SUPA, University of Strathclyde, United Kingdom

■ **13:15 - 13:30 S4C-0023 COHERENT CONTROL ON LIGHT ABSORPTION AND EMISSION IN A PLASMONIC ARRAY OF NANOPARTICLES COUPLED TO A LAYER OF EMITTERS**

G. Pirruccio<sup>1</sup>, M. Ramezani<sup>1</sup>, S. R. K. Rodriguez<sup>1</sup>, J. Gomez Rivas<sup>1</sup>

<sup>1</sup>AMOLF

► **13:30 - 14:00 S4C-0024 *Invited Talk* CONTROLLING THE MOVEMENT OF PLASMONIC NANOPARTICLES WITH SWIFT ELECTRONS**

A. Reyes-Coronado<sup>1</sup>, A. Santos-Gómez<sup>2</sup>, A. L. González<sup>2</sup>, M. J. Lagos<sup>3</sup>, P. E. Batson<sup>3</sup>, R. G. Barrera<sup>4</sup>, A. Rivacoba<sup>5,6,7</sup>, P.M. Echenique<sup>5,6,7</sup>, J. Aizpurua<sup>6,7</sup>

<sup>1</sup>Facultad de Ciencias, Universidad Nacional Autónoma de México, Ciudad Universitaria, Mexico. <sup>2</sup>Instituto de Física, Universidad Autónoma de Puebla, Mexico. <sup>3</sup>Institute for Advanced Materials, Devices, and Nanotechnology, Rutgers University, Piscataway, USA. <sup>4</sup>Instituto de Física, Universidad Nacional Autónoma de México, Ciudad Universitaria, Mexico. <sup>5</sup>Universidad del País Vasco UPV/EHU, Spain. <sup>6</sup>Donostia International Physics Center DIPC, Spain. <sup>7</sup>Centro de Física de Materiales CSIC-UPV/EHU, Spain.



## Symposium 4D

# NEW TRENDS IN POLYMER CHEMISTRY AND CHARACTERIZATION

**José Alberto Olivares Lecona** / MEXICO / Centro de Investigación en Polímeros, COMEX

**Gerardo Cedillo Valverde** / MEXICO / Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México

**María del Pilar Carreón Castro** / MEXICO / Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México

**Wolfgang Bremser** / GERMANY / University of Paderborn

ROOM: MAYA I  
MONDAY, AUGUST 17

**Session Chair: JOSÉ ALBERTO OLIVARES LECONA, CENTRO DE INVESTIGACIÓN EN POLÍMEROS, COMEX**

► **09:00 - 09:30 S4D-0001 *Invited Talk* NANOMAGNETISM & MOLECULAR SCIENCE: NEXT GENERATION OF SMART SENSORS**

F. Terki<sup>1</sup>, J. Ríos<sup>1,3</sup>, S. Kamara<sup>1</sup>, Q.-H. Tran<sup>1</sup>, G. Félix<sup>1</sup>, S. Charar<sup>1</sup>, CG. Kim<sup>2</sup>, M. P. Carréon-Castro<sup>3</sup> and A. Bousseksou<sup>4</sup>

<sup>1</sup>Institut Charles Gerhardt Université de Montpellier, France, <sup>2</sup>Departments of Materials Science and Engineering, DIGIST, Daeju, Korea, <sup>3</sup>Instituto de Ciencias Nucleares, UNAM UNAM, México, <sup>4</sup>Laboratoire de Chimie de Coordination, Toulouse, France

► **09:30 - 10:00 S4D-0002 *Invited Talk* PROBING NANOSCALE DYNAMICS IN POLYMER NANOCOMPOSITES**

Rana Ashkar<sup>1,2</sup>, C. Bertrand<sup>1</sup>, M. Abdulbaki<sup>3</sup>, M. Tyagi<sup>1,2</sup>, A. Faraone<sup>1,2</sup>, P. Butler<sup>1</sup>, and R. Krishnamoorti<sup>3</sup>

<sup>1</sup>National Institute of Standards and Technology, Gaithersburg, USA. <sup>2</sup>Materials Science and Engineering Department, University of Maryland, USA. <sup>3</sup>Department of Chemical & Biomolecular Engineering, University of Houston, USA

► **10:00 - 10:30 S4D-0003 *Invited Talk* AGGREGATION STATES OF POLY(METHYL METHACRYLATE) STEREOCOMPLEX AT AIR AND WATER INTERFACES**

K. Sasahara<sup>1</sup>, M. Inutsuka<sup>1</sup>, A. Horinouchi<sup>1</sup>, K. Tanaka<sup>1,2</sup>

<sup>1</sup>Department of Applied Chemistry, Kyushu University, Japan. <sup>2</sup>International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan

► **10:30 - 11:00 S4D-0004 *Invited Talk* CHARACTERIZATION OF SIDE CHAIN DYNAMICS IN A SERIES OF POLY(BUTYL METHACRYLATE) USING PYRENE EXCIMER FLUORESCENCE. EFFECT OF PYRENE DERIVATIVE AND LINKER LENGTH**

Shiva Farhangi<sup>1</sup>, Jean Duhamel<sup>1</sup>

<sup>1</sup>Institute for Polymer Research, Waterloo Institute for Nanotechnology, Department of Chemistry, University of Waterloo, Canada.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

**Session Chair: JEAN DUHAMEL, UNIVERSITY OF WATERLOO**

► **12:30 - 13:00 S4D-0005 *Invited Talk* CHARACTERIZATION OF TWO-PHOTON ABSORPTION OF HIGHLY SYMMETRIC MOLECULES**

T. Namikawa<sup>1,2</sup>, Y. Kita<sup>3</sup>, Y. Fujiwara<sup>3</sup>, K. Kobayashi<sup>3</sup>, K. Kamada<sup>1,2</sup>

<sup>1</sup>National Institute of Advanced Industrial Science and Technology (AIST), Ikeda, Japan, <sup>2</sup>Kwansei Gakuin University, Japan, <sup>3</sup>Shizuoka University, Japan.

▶ **13:00 - 13:30 S4D-0006 Invited Talk THE USE OF GRAPHENE IN ORGANIC SOLAR CELLS (OPVS)**

J.L. Maldonado<sup>1</sup>, D. Romero-Borja<sup>1,2</sup>, E. Pérez-Gutiérrez<sup>1</sup>, O. Barbosa-García<sup>1</sup>, M. Rodríguez<sup>1</sup>, G. Ramos-Ortiz<sup>1</sup>, M.A. Meneses-Nava<sup>1</sup>, R. Fuentes-Ramírez<sup>2</sup>, G. de la Rosa<sup>2</sup>

<sup>1</sup>Centro de Investigaciones en Óptica, México. <sup>2</sup>Universidad de Guanajuato, México

▶ **13:30 - 14:00 S4D-0007 Invited Talk GUIDING DIRECTED SELF-ASSEMBLY OF HETEROGENEOUS SYSTEMS**

Alfredo Alexander-Katz<sup>1</sup>

<sup>1</sup>Massachusetts Institute of Technology.

✂ **14:00- 16:00 LUNCH**

👤 Session Chair: **JOSE LUIS MALDONADO, CENTRO DE INVESTIGACIONES EN ÓPTICA**

▶ **16:00 - 16:30 S4D-0008 Invited Talk SUPRAMOLECULAR CHEMISTRY: ENTANGLEMENTS BY DESIGN**

Harry W. Gibson<sup>1</sup>, Zhenbin Niu<sup>1</sup>, Minjae Lee<sup>1</sup>, Terry L. Price<sup>1</sup>, Jr., Daniel V. Schoonover<sup>1</sup>, Arun Murugan<sup>1</sup>, Hanlie R. Wessels<sup>1</sup> and Fiorella Mazzini<sup>1</sup>

<sup>1</sup>Department of Chemistry and Macromolecules & Interfaces Institute Virginia Tech,

▶ **16:30 - 17:00 S4D-0009 Invited Talk LIGHT-MELT ADHESIVE: PHOTOINDUCED SEPARATION OF BONDED MATERIALS**

Shohei Saito<sup>1,2</sup>, Shunpei Nobusue<sup>1</sup>, Mitsuo Hara<sup>1</sup>, Christopher Camacho<sup>1</sup>, Stephan Irlé<sup>1</sup>, Shigehiro Yamaguchi<sup>1</sup>

<sup>1</sup>Nagoya University, Furo, Chikusa, Japan. <sup>2</sup>Presto, Japan Science and Technology Agency, Japan.

▶ **17:00 - 17:30 S4D-0010 Invited Talk DESIGN OF NOVEL DENRIMERS CONTAINING PYRENE GRUPS IN THE PERIPHERY AND A CYCLEN CORE**

Cevallos<sup>1</sup>, M. Vonlanthen<sup>1</sup> and E. Rivera<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales UNAM

▶ **17:30 - 18:00 S4D-0011 Invited Talk POLYIMIDE MEMBRANES MODIFIED FOR GAS SEPARATION APPLICATIONS**

Kazukiyo Nagai<sup>1</sup>

<sup>1</sup>Department of Applied Chemistry, Meiji University, Japan

▶ **18:00 - 18:30 S4D-0012 Invited Talk MOLECULAR SPIN CROSSOVER PHENOMENON AT THE NANOSCALE**

Azzedine Bousseksou<sup>1</sup>, Gabor Molnar<sup>1</sup>, Lionel Salmon<sup>1</sup>, William Nicolazzi<sup>1</sup>

<sup>1</sup>LCC/CNRS, Toulouse, France

ROOM: TERRACE  
MONDAY, AUGUST 17

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S4D-P001 RADIATION-GRAFTING OF METHACRYLIC ACID ONTO SILICONE RUBBER TO HOST ANTISEPTIC DRUGS**

Brenda Vázquez-González<sup>1</sup>, H. Iván Meléndez-Ortiz<sup>2</sup>, Luis Díaz-Gómez<sup>3</sup>, Carmen Alvarez-Lorenzo<sup>3</sup>, Angel Concheiro<sup>3</sup>, Gerardo Cedillo<sup>4</sup>, and Emilio Bucio<sup>1</sup>

<sup>1</sup>Departamento de Química de Radiaciones y Radioquímica, Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, <sup>2</sup>Departamento de Materiales Avanzados, Centro de Investigación en Química Aplicada. <sup>3</sup>Departamento de Farmacia y Tecnología Farmacéutica, Universidad de Santiago de Compostela, Spain. <sup>4</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México.

■ **S4D-P002 LINEAR VISCOELASTIC BEHAVIOR OF AQUOUS SOLUTIONS OF CTAB / NASAL AND MULTIWALL CARBON NANOTUBES**

J. R. Aragón Guajardo<sup>1</sup>, J.R. González Martínez<sup>1</sup>, R. Gámez Corrales<sup>2</sup>, L. I. Serrano Corrales<sup>3</sup>

<sup>1</sup>Departamento de Investigación en Física, Universidad de Sonora, México, <sup>2</sup>Departamento de Física, Universidad de Sonora, México, <sup>3</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora, México.

■ **S4D-P003 INFLUENCE OF SOLVENT ON POLY(3-HEXYLTHIOPHENE)/SINGLE WALL CARBON NANOTUBE COMPOSITES FOR SOLAR CELLS APPLICATIONS**

D.C.Lima-Urzuza<sup>(1)</sup>, P.Altuzar-Coello<sup>(1)</sup>, M.E. Nicho-Díaz<sup>(2)</sup>, C. H. García-Escobar<sup>(2)</sup>, S. Escobar-Guerrero<sup>(1)</sup>, J. Campos<sup>(1)</sup>, O. Gómez-Daza<sup>(1)</sup>, G. Casarrubias<sup>(1)</sup>, R.Morán-Elvira<sup>(1)</sup>.



<sup>1</sup>Instituto de Energías Renovables-Universidad Nacional Autónoma de México. <sup>2</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas-Universidad Autónoma del Estado de Morelos.

■ **S4D-P004 SYNTHESIS AND CHEMICAL MODIFICATION OF POLY(OXINDOLTERPHENYLENE)**

Edgar Ambriz Silva<sup>1</sup>, Mikhail G. Zolotukhin<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México,

■ **S4D-P005 EVALUATION OF DIFFERENT LIQUID CRYSTALS ON PHYSICAL PROPERTIES OF NATURAL RUBBER COMPOUNDS**

F Avalos<sup>1</sup>, MM Tellez-Rosas<sup>1</sup>, ME Castañeda-Flores<sup>1</sup>, AE Ortíz-Osuna<sup>1</sup>, MA Lopez-Manchado<sup>2</sup>, R Verrejo<sup>2</sup>, JL Valentin<sup>2</sup>, R Zitzumbo-Guzman<sup>3</sup>

<sup>1</sup>Universidad Autónoma de Coahuila, México. <sup>2</sup>Instituto de C y T de Polímeros, CSIC España.

<sup>3</sup>Centro de Innovación Aplicada en Tecnologías Competitivas, México

■ **S4D-P006 FLUORESCENT ORGANIC NANOPARTICLES WITH TWO PHOTON ABSORPTION PROPERTIES FOR BIOIMAGING APPLICATIONS**

Violeta Álvarez-Venicio<sup>[a]</sup>, Mayra Lucila Melgaza-Ramírez<sup>[a]</sup>, Juan Daniel Barajas-Ramírez<sup>[a]</sup>, Rosa Santillán<sup>[b]</sup>, María Eugenia Ochoa<sup>[b]</sup>, Mario Rodríguez<sup>[a]</sup>, Gabriel Ramos-Ortiz<sup>[a]</sup>

<sup>[a]</sup> Centro de Investigación en Óptica, CIO. <sup>[b]</sup> Departamento de Química, Centro de Investigación y de Estudios Avanzados del IPN, México.

■ **S4D-P007 SYNTHESIS AND STABILIZATION OF GOLD NANOPARTICLES USING THE MACROELECTROLYTE HEXAKIS[(4-(2-ARSONYL PHENYL) IMINO) PHENOXY] CYCLOTRIPOSPHAZENE**

P.B Bocardo-Tovar<sup>1</sup>, Ana M Herrera-González<sup>2</sup> and J. Garcia-Serrano<sup>2</sup>

<sup>1</sup>Doctorado en Ciencias de los Materiales, Universidad Autónoma del Estado de Hidalgo. Ciudad del Conocimiento. Carretera. <sup>2</sup>Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo. Ciudad del Conocimiento. México.

■ **S4D-P008 SYNTHESIS AND CHARACTERIZATION OF STIMULI SENSITIVE MICRO- AND NANO- CHITOSAN HYDROGELS GRAFTED WITH N-VINYLCAPROLACTAM**

A. Cruz-Gómez<sup>1</sup>, L. García-Uriostegui<sup>2,3</sup>, A. Ortega<sup>1</sup>, G. Burillo<sup>1</sup>, T. Isoshima<sup>4</sup>

<sup>1</sup>Departamento de Química de Radiaciones y Radioquímica, Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México. <sup>2</sup>Centro Universitario de Ciencias Exactas e Ingenierías, U de G, Guadalajara, Jalisco, México. <sup>3</sup> CONACyT, <sup>4</sup> Flucto-Order Functions Research Team, RIKEN-HYU, Institute of Physical and Chemical Research, Wako, Japan.

■ **S4D-P009 SYNTHESIS OF 4TERTBUTYL,4,4' DIAMINE-TRIPHENYL-METHANE (DA-tBu), AS A MONOMER FOR POLYMERIC MEMBRANES FOR GAS SEPARTION**

Rafael-Alejandro Castro-Blanco<sup>1</sup>, Larissa Alexandrova<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México,

■ **S4D-P010 NEW POLYCARBONATE WITH HIGH TG**

Enrique Caldera Cruz<sup>1</sup>, Mikhail G. Zolotukhin<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México,

■ **S4D-P011 DIFFUSE LIGHT SCATTERING AND DIRECT INTERACTIONS BETWEEN CASEIN MICELLES DURING MILK ACIDIFICATION**

Hugo de la Cruz<sup>1</sup>, Manuel Escobedo<sup>1</sup> and Luis Rojas-Ochoa<sup>1</sup>

<sup>1</sup>Departamento de Física, Cinvestav-IPN, Mexico

■ **S4D-P012 SURFACE MODIFICATION OF AGAVE FIBERS BY ETHYLENE PLASMA AND ITS EFFECT ON THE MECHANICAL PROPERTIES OF COMPOSITES BASED POLYETHYLENE**

L. A. Calva-Nava<sup>1</sup>, F. Soriano-Corral<sup>2</sup>, E. Hernández-Hernández<sup>2</sup>, M. I. Montalvo-Sierra<sup>1</sup>, J. F. Hernández-Gamez<sup>2</sup>, P. González-Morones<sup>2</sup>, M. G. Neira-Velázquez<sup>2</sup>

<sup>1</sup>Universidad Politécnica de Pachuca (UPP). <sup>2</sup>Centro de Investigación en Química Aplicada.

■ **S4D-P013 EFFECT OF THE STRUCTURE OF THE MATRIX IN POLYMERIC COMPOSITES WITH CARBON BLACK, IN THE SENSING SOLVENTS**

E. Dehonor-Márquez<sup>1</sup>, S. Hernández-López<sup>1</sup>, E. Viguera-Santiago<sup>1</sup>, A. Ramírez-Jiménez<sup>1</sup>.

<sup>1</sup>Laboratorio de Investigación y Desarrollo de Materiales Avanzados, Facultad de Química-UAEM,

■ **S4D-P014 MICROWAVE-ASSISTED SYNTHESIS OF POLY(ETHYLENE TEREPHTHALATE)**

A. C. Espinosa-López<sup>1</sup>, C. A. Ávila-Orta<sup>1</sup>, F. J. Medellín-Rodríguez<sup>2</sup>, P. Gonzalez-Morones<sup>1</sup>, J. A. Valdez-Garza<sup>1</sup> and S. Torres-Rincón<sup>1</sup>

<sup>1</sup>Centro de Investigación en Química Aplicada. <sup>2</sup>Facultad de Ciencias Químicas, Centro de Investigación y Estudios de Posgrado,

■ **S4D-P015 PREPARATION THROUGH MELT PROCESSES AND CHARACTERIZATION OF BIONANOCOMPOSITES BASED ON STARCH AND GRAPHENE OXIDE**

F. I. Estrada-Aguilar<sup>1</sup>, C. A. Ávila-Orta<sup>2</sup>, S. Fernández-Tavizón<sup>2</sup>, U. Baños-Rodríguez<sup>1</sup>, S. G. Solís-Rosales<sup>2</sup>, J. M. Mata-Padilla<sup>2</sup>, P. González-Morones<sup>2</sup>, J. A. Rodríguez-González<sup>2</sup>, E. Hernández-Hernández<sup>2</sup>

<sup>1</sup>Universidad Politécnica de Pachuca, Carretera. <sup>2</sup>Centro de Investigación en Química Aplicada

■ **S4D-P016 GEOMETRIC OPTIMIZATION THE ACTIVATED CARBON WITH POLYPYRROLE BY MOLECULAR SIMULATION**

Y.C. Esquivel Aguilar<sup>1</sup>, J.H. Pacheco Sánchez<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Toluca.

■ **S4D-P017 TTF DERIVATIVES OF 2,5-AROMATIC DISUBSTITUTED PYRROLES, EXPERIMENTAL AND THEORETICAL STUDY**

L. Fomina<sup>1</sup>, C. León<sup>1</sup>, M. Bizarro<sup>1</sup>, A. Baeza<sup>2</sup>, V. Gómez-Vidales<sup>3</sup>, L. E. Sansores<sup>1</sup>, and R. Salcedo<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México; <sup>2</sup>Facultad de Química, Universidad Nacional Autónoma de México; <sup>3</sup>Instituto de Química, Universidad Nacional Autónoma de México,

■ **S4D-P018 INVESTIGATING UNKNOWN POLYMER MIXTURES BY DSC USING NEW "IDENTIFY" THERMOGRAM RECOGNITION SOFTWARE**

Bob Fidler<sup>1</sup>, Dr. Ekkehard Post<sup>2</sup>, Dr. Alexander Schindler<sup>2</sup>

<sup>1</sup>NETZSCH Instruments NA LLC, USA, <sup>2</sup>NETZSCH Geraetebau GmbH, Germany

■ **S4D-P019 SYNTHESIS AND CHARACTERIZATION OF UV CURABLE HYBRID ORGANIC-INORGANIC ACRYLIC-BASED COATINGS AND THEIR FUNCTIONAL PROPERTIES**

A.I. Flores-Centeno<sup>2</sup>, L. Fomina<sup>2</sup>, M. J. Cruz<sup>1</sup>

<sup>1</sup>Facultad de Química, Universidad Nacional Autónoma de México, DF, México. <sup>2</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México

■ **S4D-P020 SYNTHESIS OF NEW LUMINESCENT CONJUGATED POLYMERS VIA CLAISEN-SCHMIDT REACTION**

M.A. González-Ábreo<sup>1,2</sup>, K.A. Bustos-Torres<sup>1,2</sup>, F.A. Blanco-Flores<sup>1,2</sup>, I. Moggio<sup>3</sup>, E. Arias<sup>3</sup>, V.A. González-González<sup>1,2</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Pedro.

<sup>2</sup>Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología, México. <sup>3</sup>Centro de Investigación en Química Aplicada.

■ **S4D-P021 HYDROGELS BASED ON AGAVE TEQUILANA XYLANS FOR WOUND HEALING.**

A. González-Arreola<sup>1</sup>, A. Escalante<sup>1,2</sup>, E. Delgado<sup>1,2</sup>, F.J. González<sup>2</sup>, G. Toriz<sup>1,2</sup>

<sup>1</sup>Departamento de Ingeniería de Proyectos, Universidad de Guadalajara, José Guadalupe. <sup>2</sup>Departamento de Madera, Celulosa y Papel Universidad de Guadalajara.

<sup>3</sup>Coordinación para la Innovación y la Aplicación de la Ciencia y la Tecnología, Universidad Autónoma de San Luis Potosí, México.

■ **S4D-P022 VISCOELASTIC AND STRUCTURAL PROPERTIES CORRELATION AND MIXING MULTIWALLED CARBON NANOTUBES/CHITOSAN AQUEOUS SOLUTION**

J. R. González Martínez<sup>1</sup>, J.R. Aragón Guajardo<sup>1</sup>, R. Gámez Corrales<sup>2</sup>, L. I. Serrano Corrales<sup>3</sup>, Ana Bertha López Oyama<sup>4</sup>, M. Plascencia Jatomea<sup>5</sup>

<sup>1</sup>Departamento de Investigación en Física, Universidad de Sonora, <sup>2</sup>Departamento de Física, Universidad de Sonora.

<sup>3</sup>Departamento de Química Y Metalurgia, Universidad de Sonora, <sup>4</sup>CICATA, IPN, Tamaulipas, <sup>5</sup>DIPA, Universidad de Sonora

■ **S4D-P023 FABRICATION OF AN ORGANIC-EMITTING DIODE USING OLIGO(PHENYLENEVINYLENE) DERIVATIVES THROUGH THE LANGMUIR-BLODGETT TECHNIQUE AND ITS CHARACTERIZATION**

Baldemar Jiménez-Nava<sup>1</sup>, Violeta Álvarez-Venicio<sup>1</sup>, Jaime Octavio Guerra-Pulido<sup>2</sup>, Víctor Manuel Velazquez-Aguilar<sup>3</sup>, Vladimir A. Basiuk<sup>1</sup> and María del Pilar Carreón-Castro<sup>1</sup>

<sup>1</sup>Departamento de Química de Radiaciones y Radioquímica, Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México,

México. <sup>2</sup>Departamento de Electrónica, Facultad de Ingeniería, Universidad Nacional Autónoma de México, México. <sup>3</sup>Departamento de Física. Facultad de Ciencias, Universidad Nacional Autónoma de México.

■ **S4D-P024 OXIDATIVE CHEMICAL POLIMERIZATION OF 3,4-ETHYLENEDIOXYTIOPHENE**

F. J. González-González<sup>1</sup>, R. López-Sandoval<sup>1</sup>

<sup>1</sup>División de Materiales Avanzados, IPICYT, México



■ **S4D-P025 MECHANICAL AND FRACTOGRAPHIC CHARACTERIZATION OF WOVEN 0°- 90° EPOXY-CARBON SPECIMENS SUBJECTED TO FATIGUE MODE II FOR AERONAUTICAL APPLICATIONS.**

S. García Rivera<sup>1</sup>, J.L. González Velázquez<sup>1</sup>, M. Torres Arellano<sup>1</sup>, D. I. Rivas López<sup>1</sup>

<sup>1</sup>Grupo de Análisis de Integridad de Ductos, Escuela Superior de Ingeniería Química e Industrias Extractivas, Instituto Politécnico Nacional,

■ **S4D-P026 SYNTHESIS, CHARACTERIZATION AND OPTICAL PROPERTIES OF MESO-SUBSTITUTED BORON DIPYRROMETHENES (BODIPY)**

E. García Mackintosh<sup>1</sup>; G. Zaragoza-Galán<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Chihuahua, Facultad de Ciencias Químicas,

ROOM: MAYA I  
TUESDAY, AUGUST 18

👤 Session Chair: **MARIO GAUTHIER, UNIVERSITY OF WATERLOO**

■ **09:00 - 09:15 S4D-0013 NOOTROPIC-POLYCAPROLACTONE BLENDS FOR THE FORMULATION OF NEURAL POLYMERIC SCAFFOLD: NANO AND CRYSTALLINE STRUCTURE**

B. Alvarado-Tenorio<sup>1</sup>, A. Martínez-Martínez<sup>1</sup>, A. Díaz-Sánchez<sup>1</sup>, J. Valero-Galván<sup>1</sup>, R. González-Fernández<sup>1</sup>

<sup>1</sup>Departamento de Ciencias Químico-Biológicas, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez, Chihuahua, Mexico.

■ **09:15 - 09:30 S4D-0014 OPTICAL BIOSENSORS THAT DEGRADE AFTER USE: FATA MORGANA OR REALITY?**

G.-J. Graulus<sup>1,2</sup>, J. De Pelsmaeker<sup>1,2</sup>, S. Van Vlierberghe<sup>1,2</sup>, H. Thienpont<sup>1,2</sup>, H. Ottevaere<sup>2</sup> and P. Dubruel<sup>1</sup>

<sup>1</sup>Polymer Chemistry & Biomaterials Research Group, Department of Organic and Macromolecular Chemistry, Ghent University, Belgium. <sup>2</sup>The Brussels Photonics Team, Department of Applied Physics and Photonics, Belgium

■ **09:30 - 09:45 S4D-0015 ARBORESCENT POLYPEPTIDES FOR SUSTAINED DRUG DELIVERY**

Mosa Alsehli<sup>1</sup>, Mario Gauthier<sup>1</sup>

<sup>1</sup>Institute for Polymer Research, Department of Chemistry, University of Waterloo, Canada

■ **09:45 - 10:00 S4D-0016 ENCAPSULATION OF CURCUMIN IN PRISTINE AND GLUCOSYLATED POLY(ETHYLENE OXIDE)-b-POLY (PROPYLENE OXIDE) POLYMERIC MICELLES IMPROVES THE ANTITUMORAL EFFICACY IN VITRO AND THE UPTAKE IN VIVO**

Nicole Lecot<sup>1</sup>, Romina Glisoni<sup>2</sup>, Natalia Oddone<sup>3</sup>, Marcelo Fernandez<sup>1</sup>, Juan Pablo Gambini<sup>1</sup>, Pablo Cabral<sup>1</sup>, Alejandro Sosnik<sup>4</sup>

<sup>1</sup>Laboratory of Radiopharmacy, Nuclear Research Center, Faculty of Science, Universidad de la República, Montevideo, Uruguay. <sup>2</sup>Department of Pharmaceutical Technology, Faculty of Pharmacy and Biochemistry, University of Buenos Aires, Buenos Aires, Argentina. <sup>3</sup>Laboratory of Cell Signalling and Nanobiology, Inst. of Biological Research Clemente Estable, Montevideo, Uruguay. <sup>4</sup>Department of Materials Science and Engineering, Technion-Israel Institute of Technology, Haifa, Israel

▶ **10:00 - 10:30 S4D-0017 Invited Talk BIO-INSPIRED LUBRICATION: A BOTTLE-BRUSH APPROACH**

Xavier Banquy<sup>1</sup>

<sup>1</sup>Canadian Chair in bio-inspired materials, Faculty of Pharmacy, Université de Montréal. Centre Ville, Montréal, Québec, Canada.

▶ **10:30 - 11:00 S4D-0018 Invited Talk CHEMICAL MODIFICATION OF CELLULOSE WITH ZWITTERIONIC MOIETIES AND THEIR EVALUATION BY SOLID STATE NMR (ssNMR)**

R. Manríquez-González<sup>1</sup>, N. B. Haro-Mares<sup>1</sup>, I. G. Shenderovich<sup>2</sup>, J. C. Meza-Conreras<sup>1</sup>, Y. González-García<sup>1</sup> and F. A. López-Dellamary Toral<sup>1</sup>

<sup>1</sup>Departamento de Madera, Celulosa y Papel, CUCEI, Universidad de Guadalajara, México. <sup>2</sup>Faculty of Chemistry and Pharmacy, University of Regensburg, Germany.

☕ 11:00 - 11:30 COFFEE BREAK

📖 11:30 - 12:30 PLENARY LECTURE

👤 Session Chair: **ALEJANDRO SOSNIK, TECHNION: ISRAEL INSTITUTE OF TECHNOLOGY**

▶ **12:30 - 13:00 S4D-0019 Invited Talk SEQUENTIAL REFINING OF LIGNIN STRUCTURAL SEGMENTS FOR FUNCTIONAL UTILIZATION - ORIGINAL TECHNOLOGY AND INDUSTRIAL APPROACH IN JAPAN -**

Masamitsu Funaoka<sup>1</sup>



<sup>1</sup>Graduate School of Bioresources, Mie University, Kurimamachiya, Japan.

▶ **13:00 - 13:30 S4D-0020 Invited Talk** **MAGNETIC MICELLES AS THERAPY AND DIAGNOSTIC (THERANOSTIC) AGENTS**

Mario Gauthier<sup>1</sup>, An Vo Thu Nguyen<sup>1,2,3</sup>, Marie-Claire De Pauw-Gillet<sup>2</sup>, Olivier Sandre<sup>3</sup>

<sup>1</sup> Institute for Polymer Research, Department of Chemistry, University of Waterloo, Canada. <sup>2</sup> Groupe Interdisciplinaire de Génoprotéomique Appliquée (GIGA), Université de Liège, Belgium. <sup>3</sup> Laboratoire de Chimie des Polymères Organiques (LCPO), Université de Bordeaux/CNRS, France

▶ **13:30 - 14:00 S4D-0021 Invited Talk** **SPONTANEOUS POLAR MOLECULAR ORIENTATION IN ORGANIC AMORPHOUS THIN FILM: INFLUENCE OF SURFACE ROUGHNESS**

T. Isoshima<sup>1</sup>

<sup>1</sup>RIKEN, 2-1 Hirosawa, Wako, Japan.

✂ **14:00- 16:00 LUNCH**

👤 Session Chair: **RICARDO MANRÍQUEZ GONZÁLEZ, UNIVERSIDAD DE GUADALAJARA**

▶ **16:00 - 16:30 S4D-0022 Invited Talk** **IN SILICO DESIGN OF MOLECULAR RECOGNITION AGENTS - FROM DRUG DELIVERY TO SUBSTITUTION AGENTS IN DNA**

J. Barroso-Flores<sup>1</sup>, M. E. Sandoval-Salinas<sup>1</sup>, R. Galindo-Murillo<sup>2</sup>

<sup>1</sup> Centro Conjunto de Investigación en Química Sustentable UAEM - UNAM. Mexico. <sup>2</sup> Department of Medicinal Chemistry, College of Pharmacy, University of Utah, United States

▶ **16:30 - 17:00 S4D-0023 Invited Talk** **SPRAY-DRYING VERSUS ELECTROHYDRODYNAMIC ATOMIZATION FOR THE ENCAPSULATION OF WATER SOLUBLE DRUGS**

A Sosnik<sup>1</sup>

<sup>1</sup>Laboratory of Pharmaceutical Nanomaterials Science, Department of Materials Science and Engineering, Technion-Israel Institute of Technology, Haifa, Israel

▶ **17:00 - 17:30 S4D-0024 Invited Talk** **SYNTHESIS AND CHARACTERIZATION OF SOLUBLE POLY (GLYCEROL SEBACATE)**

**R Vera—Graziano**<sup>1</sup>, **A Monroy Brera**<sup>1</sup>, **R Montiel-Campos**<sup>2</sup>, **A Maciel—Cerde**

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México, DF. <sup>2</sup>División de Ciencias Básicas, Universidad Autónoma Metropolitana, México, DF

▶ **17:30 - 18:00 S4D-0025 Invited Talk** **THERMO- AND RADIOLOGICAL-MECHANICAL CHARACTERIZATION OF A PRESSURIZED NYLON-BASED SYSTEM**

Michael E. Courmoyer<sup>1</sup>

<sup>1</sup>Los Alamos National Laboratory, United States of America

■ **18:00 - 18:15 S4D-0026 OBTAINING OF S-N DIAGRAMS FOR EPOXY-CARBON SPECIMENS WITH MANUFACTURING DEFECTS**

S. García Rivera<sup>1</sup>, J.L. González Velázquez<sup>1</sup>, M. Torres Arellano<sup>1</sup>, D. I. Rivas López<sup>1</sup>

<sup>1</sup>Grupo de Análisis de Integridad de Ductos, Escuela Superior de Ingeniería Química e Industrias Extractivas, Instituto Politécnico Nacional,

■ **18:15 - 18:30 S4D-0027 MESOSCALE NONCOVALENT POLYMER OF A DNA NUCLEOSIDE ANALOGUE**

J. Wang,<sup>1</sup> P.V. Bonnesen,<sup>1</sup> E. Rangel,<sup>4</sup> E. Vallejo,<sup>4</sup> A. Sanchez-Castillo,<sup>4</sup> H. J. Cleaves II,<sup>3</sup> A. P. Baddorf,<sup>1</sup> B. G. Sumpter,<sup>1,2</sup> M. Pan,<sup>1</sup> P. Maksymovych,<sup>1</sup> M. Fuentes-Cabrera<sup>1,2</sup>

<sup>1</sup>Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, USA, <sup>2</sup>Computer Science and Mathematics Division, Oak Ridge National Laboratory, USA, <sup>3</sup>Center for Chemical Evolution, Georgia Institute of Technology, Atlanta, USA, <sup>4</sup>Escuela Superior de Apan, Universidad Autónoma del Estado de Hidalgo, México

**ROOM: TERRACE  
TUESDAY, AUGUST 18**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S4D-P027 AFM STUDY OF THE TOPOGRAPHY AND VOLUME CHANGE OF SPIN CROSSOVER MATERIALS**

Edna M. Hernández<sup>1</sup>, Sylvestre Bonnet<sup>2</sup>, Christian Bergaud<sup>3</sup> Lionel Salmon<sup>1</sup>, Gábor Molnár<sup>1</sup>, Azzedine Bousseksou<sup>1</sup>

<sup>1</sup>LCC, CNRS & Université de Toulouse (UPS, INP), France.

<sup>2</sup>Universiteit Leiden Gorlaeus Laboratories, Netherlands.

<sup>3</sup>LAAS, CNRS & Université de Toulouse (UPS, INSA, ISAE), France



■ **S4D-P028 SYNTHESIS VIA MICROWAVE OF PAMAM DENDRIMERS WITH PORPHYRIN CORE AND THEIR METAL-CHELATING BEHAVIOR**

R. Hernández<sup>1</sup>, I. Lijanová<sup>1</sup>, N. Likhanova<sup>2</sup>, O. Olivares<sup>3</sup>, M. Martínez<sup>4</sup>

<sup>1</sup>Instituto Politécnico Nacional, CIITEC, México. <sup>2</sup>Instituto Mexicano del Petróleo, Dirección de Investigación y Posgrado, México. <sup>3</sup>Benemérita Universidad Autónoma de Puebla, Facultad de Ingeniería Química, México. <sup>4</sup>Universidad Nacional Autónoma de México, Instituto de Química, Ciudad Universitaria, México.

■ **S4D-P029 PROCESSING AND CHARACTERIZATION OF FOAMS COMPOSITES FROM MIXTURES OF RECYCLED POLYMERS AND NATURAL FIBERS**

Jorge Daniel Inga Lafebre<sup>1</sup>, Rubén González Núñez<sup>1</sup>, Rosa M. Jiménez Amezcua<sup>1</sup>, Denis Rodrigue<sup>2</sup>, Milton O. Vázquez Lepe<sup>3</sup>.

<sup>1</sup>Departamento de Ingeniería Química, <sup>2</sup>Département de Génie Chimique, <sup>3</sup>Departamento de Ingeniería de Proyectos. <sup>1,2</sup>Universidad de Guadalajara, Centro Universitario de Ciencias Exactas e Ingenierías, México. <sup>3</sup>Université Laval, Québec City, Canada.

■ **S4D-P030 PREPARATION OF HIGHLY EMISSIVE, THERMALLY STABLE, UV-CURED POLYSILSESQUIOXANE/ZINC OXIDE NANOPARTICLE COMPOSITES**

H. Jeon<sup>1,2</sup>, A. Lee<sup>1</sup>, H. J. Kim<sup>1</sup>, S. -H. Cho<sup>1,2</sup>, K.Y. Baek<sup>1,2</sup>, and S.S. Hwang<sup>1,2</sup>

<sup>1</sup>Korea Institute of Science and Technology, Materials Architecturing Research Center, Seongbuk Gu, Korea. <sup>2</sup>Nanomaterials Science and Engineering, University of Science and Technology, Korea,

■ **S4D-P031 SYNTHESIS AND CHARACTERIZATION OF HYBRID GEL POLYMER ELECTROLYTES BASED ON LADDER-LIKE POLYSILSESQUIOXANES**

A. Lee<sup>1</sup>, J.H. Lee<sup>1</sup>, H. Jeon<sup>1</sup>, Y.Y. Jo<sup>1</sup>, S.M. Hong<sup>1</sup>, S.S. Hwang<sup>1</sup>, and C.M. Koo<sup>1</sup>

<sup>1</sup>Korea Institute of Science and Technology, Materials Architecturing Research Center, Seongbuk Gu, Seoul, Korea.

■ **S4D-P032 NANOSTRUCTURED LB FILMS DEVELOPED FROM POLY (p-ACRYLOYLAMINOPHENYLMETHYLPHOSPHONIC) ACID**

R.E. Lazo-Jiménez<sup>1</sup>, J. A. Chávez-Carvayar<sup>2</sup>, A.M. Herrera-González<sup>3</sup>, V. Islas-Pérez<sup>4</sup>, M.P. Carreón-Castro<sup>1</sup>

<sup>1</sup>Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México. <sup>2</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México.

<sup>3</sup>Universidad Autónoma del Estado de Hidalgo. <sup>4</sup>FES-Zaragoza-UNAM, México D. F.

■ **S4D-P033 FUNGUS PROLIFERATION IN POWER CABLE OF THE C.T.G. CHANKANAAB**

K. Martínez-Juárez<sup>1</sup>, F. Bravo-Barrera<sup>1</sup>, A. Rabago-Medina<sup>1</sup>

<sup>1</sup>Laboratorio de Pruebas a Equipos y Materiales (LAPEM-CFE). Subgerencia de Servicio a Generación, Oficina de Mecánica y Materiales

■ **S4D-P034 KINETICS OF DISCOLORATION OF DENTAL RESTORATIVE COMPOSITES**

D. Manojlovic<sup>1</sup>, M. Antonov<sup>2</sup>, B. Milicevic<sup>2</sup>, L. Lenhardt<sup>2</sup>, M.D. Dramicanin<sup>2</sup>

<sup>1</sup>University of Belgrade, School of Dental Medicine, Rankeova 4, Belgrade, Serbia. <sup>2</sup>University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade, Serbia.

■ **S4D-P035 SYNTHESIS AND CHARACTERIZATION OF NEW MATERIALS WITH PYRROL UNITS AND THEIR SEMICONDUCTOR BEHAVIOR**

O. Monroy<sup>1</sup>, L. Fomina<sup>1</sup>, R. Salcedo<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México,

■ **S4D-P036 DEVELOPMENT OF SYMMETRIC (A4) AND ASYMMETRIC (A3B) MESO-SUBSTITUTED PORPHYRINS AS POTENTIAL ORGANIC SOLAR CELLS SENSITIZERS**

M. Miranda-Trujillo<sup>1</sup>, G. Zaragoza-Galán<sup>1</sup>

<sup>1</sup>Universidad Autónoma De Chihuahua, Facultad de Ciencias Químicas,

■ **S4D-P037 EFFECTS OF AN INTERFACIAL REACTION ON THERMAL STABILITY AND NONCOMBUSTIBILITY OF POLYPROPYLENE/POLY(ETHERSULFONE)**

Hideko T. Oyama<sup>1</sup>, Kazuaki Takase<sup>1</sup>, Motonobu Furuta<sup>1</sup>

<sup>1</sup>Department of Chemistry, College of Science, Rikkyo University, Tokyo, Japan

■ **S4D-P038 SUPERFICIAL AND ELECTRICAL CHARACTERIZATION OF THIN FILMS BASED ON CHITOSAN/POLYPYRROLE/MWCNT**

A. Olarte-Paredes<sup>1</sup>, R. Salgado-Delgado<sup>2,3</sup>, A. M. Salgado-Delgado<sup>2</sup>, E. Rubio-Rosas<sup>4</sup>, E. García-Hernández<sup>2,3</sup>, Z. Vargas-Galarza<sup>2,3</sup>.

<sup>1</sup>Instituto Tecnológico de Zacatepec, Departamento de Metal-Mecánica, México. <sup>2</sup>Instituto Tecnológico de

Zacatepec, Departamento de Ingeniería Química y Bioquímica, México. <sup>1</sup>Instituto Tecnológico de Zacatepec, División de estudios de Posgrado. <sup>4</sup>CUVYT - Benemérita Universidad Autónoma de Puebla,

■ **S4D-P039 ONE-POT SYNTHESIS OF NEW FLUORINATED SEMI-LADDER POLYMERS**

L. I. Olvera<sup>1</sup>, M. G. Zolotukhin<sup>2</sup>

<sup>1,2</sup> Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México

■ **S4D-P040 COMPARATIVE STUDY ON THE PREPARATION OF POLY(VINYL ACETATE) ACTIVATED BY MICROWAVE AND CONVENTIONAL HEATING**

J. Olvera-Mancilla<sup>1</sup>, L. Alexandrova<sup>1</sup>, and J. Palacios-Alquisira<sup>2</sup>

<sup>1</sup> Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. <sup>2</sup> Laboratorio de Físicoquímica Macromolecular, Posgrado Facultad de Química, Universidad Nacional Autónoma de México, México.

■ **S4D-P041 SYNTHESIS OF A RESPONSIVE SYSTEM OF N-VINYLCAPROLACTAM AND DIMETHYLACRYLAMIDE GRAFTED ONTO CHITOSAN HYDROGEL BY GAMMA RADIATION**

M. P. Pérez-Calixto<sup>1</sup>, A. Ortega<sup>1</sup>, G. Burillo<sup>1</sup>

<sup>1</sup>Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, México

■ **S4D-P042 SYNTHESIS AND CHARACTERIZATION OF NOVEL DENDRITIC MOLECULES BEARING DONOR-ACCEPTOR GROUPS (PYRENE-BODIPY)**

Pasquale Porcu<sup>1</sup>, Mireille Vonlanthen<sup>1</sup>, G. Zaragoza-Galán<sup>2</sup> and Ernesto Rivera<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. <sup>2</sup>Facultad de Química, Universidad Autónoma de Chihuahua

■ **S4D-P043 ADHESIVE PROPERTIES OF GRAPHENE OXIDE-ACRYLIC FILMS FROM LATEXES OBTAINED IN SEMICONTINUOUS EMULSION POLYMERIZATION**

V.M. Padilla<sup>1</sup>, R. Ledezma<sup>1</sup>, B.E. Reyes<sup>1</sup>, M.E. Treviño<sup>1</sup>

<sup>1</sup> Centro de Investigación en Química Aplicada,

■ **S4D-P044 SYNTHESIS OF NEW URETHANE-BASED DENDRIMERS BEARING PYRENE UNITS FOR POTENTIAL ENERGY CONVERSION DEVICES**

Andrea Ruiu<sup>1</sup> and Ernesto Rivera<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales UNAM

■ **S4D-P045 SYNTHESIS OF NANOSTRUCTURED POLYACRYLAMIDE HYDROGELS WITH DIFFERENT PARTICLE SIZES. SWELLING AND MECHANICAL PROPERTIES.**

A. G. Alvarado<sup>1</sup>, M. Arellano<sup>1</sup>, M. Rabelero<sup>1</sup>, I. Ceja<sup>1</sup>, E. Mendizabal<sup>1</sup>, J. E. Puig<sup>1</sup> and J.C. Sánchez-Díaz<sup>1</sup>

<sup>1</sup>Departamentos de Ingeniería Química, Química y Física, Universidad de Guadalajara, Mexico.

■ **S4D-P046 SURFACE TREATMENT OF EPOXY RESIN FOR IMPROVEMENT IN ADHESION OF ELECTROLESS NICKEL PLATING**

K. Ogura<sup>1</sup>, E. Takada<sup>1</sup>, M. Shibata<sup>1</sup>

<sup>1</sup>University of Yamanashi, Takeda, Japan

■ **S4D-P047 PREPARATION AND CHARACTERIZATION MECHANICAL OF LDPE/SUGARCANE LEAF COMPOSITES OBTAINED BY INJECTION MELTING**

A. M. Salgado-Delgado<sup>1</sup>, R. Salgado-Delgado<sup>1,2</sup>, A. Olarte-Paredes<sup>3</sup>, R.C. Cardenas-Valdez<sup>4</sup>, R. Real-Palencia<sup>5</sup>

<sup>1</sup> Departamento Ing. Química y Bioquímica/Instituto Tecnológico de Zacatepec, México. <sup>2</sup> División de Estudios de Posgrado e Investigación/Instituto Tecnológico de Zacatepec, México. <sup>3</sup> Departamento Metal-Mecánica/Instituto Tecnológico de Zacatepec, México.

<sup>4</sup> Departamento Ing. Industrial/Instituto Tecnológico de Zacatepec, México. <sup>5</sup> Departamento Ing. en Sistemas Computacionales/Instituto Tecnológico de Zacatepec, México

■ **S4D-P048 PREPARATION AND CHARACTERIZATION OF UV-CURED EPOXY/CLAY NANOCOMPOSITE COATINGS ON CARBON STEEL**

J.L. Varela-Caselis<sup>1</sup>, M. Morales-Sanchez<sup>2</sup>, E. Rubio-Rosas<sup>1</sup>.

<sup>1</sup>Centro Universitario de Vinculación y Transferencia de Tecnología/Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Facultad de Ingeniería Química/Benemérita Universidad Autónoma de Puebla, México.

■ **S4D-P049 THE USE OF NANOCLAY IN PREPARATION OF EPOXY ANTICORROSIVE COATINGS ON CARBON STEEL**

M.A. Juárez-Estrada<sup>1</sup>, E. Rubio-Rosas<sup>2</sup>, M. Morales-Sanchez<sup>1</sup>, J.L. Varela-Caselis<sup>2</sup>.

<sup>1</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla. <sup>2</sup>Centro Universitario de Vinculación y Transferencia de Tecnología, Benemérita Universidad Autónoma de Puebla,



■ **S4D-P050 DOPING A PYRROLE MOLECULE BY A LINEAR ARRANGEMENT PERPENDICULAR TO THE PLANE OF IODINE PYRROLE**

A.Valenzuela-Hermosillo<sup>1</sup>, J.Pacheco-Sanchez<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Toluca,

■ **S4D-P051 PREPARATION OF NYLON 4 MICROSPHERES VIA HETEROGENEOUS POLYMERIZATION OF 2-PYRROLIDONE IN A PARAFFIN OIL CONTINUOUS PHASE**

N. C. Kim<sup>1</sup>, D. H. Lee<sup>1</sup>, H. C. Cho<sup>2</sup>, B. H. Baek<sup>2</sup>, Y. J. Kim<sup>1</sup>

<sup>1</sup>School of Chemical Engineering, Sungkyunkwan University, Suwon, Korea. <sup>2</sup>Fundamental Technology R&D Group, Central Research Park, Kolon Industries, Gumi, Korea

■ **S4D-P052 MODULATED DSC AND ITS UTILITY IN THE CHARACTERIZATION OF A NOVEL POLYCARBONATE.**

Damaris Cabrero<sup>1</sup>, Enrique Caldera<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México.

ROOM: MAYA I  
WEDNESDAY, AUGUST 19

👤 Session Chair: **MARÍA DEL PILAR CARREÓN CASTRO, INSTITUTO DE CIENCIAS NUCLEARES**

■ **09:00 - 09:15 S4D-0028 FLUORESCENT MOLECULAR ROTORS WITH COMPLEX ROTATORS: PHOTOPHYSICAL PROPERTIES AND SOLID-STATE CHARACTERIZATION**

Rafael Arcos-Ramos<sup>1</sup>, Rosa Santillan<sup>2</sup>, Norberto Farfán<sup>3</sup>, María del Pilar Carreón-Castro<sup>1</sup>

<sup>1</sup>Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, México. <sup>2</sup>Centro de Investigación y Estudios Avanzados del IPN, México, D.F. México. <sup>3</sup>Facultad de Química, Universidad Nacional Autónoma de México, México.

■ **09:15 - 09:30 S4D-0029 CHEMICAL MODIFICATION OF CARBONYL-CONTAINING CONJUGATED POLYMERS AND ITS EFFECT ON OPTOELECTRONIC PROPERTIES**

M.A. González-Ábrego<sup>1,2</sup>, I. Moggio<sup>3</sup>, E. Arias<sup>3</sup>, V.A. González-González<sup>1,2</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, México. <sup>2</sup>Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología, México. <sup>3</sup>Centro de Investigación en Química Aplicada, México

■ **09:30 - 09:45 S4D-0030 RuII COMPLEXES BEARING STRONGLY BOUND AND LABILE LIGANDS FOR "LIVING"/CONTROLLED RADICAL POLYMERIZATION OF HYDROPHOBIC MONOMERS**

Mendoza Aquino<sup>1</sup>, M. García Vargas<sup>1</sup>, C. O. Oliva Colunga<sup>2</sup>, C. Aguilar Lugo<sup>1</sup>, R. Le Lagadec<sup>2</sup>, L. Alexandrova<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, <sup>2</sup>Instituto de Química, Universidad Nacional Autónoma de México, México

■ **09:45 - 10:00 S4D-0031 ON THE APPLICABILITY OF SMOLUCHOWSKI EQUATION FOR DESCRIBING BROWNIAN MOTION IN DIFFUSION-CONTROLLED PROCESSES**

J. Herrera-Ordóñez<sup>1</sup>, D. Victoria-Valenzuela<sup>2</sup>

<sup>1</sup>Grupo de Polímeros y Biopolímeros. Centro de Investigación y Estudios Avanzados (CINVESTAV) del Instituto Politécnico Nacional (IPN), México. <sup>2</sup>Departamento de Procesos de Polimerización. Centro de Investigación en Química Aplicada (CIQA), México

■ **10:00 - 10:15 S4D-0032 MODELLING THE COMPLETE MOLECULAR WEIGHT DISTRIBUTION IN CHAIN GROWTH POLYMERIZATIONS**

Ramiro Infante-Martínez<sup>1</sup>, Enrique Saldívar-Guerra<sup>1</sup>, Odilia Pérez-Camacho<sup>1</sup>, Víctor Comparán García<sup>1</sup>, Maricela García-Zamora<sup>1</sup>

<sup>1</sup>Centro de Investigación en Química Aplicada. México

■ **10:15 - 10:30 S4D-0033 CHARACTERIZATION AND EVALUATION OF POLYMERIC MEMBRANES BASE POLYSULFONE AND GRAPHENE OXIDE, SYNTHESIZED BY ELECTROSPINNING METHODE FOR PURICATION OF WATER**

Y. Aguilar<sup>1</sup>, V. Barrios<sup>1</sup>, J. Lambert<sup>2</sup>, M. Meléndez<sup>3</sup>

<sup>1</sup>Instituto Potosino de Investigación Científica y Tecnológica, México. <sup>2</sup>CIATEC, A.C. México. <sup>3</sup>CINVESTAV-IPN, México.

■ **10:30 - 10:45 S4D-0034 EVALUATION OF FOUR CURING AGENTS OF EPOXY RESIN AND THEIR EFFECTS ABOVE THEIR THERMAL AND MECHANICAL PROPERTIES**

Aida E. García Valdez<sup>1</sup>, Ricardo Acosta Ortiz<sup>1</sup>, Lydia Berlanga Duarte<sup>1</sup>, Jorge F. Espinosa<sup>1</sup>, Lourdes Guillén<sup>1</sup>

<sup>1</sup>Centro de Investigación en Química Aplicada(CIQA),

■ **10:45 - 11:00 S4D-0035 ULTRASONIC SYNTHESIS OF STARCH NANOPARTICLES**

A. Velázquez<sup>1</sup>, A. Luría<sup>2</sup>, B.E. Reyes<sup>1</sup>, E.A. Ramírez<sup>3</sup>, M.L. Berlanga<sup>1</sup>, A.E. García<sup>1</sup>, C.J. Espinoza<sup>1</sup>, L.E. Elizalde<sup>1</sup>, M.E. Treviño<sup>1</sup>

<sup>1</sup> Centro de Investigación en Química Aplicada, México. <sup>2</sup> Universidad Veracruzana, Facultad de Ciencias Químicas, México. <sup>3</sup> Nanoingredientes Bioactivos, S.A. de C.V. México.

☞ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **JOSÉ ALBERTO OLIVARES LECONA, CENTRO DE INVESTIGACIÓN EN POLÍMEROS, COMEX**

▶ **12:30 - 13:00 S4D-0036 Invited Talk FUNCTIONAL NANOSTRUCTURES FROM DNA**

A. Keller<sup>1</sup>

<sup>1</sup>Nanobiomaterials group, Technical and Macromolecular Chemistry, University of Paderborn, Germany

▶ **13:00 - 13:30 S4D-0037 Invited Talk POTENTIAL OF NON-COVALENTLY CROSSLINKED POLYMERIC MICELLES AS MORE VERSATILE NANO-DRUG DELIVERY SYSTEMS**

Alejandro Sosnik<sup>1</sup>

<sup>1</sup>Laboratory of Pharmaceutical Nanomaterials Science, Department of Materials Science and Engineering, Technion-Israel Institute of Technology, Haifa, Israel

▶ **13:30 - 14:00 S4D-0038 Invited Talk REINFORCED TRANSPARENT POLYMER WITH CORE-SHELL STRUCTURED CERAMIC NANO-PARTICLES**

Anand K Tyagi and Neha Narang<sup>1</sup>

<sup>1</sup>S.B.S. State Technical Campus (An Establishment of Punjab Govt.), (India).

☒ **14:00- 16:00 LUNCH**

S-4D



## Symposium 4E

# POWDER PROCESSING, SINTERING & CONSOLIDATION TECHNOLOGIES

**Sebastián Díaz de la Torre** / MEXICO / Centro de Investigación e Innovación Tecnológica CIITEC-IPN

**Ladislav Celko** / CZECH REPUBLIC / CEITEC - Central European Institute of Technology

**Henning Zoz** / GERMANY / Zoz GmbH

### ROOM: CHICHEN ITZA II MONDAY, AUGUST 17

 Session Chair: **SEBASTIÁN DÍAZ DE LA TORRE** (CIITEC-IPN, MEXICO)

■ **08:30 - 08:45 S4E-0001 MECHANICS OF INTERFACE CONTROLLED METALS AND ALLOYS ON THE NANOSCALE**

Hans J. Fecht<sup>1</sup>

<sup>1</sup>University of Ulm, Institute of Micro and Nanomaterials, Germany

■ **09:00 - 09:15 S4E-0002 METAL-OXIDE GAS SENSORS FOR BREATH ANALYZES AND EARLY DETECTION OF DISEASES**

R. Maric<sup>1</sup>, J. Roller<sup>2</sup>, and R. Jain<sup>1</sup>

<sup>1</sup>University of Connecticut, USA. <sup>2</sup>FEI, USA

■ **09:15 - 09:30 S4E-0003 INNOVATION IN MATERIALS AND PROCESSES - HOW TO CHANGE A GOOD IDEA INTO A GOOD PRODUCT**

Henning Zoz<sup>1</sup>

<sup>1</sup>Zoz Group, Maltz Strasse, Germany.

■ **09:30 - 09:45 S4E-0004 SYNTHESIS OF AL-CE NANOPHASES AND THEIR DISPERSION IN A 2024 ALUMINUM ALLOY**

F.J. Baldenebro-Lopez<sup>1,2</sup>, R. Corral-Higuera<sup>2</sup>, C.D. Gómez-Esparza<sup>1</sup> and R. Martínez-Sánchez<sup>1</sup>

<sup>1</sup> Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología. <sup>2</sup> Facultad de Ingeniería Mochis, Universidad Autónoma de Sinaloa.

■ **09:45 - 10:00 S4E-0005 SYNTHESIS BY MECHANICAL ALLOYING OF BULK METALLIC GLASSES TO Cu-Zr AND Cu-Zr-Ni SYSTEMS**

Paula Rojas<sup>1</sup>, Carola Martínez<sup>1</sup>, Carlos Medina<sup>2</sup>, Claudio Aguilar<sup>2</sup>, Danny Guzmán<sup>3</sup>.

<sup>1</sup>Universidad Adolfo Ibáñez, Chile, <sup>2</sup>Universidad Tecnológica Federico Santa María, Chile, <sup>3</sup>Universidad de Atacama, Chile,

■ **10:00 - 10:15 S4E-0006 OPTIMIZED SYNTHESIS OF A NANOSTRUCTURED AL ALLOY MODIFIED WITH FE BY HIGH ENERGY BALL MILLING.**

A. Rodríguez-Díaz<sup>2,3</sup>, A. Sedano<sup>1</sup>, A. Molina<sup>1</sup>, S. Serna<sup>1</sup>, S. R. Gonzaga<sup>1</sup>.

<sup>1</sup>Universidad Autónoma del Estado de Morelos-C.I.I.C.A, México. <sup>2</sup>Universidad Politécnica del Estado de Morelos.

<sup>3</sup>Instituto de Investigaciones en Materiales-UNAM, México.

■ **10:15 - 10:30 S4E-0007 MODELING THE CRYSTALLITE SIZE OF COPPER, NIQUEL AND CU-NI ALLOY SYNTHESIZED BY HIGH ENERGY MILLING**

Francisco Briones<sup>1</sup>, Paula Rojas<sup>2</sup>, Carola Martínez<sup>2</sup>, Claudio Aguilar<sup>1</sup>, Hugo Briceño<sup>3</sup>

<sup>1</sup>Universidad Tecnológica Federico Santa María, Chile, <sup>2</sup>Universidad Adolfo Ibáñez, Chile, <sup>3</sup>Pontificia Universidad Católica de Valparaíso, Chile

■ **10:30 - 10:45 S4E-0008 MECHANICAL ALLOYING AND HOT PRESSING OF PURE Cu AND BINARY COPPER ALLOYS (Cu-Ni AND Cu-Zr)**

C. Medina<sup>1</sup>, P.A. Rojas<sup>2</sup>, C. Martínez<sup>2</sup>, C. Aguilar<sup>1</sup>, D. Guzmán<sup>3</sup>

<sup>1</sup>Universidad Técnica Federico Santa María, Chile.

<sup>2</sup>Universidad Adolfo Ibañez, Chile. <sup>3</sup>Universidad de Atacama, Chile

■ **10:45 - 11:00 S4E-0009 EFFECTS OF THE INPUT GRANULOMETRY ON MILLING PROCESS IN HIGH-SPEED DISINTEGRATOR**

K. Dvořák<sup>1</sup>, P. Dobrovolný<sup>1</sup>, D. Gazdič<sup>1</sup>, S. Díaz de la Torre<sup>2</sup>

<sup>1</sup>Brno university of technology, Faculty of civil engineering, Czech Republic. <sup>2</sup>Centro de Investigación e Innovación

Tecnológica CIITEC – IPN.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: HENNING ZOZ (ZOX GROUP, GERMANY)**

■ **12:30 - 12:45 S4E-0010 DEVELOPMENT OF COMPOSITE CONCRETE WALLS FOR THE PHYSICAL PROTECTION (SHIELDING) OF MILITARY BUILDINGS.**

Orlando Gutiérrez Obeso<sup>1</sup>

<sup>1</sup>Escuela Militar de Ingenieros, Mexico.

■ **12:45 - 13:00 S4E-0011 MECHANICAL AND KINETIC PROPERTIES OF NiAl-Y INTERMETALLICS**

L.A. Castillo-Perea<sup>1</sup>, L.A. Cáceres-Díaz<sup>1</sup>, A.G. Mora-García, G.V. de León-Notpe<sup>1</sup>, S. Díaz de la Torre<sup>2</sup>, J. Muñoz-Saldaña<sup>1</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN Unidad Querétaro, México. <sup>2</sup>Centro de Investigación e

Innovación Tecnológica Azcapotzalco,

■ **13:00 - 13:15 S4E-0012 OPTIMIZATION OF MECHANICAL ALLOYING PROCESS TO OBTAIN ORDERED B2-NiAl INTERMETALLIC POWDER**

G.V. De Leon-Notpe<sup>1</sup>, L.A. Cáceres-Díaz<sup>1</sup>, L.A. Castillo-Perea<sup>1</sup>, L.G. Trápaga-Martínez<sup>1</sup>, J. Muñoz-Saldaña<sup>1</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Querétaro, México.

✂ **14:00 - 16:00 LUNCH**

ROOM: TERRACE  
MONDAY, AUGUST 17

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S4E-P001 SYNTHESIS AND PROPERTIES OF COPPER MATRIX COMPOSITES REINFORCED WITH MICRO-SIZED NiAlCu PARTICLES**

A. Molina<sup>1</sup>, R. A. Rodríguez-Díaz<sup>1,2</sup>, A. Sedano<sup>1,3</sup>, S. R. Gonzaga<sup>1,3</sup>, S. A. Serna<sup>1</sup>, J. M. Colín<sup>3</sup>

<sup>1</sup>Centro en Investigación en Ingeniería y Ciencias Aplicadas

- UAEM, México. <sup>2</sup>Universidad Politécnica del Estado

de Morelos, México. <sup>3</sup>Facultad de Ciencias Químicas e

Ingeniería - UAEM, México.

■ **S4E-P002 OPTIMIZATION OF SYNTHESIS PARAMETERS OF SUPER SATURATED SOLID SOLUTION OF COPPER IN ALUMINUM BY MECHANICAL ALLOYING**

S. R. Gonzaga<sup>1</sup>, R. A. Rodríguez-Díaz<sup>1,2</sup>, A. Molina<sup>1</sup>, S. A. Serna<sup>1</sup>, A. Sedano<sup>1</sup>

<sup>1</sup>Universidad Autónoma del Estado de Morelos-C.I.I.C.A.P.

México. <sup>2</sup>Universidad Politécnica del Estado de Morelos.

México

■ **S4E-P003 ELECTROCHEMICAL PROPERTIES OF Al<sub>2</sub>O<sub>3</sub>-Fe/Si COMPOSITES PREPARED BY HIGH-ENERGY MECHANICAL MILLING**

Héctor Herrera H.<sup>1</sup>, J. G. Miranda-Hernández<sup>1</sup>, C.O. González Morán<sup>1</sup>

<sup>1</sup>Universidad Autónoma del Estado de México, Ing.

Industrial, área de Electroquímica y Corrosión de

Materiales. Mexico.

■ **S4E-P004 EFFECT OF PROCESS CONTROL AGENTS ON THE PROPERTY OF MECHANICALLY ALLOYED FERROUS ALLOYS**

Jung-Ho Ahn<sup>1</sup> and Tae Kyu Kim<sup>2</sup>

<sup>1</sup>Department of Materials Engineering, Andong National

University, South Korea. <sup>2</sup>Nuclear Materials Research

Division, Korea Atomic Energy Research Institute, South

Korea

■ **S4E-P005 STUDY OF THE EFFECTS OF HIGH ENERGY MILLING PURE NICKEL AND TERNARY ALLOYS Cu-Ni-Zr BY MECHANICAL ALLOY**

C. Martínez<sup>1</sup>, P.A. Rojas<sup>1</sup>, F. Briones<sup>2</sup>, E. Zelaya<sup>3</sup>, C. Aguilar<sup>2</sup>

S-4E



<sup>1</sup>Universidad Adolfo Ibáñez, Chile, Chile.<sup>2</sup>Universidad Federico Santa María, Chile, Chile.<sup>3</sup>Centro Atómico Bariloche, Argentina.

■ **S4E-P006 PREPARATION AND STUDY OF  $Al_{1-x}Fe_x$  NANOSTRUCTURES**

Andrés Rosales-Rivera<sup>1</sup>, Angelica Benítez-Castro<sup>1</sup>, Andrea Valencia-Ramírez<sup>1</sup>.

<sup>1</sup>Laboratorio de Magnetismo y Materiales Avanzados, Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Colombia, Sede Manizales, Manizales, Colombia

■ **S4E-P007 LOW-COST METAL-METAL WELDING BY SALT DISSOCIATION USING A STRONGLY FOCUSED DVD LASER DIODE**

J. E. H. Cardoso Sakamoto<sup>1</sup>, E. Gómez López<sup>1</sup>, E. E. Rodríguez Salas<sup>1</sup>, M. Hautefeuille<sup>1</sup>

<sup>1</sup>Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México

■ **S4E-P008 DIRECT LASER WELDING OF COPPER MICROSTRUCTURES ON ALUMINIUM SHEETS BY LASER DISSOCIATION OF METAL SALTS**

E. H. Cardoso Sakamoto<sup>1</sup>, E. Gómez López<sup>1</sup>, E. E. Rodríguez Salas<sup>1</sup>, M. Hautefeuille<sup>1</sup>

<sup>1</sup>Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México,

■ **S4E-P009 SILICON NITRIDE CONSOLIDATED BY THE CONVENTIONAL ROUTE**

S.B. Alemán-Córdova<sup>1</sup>, L. Ceja-Cárdenas<sup>1</sup>, F. Reyes-Calderon<sup>1</sup>, J. Lemus-Ruiz<sup>2</sup>

<sup>1</sup>Departamento de Metal-Mecánica, Instituto Tecnológico de Morelia. <sup>2</sup>Instituto de Investigaciones en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo, México.

■ **S4E-P010 OPTIMIZATION OF THE PRODUCTION PARAMETERS OF NANOSTRUCTURED COMPOSITES WITH A SUPERSATURATED SOLID SOLUTION OF COPPER IN ALUMINIUM MATRIX REINFORCED WITH TITANIUM CARBIDE**

A. Sedano<sup>1</sup>, R. A. Rodríguez-Díaz<sup>1,2</sup>, A. Molina<sup>1</sup>, S. A. Serna<sup>1</sup>, S. R. Gonzaga<sup>1</sup>

<sup>1</sup>Universidad Autónoma del Estado de Morelos-C.I.I.C.A.P. México. <sup>2</sup>Universidad Politécnica del Estado de Morelos, Morelos

■ **S4E-P011 EVALUATION OF HARDNESS AND MICROSTRUCTURE OF SINTERED NI-BASED ALLOYS EXPOSED AT HIGH TEMPERATURE**

E. Prieto-García<sup>1</sup>, I. Estrada-Guel<sup>1</sup>, F. J. Baldenebro-Lopez<sup>1,2</sup>, J. M. Herrera-Ramírez<sup>1</sup>, R. Martínez-Sánchez<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, México.<sup>2</sup> Facultad de Ingeniería Mochis, Universidad Autónoma de Sinaloa, México.

■ **S4E-P012 EXTRUSION OF ALUMINIUM/CARBON NANOTUBE POWDER BY SPE**

A. Salvador Zea<sup>1</sup>, R. Del Angel Laureano<sup>1</sup>, M. Casas Luna<sup>2</sup>, L. Celko<sup>2</sup>, S. Díaz de la Torre<sup>1</sup>.

<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación e Innovación Tecnológica CIITEC, México, D. F. <sup>2</sup>Central European Institute of Technology CEITEC, Brno University of Technology, Brno, Czech Republic.

■ **S4E-P013 PECULIARITIES OF FORMATION IN THE ELECTRIC ARC SINTERING OF  $Al_2O_3$  CERAMICS.**

A. Castro-Hernández<sup>1</sup>, M. Vlasova<sup>1</sup>, P. A. Márquez-Aguilar<sup>1</sup>, M. Kakazey<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas de la Universidad Autónoma del Estado de Morelos (CIICAp-UAEM), México.

■ **S4E-P014 A PROCESSING ROUTE FOR THE SYNTHESIS OF POROUS Ti - SPACE HOLDER USING SPS**

León-Lugo, N.<sup>1</sup>, Urriolagoitia-Calderon, G. M.<sup>1</sup>, Hernández-Gómez, L.H.<sup>1</sup>.

<sup>1</sup>Instituto Politécnico Nacional, SEPI, Escuela Superior de Ingeniería Mecánica y Eléctrica, Mexico.

■ **S4E-P015 SPARK PLASMA SINTERING OF  $Si_3N_4/SiO_2$  CORE-SHELL POWDERS BY ROTARY CHEMICAL VAPOR DEPOSITION**

Guoqiang LUO<sup>1,2</sup>, Jing HUANG<sup>1</sup>, Hirokazu KATSUI<sup>2</sup>, Takashi GOTO<sup>2</sup>, Qiang SHEN<sup>1</sup>, Lianmeng ZHANG<sup>1</sup>

<sup>1</sup>State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, China. <sup>2</sup>Institute for Materials Research, Japan

■ **S4E-P016 INFLUENCE OF PREPARATION AND BURNING PARAMETRS ON THE MORPHOLOGY OF THE TERNESITE**

D. Gazdič<sup>1</sup>, K. Kulíšek<sup>1</sup>, M. Fridrichová<sup>1</sup>, K. Dvořák<sup>1</sup>

<sup>1</sup>Brno University of Technology, Faculty of Civil Engineering, Czech Republic

ROOM: CHICHEN ITZA II  
TUESDAY, AUGUST 18

 Session Chair: **LADISLAV CELKO (CEITEC, CZECH REPUBLIC)**

■ **08:30 - 08:45 S4E-0013 UTILIZATION OF SELECTED NON-CONVENTIONAL DIAGNOSTIC TECHNIQUES FOR CHARACTERIZATION OF POWDER SINTERED/ CONSOLIDATED MATERIALS AND COATINGS**

J. Kaiser<sup>1,2</sup>, L. Čelko<sup>1</sup>, K. Novotný<sup>1</sup>, J. Novotný<sup>1</sup>, D. Prochazka<sup>1</sup>, P. Pořízka<sup>1,2</sup>, A. Hrdlička<sup>1</sup>, T. Zikmund<sup>1,2</sup>, D. Paloušek<sup>2</sup>, D. Koutný<sup>2</sup>

<sup>1</sup>CEITEC – Central European Institute of Technology, Brno University of Technology, Brno, Czech Republic. <sup>2</sup>NETME Centre – New Technologies for Mechanical Engineering, Brno University of Technology, Brno, Czech Republic

■ **09:00 - 09:15 S4E-0014 SOME SECRETS TO MOVE LAB RESEARCH TO THE FAB**

R. Nochebuena-Tinoco<sup>1</sup>

<sup>1</sup>Nochebuena R&D. Mexico D F

■ **09:15 - 09:30 S4E-0015 THERMAL SPRAY PROCESSING AND ADVANCED DURABILITY TESTING OF THERMAL BARRIER COATINGS**

L. Čelko<sup>1</sup>, D. Jech<sup>1</sup>, K. Slámečka<sup>1</sup>, L. Klakurková<sup>1</sup>, K. Obtlík<sup>2</sup>, I. Sulák<sup>2</sup>, M. Casas Luna<sup>1</sup>, E. B. Montúfar<sup>1</sup>, S. Díaz de la Torre<sup>3</sup>, J. Kaiser<sup>1</sup>

<sup>1</sup>CEITEC – Central European Institute of Technology, Brno University of Technology, Brno, Czech Republic. <sup>2</sup>IPM – Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Brno, Czech Republic. <sup>3</sup>CIITEC – Instituto Politécnico Nacional, Centro de Investigación e Innovación Tecnológica, Mexico D.F., Mexico

■ **09:30 - 09:45 S4E-0016 COLD SPRAY CONSOLIDATION OF 6061 ALUMINUM POWDER**

C.A. Widener<sup>1</sup>, M.R. Rokni<sup>1</sup>, G.A. Crawford<sup>1</sup>, V.K. Champagne<sup>2</sup>

<sup>1</sup>South Dakota School of Mines and Technology, USA, <sup>2</sup>Army Research Laboratory, USA

■ **09:45 - 10:00 S4E-0017 STUDY ON THE REMOVAL OF LUBRICANT, THAT IS ADDED TO IRON POWDER METALLURGY WITH GLOW DISCHARGE PLASMA**

P. Rodríguez<sup>1</sup>

<sup>1</sup>Metallurgical Engineer. Master (c) in Metallurgy and Materials Science. Research Group: Group Surfaces,

Electrochemistry and Corrosion (GSEC) UPTC Specialist in Metallurgy. Teaching School of Metallurgy, Faculty of Engineering. Pedagogical and Technological University of Colombia.

■ **10:00 - 10:15 S4E-0018 MICROWAVE-ASSISTED HYDROTHERMAL SYNTHESIS AND CHARACTERIZATION OF PHASE-PURE TiO<sub>2</sub> NANOPARTICLES: ANATASE, BROOKITE AND RUTILE**

R. García<sup>1</sup>, M. Ceballos-Chuc<sup>1</sup>, L. P. Delgado<sup>1</sup>, G. Rodríguez-Gattorno<sup>1</sup>, G. Oskam<sup>1</sup>

<sup>1</sup> Departamento de Física Aplicada, CINVESTAV-I. P. N, México

■ **10:15 - 10:30 S4E-0019 CORROSION OF PLASMA SPRAYED HA COATINGS ON NON-FERROUS BIODEGRADABLE SUBSTRATES IN SIMULATED BODY FLUIDS**

I. Rocnaková<sup>1</sup>, D. Jech<sup>1</sup>, R. Dvoracek<sup>2</sup>, M. Luna Casas<sup>1</sup>, E.B. Montufar<sup>1</sup>, M. Horynova<sup>1</sup>, T. Zikmund<sup>1</sup>, K. Novotny<sup>1</sup>, L. Klakurkova<sup>1</sup>, L. Celko<sup>1</sup>, J. Kaiser<sup>1</sup>

<sup>1</sup>CEITEC – Central European Institute of Technology, Brno University of Technology, Czech Republic. <sup>2</sup>S.A.M. – Metallizing Company, Ltd. Czech Republic

■ **10:30 - 10:45 S4E-0020 CURRENT ASSISTED INFILTRATION SINTERING CAIS**

Sebastián Díaz-de la Torre<sup>1</sup>, Ladislav Celko<sup>2</sup>, Edgar Montufar<sup>2</sup>, Mariano Casas-Luna<sup>1,2</sup>

<sup>1</sup>Instituto Politécnico Nacional IPN. Centro de Investigación e Innovación Tecnológica CIITEC. Mexico. <sup>2</sup>Central European Institute of Technology. Brno University of Technology. Czech Republic.


■ **10:45 - 11:00 S4E-0021 NOVEL BIODEGRADABLE IRON/CALCIUM PHOSPHATE COMPOSITES PROCESSED BY SPARK PLASMA SINTERING**

E.B. Montufar<sup>1</sup>, S. Diaz-de-la-Torre<sup>2</sup>, L. Celko<sup>1</sup>, M. Casas-Luna<sup>1</sup>, A. Salvador-Zea<sup>2</sup>, G. Diéguez-Trejo<sup>2</sup>, J. Kaiser<sup>1</sup>, M. Horynová<sup>1</sup>, I. Ročňáková<sup>1</sup>

<sup>1</sup>Central European Institute of Technology - Brno University of Technology (CEITEC - BUT), Brno, Czech Republic.

<sup>2</sup>Instituto Politécnico Nacional, Centro de Investigación e Innovación Tecnológica (CIITEC), México D.F.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**



Session Chair: **JOZEF KAISER (CEITEC, CZECH REPUBLIC)**

■ **12:30 - 12:45 S4E-0022 INFLUENCE OF SURFACE MORPHOLOGY ON DEPOSITION EFFICIENCY OF ATMOSPHERIC PLASMA SPRAYED  $Al_2O_3 + 13TiO_2$  COATINGS**

D. Jech<sup>1</sup>, L. Celko<sup>1</sup>, R. Dvoracek<sup>2</sup>, K. Slamecka<sup>1</sup>, L. Klakurkova<sup>1</sup>, M. Horynova<sup>1</sup>, I. Rocnákova<sup>1</sup>, J. Svejcar<sup>1</sup>  
<sup>1</sup>CEITEC – Central European Institute of Technology, Brno University of Technology, Czech Republic. <sup>2</sup>S.A.M. – Metallizing Company, Ltd. Czech Republic

■ **12:45 - 13:00 S4E-0023 RELATIONSHIP BETWEEN MICROSTRUCTURE AND ELECTRICAL PROPERTIES OF  $(Ba_{1-x}Ca_xTi_{1-y}Zry)O_3$  CERAMICS SINTERED USING TWO DIFFERENT METHODS**

A. Reyes-Montero<sup>1</sup>, S.D. de la Torre<sup>2</sup>, M.E. Villafuerte-Castrejón<sup>1</sup>,  
<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México. <sup>2</sup>Instituto Politécnico Nacional, Centro de Investigación e Innovación Tecnológica, México.

■ **13:00 - 13:15 S4E-0024 INFLUENCE OF PROCESSING PARAMETERS ON SPARK PLASMA EXTRUSION OF ALUMINIUM POWDER**

M. Casas Luna<sup>1</sup>, L. Celko<sup>1</sup>, L. Klakurková<sup>1</sup>, M. Horynová<sup>1</sup>, T. Zikmund<sup>1</sup>, Antonio Salvador Zea<sup>2</sup>, S. Díaz de la Torre<sup>2</sup>, J. Kaiser<sup>1</sup>  
<sup>1</sup>CEITEC – Central European Institute of Technology, Brno University of Technology, Brno, Czech Republic. <sup>2</sup>CIITEC – Instituto Politécnico Nacional, Centro de Investigación e Innovación Tecnológica, Mexico D.F., Mexico.

■ **13:15 - 13:30 S4E-0025 EFFECT OF  $GdO_x$  ADDITION DURING SINTERING OF YSZ NANO-POWDER BY SPARK PLASMA SINTERING**

Cuauhtémoc Flores Ferreyra<sup>1</sup>, Hugo Martínez Gutiérrez<sup>2</sup>, Sebastián Díaz de la Torre<sup>1</sup>, Ricardo Cuenca Álvarez<sup>1</sup>, Fernando Juárez López<sup>1</sup>  
<sup>1</sup>Instituto Politécnico Nacional-CIITEC, D.F. México. <sup>2</sup>Instituto Politécnico Nacional-CNMN, México

■ **13:30 - 13:45 S4E-0026 PREPARATION OF Cu-AIN COMPOSITE POWDERS BY ELECTROLESS PLATING**

D. Ramírez Vinasco<sup>1</sup>, C.A. León Patiño<sup>1</sup>,  
<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo, México.



**14:00- 16:00 LUNCH**

**ROOM: TERRACE  
TUESDAY, AUGUST 18**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S4E-P017 GRAIN GROWTH OF NANO-HYDROXYAPATITE POWDER UPON HEATING**

K. E. Reyes-Morales<sup>1</sup>, M. Fuentes-Romero<sup>1,2</sup>, A. Tejada Cruz<sup>3</sup> and A. Ávila-Dorador<sup>1</sup>.  
<sup>1</sup>Universidad Tecnológica Fidel Velázquez, División de Tecnología Ambiental y Nanotecnología, México. <sup>2</sup>Instituto Politécnico Nacional, Centro de Investigación e Innovación Tecnológica, <sup>3</sup>Instituto de Investigación en Materiales UNAM.

■ **S4E-P018 PROCESSING OF SEMICONDUCTING (CdS)-SUPERCONDUCTING (Bi-Pb-Sr-Ca-Cu-O) COMPOSITES BY CHEMICAL BATH DEPOSITION**

E. Díaz-Valdés<sup>1</sup>, G.S. Contreras-Puente<sup>1</sup>, A.D. Melgoza-Ávila<sup>1</sup>, C. Mejía-García<sup>1</sup>, A.M. Paniagua-Mercado<sup>1</sup>  
<sup>1</sup>Escuela Superior de Física y Matemáticas, IPN, UPALM, México.

■ **S4E-P019 TRAINING VARRING THE GRAIN SIZE OF Au, Pt IMPROVED SOL-GEL BY ACRYLAMIDE.**

María Guadalupe Alonso<sup>1,2</sup>, Maira Ramos<sup>1,2</sup>, Elizabeth Chavira<sup>2</sup>, Damaris Cabrero<sup>2</sup>, Adriana Tejeda<sup>2</sup>, Carlos Flores<sup>2</sup>, Omar Novelo<sup>2</sup>, Josúe Romero-Ibarra<sup>2</sup>.  
<sup>1</sup>Facultad de Ingeniería, Universidad Nacional Autónoma de México, México. <sup>2</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México.

■ **S4E-P020 SYNTHESIS OF MAGNESIUM ALUMINATE SPINEL POWDERS BY A SOL-GEL METHOD AND HEAT TREATMENTS**

L. Zarazua<sup>1</sup>, L. Tellez-Jurado<sup>1</sup>, D. Gonzalez<sup>1</sup>, H. BalmoriRamirez<sup>1</sup>  
<sup>1</sup>Instituto Politecnico Nacional, E.S.I.Q.I.E., Deptment of Metallurgical and Materials Engineering, Mexico, D.F.

■ **S4E-P021 Al/Fe-PILC CATALYST BENCH-SCALE PREPARATION AND SHAPING AS EXTRUDATES**

L.A. Galeano<sup>1</sup>, N. Pusapaz Villota<sup>1</sup>  
<sup>1</sup>Research Group of Functional Materials and Catalysis. Department of Chemistry, Nariño University. Colombia.



■ **S4E-P022 EFFECT OF MILLING PARAMETERS ON THE CHARACTERISTICS OF ALUMINA POWDERS OBTAINED FROM ANODIZING PROCESS WASTE**

J. Coronel<sup>1</sup>, J. Santos-Cruz<sup>1</sup>, S.A. Mayén-Hernández<sup>1</sup>, V.M. Arellano-Badillo<sup>1</sup>, R. Vargas-Bernal<sup>2</sup>, L.E. Ruiz-Dorantes<sup>1</sup>.

<sup>1</sup> Universidad Autónoma de Querétaro, Facultad de Química. Centro Universitario. <sup>2</sup> Instituto Tecnológico y de Estudios Superiores de Irapuato.

■ **S4E-P023 THERMODYNAMIC STUDY OF THE REDUCTION USING IRON ORE/COAL AGGLOMERATES AND SIDERURGICAL WASTES CONTAMINATED WITH ALKALI**

M. Lara-Castro<sup>1</sup>, J. Camporredondo-Saucedo<sup>1</sup>, F. Equihua-Guillén<sup>1</sup>, R. Servín-Castañeda<sup>1</sup>, M. Barrera-Moreno<sup>1</sup>

<sup>1</sup> Universidad Autónoma de Coahuila, México.

■ **S4E-P024 CO SENSING PROPERTIES OF COPPER, PLATINUM AND PALLADIUM DOPED TIN OXIDE (SNO<sub>2</sub>) PELLETS**

T.V.K. Karthik<sup>1</sup>, M. de la L. Olvera<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Eléctrica-SEES, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, México.

■ **S4E-P025 INFLUENCE OF THE SYNTHESIS ON THE PROPERTIES OF BNT-BCT SOLID SOLUTION**

Rodrigo Vivar<sup>1</sup>, Amador M. Gonzalez<sup>2</sup>, Lorena Pardo<sup>3</sup> and Maria Elena Villafuerte<sup>1</sup>

<sup>1</sup>Cerámicos, Instituto de Investigaciones en Materiales, México. <sup>2</sup>Grupo POEMMA, ETSIT Telecomunicación, Campus Sur, Universidad Politécnica de Madrid, España. <sup>3</sup>Instituto de Ciencia de Materiales de Madrid, ICMM-CSIC. Sor Juana Inés de la Cruz, 3. Madrid, España.

■ **S4E-P026 EVALUATION OF PIEZOELECTRICS PROPERTIES IN BCTZ CERAMICS SYNTHESIZED BY MICROWAVE-ASSISTED HYDROTHERMAL METHOD**

S.O. Rea-Lopez<sup>1</sup>, S.D. de la Torre<sup>2</sup>, A. Reyes-Montero<sup>1</sup>, M.E. Villafuerte-Castrejón<sup>1</sup>.

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México. <sup>2</sup>Instituto Politécnico Nacional, Centro de Investigación e Innovación Tecnológica. México

■ **S4E-P027 SYNTHESIS AND CHARACTERIZATION OF THE SOLID SOLUTION Ba<sub>(1-x)</sub>Sr<sub>x</sub>TiO<sub>3</sub> (x = 0.05, 0.10, 0.15)**

B. Carreño-Jiménez<sup>1</sup>, A. Reyes-Montero Armando<sup>1</sup>, M.E. Villafuerte-Castrejón<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México, D.F.

■ **S4E-P028 STUDY OF THE EFFECTS OF DIFERENT SYNTHESIS AND SINTERING ROUTES ON THE ELECTRICAL PROPERTIES OF BNT-CERAMICS**

A. Barrios-Rosales<sup>1</sup>, M. E. Villafuerte-Castrejón<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México

■ **S4E-P029 A COMPARISON OF FERROELECTRIC PROPERTIES FOR SOL GEL OBTAINED NIOBIUM DOPED BISMUTH TITANATE SINTERED BY PRESSURELESS SINTERING AND SPARK PLASMA SINTERING**

G. Hernández Cuevas<sup>1</sup>, J.R. Leyva<sup>1</sup>, S. Díaz de la Torre<sup>2</sup>, O. Raymond Herrera<sup>3</sup>, A. Saucedo Carvajal<sup>1</sup>, P.E. García Casillas<sup>1</sup>, J. Hernández Paz<sup>1</sup>, H. Camacho-Montes<sup>1</sup>

<sup>1</sup>Departamento de Física y Matemáticas. Instituto de Ingeniería y Tecnología. Universidad Autónoma de Ciudad Juárez. <sup>2</sup>Centro de Investigación e Innovación Tecnológica. Instituto Politécnico Nacional. <sup>3</sup>Centro de Nanociencia y Nanotecnología. Universidad Nacional Autónoma de México.

■ **S4E-P030 A COMPARISON OF FERROELECTRIC PROPERTIES FOR SOL GEL OBTAINED LANTHANUM DOPED TITANATE SINTERED BY PRESSURELESS SINTERING AND SPARK PLASMA SINTERING**

J.R. Leyva<sup>1</sup>, G. Hernández Cuevas<sup>1</sup>, S. Díaz de la Torre<sup>2</sup>, O. Raymond Herrera<sup>3</sup>, A. Saucedo Carvajal<sup>1</sup>, C.A. Rodríguez González<sup>1</sup>, J. R. Farias Mancilla, H. Camacho-Montes<sup>1</sup>

<sup>1</sup>Departamento de Física y Matemáticas. Instituto de Ingeniería y Tecnología. Universidad Autónoma de Ciudad Juárez. <sup>2</sup>Centro de Investigación e Innovación Tecnológica. Instituto Politécnico Nacional. <sup>3</sup>Centro de Nanociencia y Nanotecnología. Universidad Nacional Autónoma de México.

■ **S4E-P031 DESIGN WITH A MIX CONCRETE ADDITIVE POZZOLAN AND ITS RESISTANCE FOR EMPLOYMENT IN MILITARY CONSTRUCTIONS**

Dr. Sebastián Díaz de la Torre<sup>1</sup>, A. Chávez Vargas<sup>2</sup>, Orlando Gutiérrez<sup>2</sup>

<sup>1</sup>Centro de investigación e innovación Tecnológica, CIITEC, IPN. <sup>2,3</sup>Escuela Militar de Ingenieros, Military Camp 1-B, Mexico D.F.,



■ **S4E-P032 COMPARISON OF THE PREDICTIVE CAPACITY OF SOME NUMERICAL METHODS FOR MODELING BALLISTIC IMPACT AGAINST CONCRETE**

Norberto Domínguez<sup>1</sup>, Esteban Flores<sup>2</sup>, Ernesto Pineda<sup>3</sup>, Víctor M. Velázquez<sup>4</sup>, Juan E. Mayorga<sup>5</sup> and Orlando Gutiérrez<sup>6</sup>.

<sup>1,2,3</sup>SEPI ESIA-UZ, Instituto Politécnico Nacional, Mexico. <sup>4,5,6</sup>Escuela Militar de Ingenieros. Military Camp 1-B, Mexico

■ **S4E-P033 THE CONCENTRATION EFFECT OF MECHANO-ACTIVATED FLUORITE CaF<sub>2</sub> ON THE CLINKERIZATION TEMPERATURE**

R. Del Angel<sup>1</sup>, A. Salvador<sup>1</sup>, S. Díaz de la Torre<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional. Centro de Investigación e Innovación Tecnológica CIITEC,

## Symposium 4G

# TRENDS ON SEVERE PLASTIC DEFORMATION

**José-Maria Cabrera-Marrero** / SPAIN / Universidad Politécnic de Catalunya

**Ilchat Sabirov** / SPAIN / IMDEA Materials Institute

**Alexander Zhilyaev** / RUSSIA / Russian Academy of Science

**Alberto Jorge Moreira Junior** / BRAZIL / Universidade Federal de Sao Carlos

**Armando Salinas** / MEXICO / CINVESTAV-Unidad Saltillo

WEDNESDAY, AUGUST 19  
ROOM: MAYA III

► **08:30 - 09:00 S4G-0001 *Invited Talk* BULK NANOSTRUCTURED MATERIALS PROCESSED BY SEVERE PLASTIC DEFORMATION: FUNDAMENTALS AND APPLICATIONS**

Alexander Zhilyaev<sup>1</sup>

<sup>1</sup>Institute for Metals Superplasticity Problems of Russian Academy of Science, Russia.

ROOM: MAYA II

► **09:00 - 09:30 S4G-0002 *Invited Talk* SEVERE PLASTIC DEFORMATION MEETS ROLL FORMING - A NEW GENERATION OF HIGH PERFORMANCE STEEL PROFILES**

E. Bruder<sup>1</sup>

<sup>1</sup>Department of Materials Science, Physical Metallurgy, Technische Universität Darmstadt, Darmstadt, Germany

■ **09:30 - 09:45 S4G-0003 NANOGRAIN FORMATION AND SELF-ANNEALING BY HIGH-PRESSURE TORSION IN LIQUID NITROGEN**

Kaveh Edalati<sup>1,2</sup>, Jorge M. Cubero-Sesin<sup>3</sup>, Ali Alhamidi<sup>4</sup>, Intan Fadhlina Mohamed<sup>2</sup>, Zenji Horita<sup>1,2</sup>

<sup>1</sup>WPI, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan.

<sup>2</sup>Department of Materials Science and Engineering,

Faculty of Engineering, Kyushu University, Japan. <sup>3</sup>Escuela de Ciencia e Ingeniería de los Materiales, Instituto Tecnológico de Costa Rica, Costa Rica. <sup>4</sup>Department of Metallurgy and Materials Engineering, Faculty of Engineering, Sultan Ageng Tirtayasa University, Indonesia

■ **09:45 - 10:00 S4G-0004 SHEAR DEFORMATION VIA HIERARCHICAL TWINNING**

P. Müllner<sup>1</sup>

<sup>1</sup>Boise State University

■ **10:00 - 10:15 S4G-0005 FABRICATION OF AA 7075 - 2 WT.% ZRO<sub>2</sub> COMPOSITE BY POWDER METALLURGY AND CONSOLIDATED BY ECAP**

Sergio Eliseo Hernández-Martínez<sup>1</sup>, J. J. Cruz-Rivera<sup>1</sup>, L.S. Hernández-Hernández<sup>2</sup>, R. Martínez-Sánchez<sup>2</sup>, J.A. Muñoz-Bolaños<sup>3</sup>, J.M. Cabrera-Marrero<sup>3</sup>, and J. L. Hernández-Rivera<sup>4</sup>.

<sup>1</sup>Instituto de Metalurgia, Universidad Autónoma de San Luis Potosí, San Luis Potosí, S.L.P., Mex. <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Mex. <sup>3</sup>Universitat Politècnica de Catalunya, Barcelona, Spain. <sup>4</sup>Instituto de Metalurgia, Universidad Autónoma de San Luis Potosí-Cátedras CONACYT, Mex.

■ **10:15 - 10:30 S4G-0006 PRODUCING ULTRAFINE GRAINED PLATES USING INCREMENTAL ECAP**

Malgorzata Lewandowska<sup>1</sup>, Witold Chrominski<sup>1</sup>, Marta Lipinska<sup>1</sup>, Lech Olejnik<sup>2</sup>, Andrzej Rosochowski<sup>3</sup>

<sup>1</sup>Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland. <sup>2</sup>Institute of Manufacturing Processes, Warsaw University of Technology, Poland. <sup>3</sup>Design, Manufacture and



Engineering Management, University of Strathclyde,  
United Kingdom

■ **10:30 - 10:45 S4G-0007 MICROSTRUCTURAL AND FATIGUE STUDY OF A 6061-T6 ALUMINUM ALLOY PRODUCED BY ECAP TECHNIQUE.**

**C. Reyes-Ruiz<sup>1,2</sup>, I. A. Figueroa<sup>1</sup>, C. Braham<sup>1</sup>, J.M. Cabrera<sup>3</sup>, V. Favier<sup>2</sup>, N. Ranc<sup>2</sup> and G. Gonzalez<sup>1,2</sup>**

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Mexico. <sup>2</sup>Laboratoire Procédés et Ingénierie Mécanique et Matériaux ENSAM, Paris, France. <sup>3</sup>Departamento de Ciencia de los Materiales e Ingeniería Metalúrgica, ETSEIB-Universidad Politécnica de Cataluña, Barcelona, Spain.

☐ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

▶ **12:30 - 13:00 S4G-0009 Invited Talk INVESTIGATING ANVIL ALIGNMENT AND ANVIL ROUGHNESS ON THE FLOW PATTERN DEVELOPMENT IN HIGH-PRESSURE TORSION**

**Yi Huang<sup>1</sup>, Megumi Kawasaki<sup>2,3</sup>, Terence G. Langdon<sup>1,2</sup>**

<sup>1</sup>Materials Research Group, Faculty of Engineering and the Environment, University of Southampton, U.K. <sup>2</sup>Departments of Aerospace & Mechanical Engineering and Materials Science, University of Southern California, Los Angeles, U.S.A. <sup>3</sup>Division of Materials Science and Engineering, Hanyang University, South Korea

■ **13:00 - 13:15 S4G-0010 SYNCHROTRON X-RAY CHARACTERIZATION OF ANISOTROPIC MICROSTRUCTURES OF METALS AND ALLOYS SUBJECT TO SEVERE PLASTIC DEFORMATION**

**R.E. Bolmaro<sup>1</sup>, E. Benatti<sup>1</sup>, N. S. De Vincentis<sup>1</sup>, M. C. Avalos<sup>1</sup>, A. Kliauga<sup>2</sup>, M. Ferrante<sup>2</sup>, A.M. Salcedo Garrido<sup>3</sup>, F. Cruz Gandarilla<sup>3</sup>, N. Schell<sup>4</sup>, H.-G. Brokmeier<sup>4</sup>.**

<sup>1</sup>Instituto de Física Rosario-CONICET-UNR, Rosario, Argentina. <sup>2</sup>Departamento de Engenharia de Materiais - Universidade Federal de São Carlos, Brasil. <sup>3</sup>Instituto Politécnico Nacional, ESFM. <sup>4</sup>Institut für Werkstoffkunde und Werkstofftechnik, TU Clausthal. Clausthal-Zellerfeld. Helmholtz-Zentrum Geesthacht, GEMS Outstation, Hamburg, Germany.

■ **13:15 - 13:30 S4G-0011 X-RAY DIFFRACTION AND EBSD CHARACTERIZATION OF IF STEEL PROCESSED BY ACCUMULATIVE ROLL BONDING**

**Francisco Cruz-Gandarilla<sup>1</sup>, Ana María Salcedo-Garrido<sup>1</sup>, Raúl Bolmaro<sup>2</sup>, Natalia S. De Vincentis<sup>2</sup>, Martina Avalos<sup>2</sup>,**

**Thierry Baudin<sup>3,4</sup>, Jose G. Cabañas-Moreno<sup>5</sup> and Héctor J. Dorantes-Rosales<sup>6</sup>**

<sup>1</sup>Instituto Politécnico Nacional, Escuela Superior de Física y Matemáticas. <sup>2</sup>Instituto de Física Rosario. Consejo Nacional de Investigaciones Científicas y Técnicas-CONICET. Universidad Nacional de Rosario, Argentina. <sup>3</sup>CNRS, ICMO, Lab. de Physico-Chimie de l'Etat Solide, France. <sup>4</sup>University of Paris-Sud, Orsay, France. <sup>5</sup>CINVESTAV IPN, México. <sup>6</sup>Instituto Politécnico Nacional, ESIQIE-DIM, México.

▶ **13:30 - 14:00 S4G-0012 Invited Talk ON THE PROPER MICROSTRUCTURE CHARACTERIZATION OF ECAP PROCESSED ZIRCONIUM**

**Mychelle Vianna Pereira Compañoni<sup>1,2</sup>, Maurício Ferrante<sup>3</sup>, Vitor Sordi<sup>3</sup>, A. L. Pinto<sup>1,4</sup>**

<sup>1</sup>Military Institute of Engineering - Praça Gal. <sup>2</sup>State University of Maringá Brazil. <sup>3</sup>São Carlos Federal University Brazil. <sup>4</sup>Brazilian Center for Physics Research Brazil.

✕ **14:00- 16:00 LUNCH**

ROOM MAYA III

Session with 6Th Latin  
American Conference on  
Metastable and  
Nanostructured Materials  
Symposium

■ **16:00 - 16:15 SNM-0009 MECHANICAL AND MICROSTRUCTURAL RESPONSE OF AN ALUMINUM NANOCOMPOSITE REINFORCED WITH CARBON-BASED PARTICLES**

**I. Estrada-Guel<sup>1,2</sup>, C. Carreño-Gallardo<sup>2</sup>, C. López-Meléndez<sup>3</sup>, R. Martínez-Sánchez<sup>2</sup>**

<sup>1</sup>Department of Mechanical Engineering Technology, University of Houston, Houston, USA. <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, Chihuahua, Chih, Mexico. <sup>3</sup>Universidad La Salle Chihuahua, Chihuahua, Mexico.

■ **16:15 - 16:30 S4G-0013 EFFECT OF SEVERE PLASTIC DEFORMATION ON AN EXTRUDED ZK60 MAGNESIUM ALLOY**

Florina-Diana Dumitru<sup>1</sup>, György Deák<sup>1</sup>, Oscar Fabián Higuera Cobos<sup>2</sup>, José María Cabrera<sup>3,4</sup>

<sup>1</sup>National Institute for Research and Development in Environmental Protection, Bucharest, Romania. <sup>2</sup>Facultad de Ingeniería Mecánica, Universidad Tecnológica de Pereira, Vereda La Julita, Pereira, Colombia. <sup>3</sup>Departamento de Ciencia de los Materiales e Ingeniería Metalúrgica, Universidad Politécnica de Cataluña. Barcelona, España <sup>4</sup>Fundación CTM Centre Tecnològic, Manresa, Spain

▶ **16:30 - 17:00 SNM-0010 Invited Talk STRENGTHENING OF CuMg ALLOYS DEFORMED BY EQUAL CHANNEL ANGULAR PRESSING**

J.M. Cabrera<sup>1,2</sup>, P. Rodríguez-Calvillo<sup>1,2</sup>, N. Ferrer<sup>3</sup>

<sup>1</sup>Fundació CTM Centre Tecnològic, Manresa, Spain. <sup>2</sup>Universitat Politècnica de Catalunya, Departament de Ciència de los Materials e Ingeniería Metalúrgica, Barcelona, Spain. Les Masies de Voltregà, Barcelona, Spain

▶ **17:00 - 17:30 SNM-0011 Invited Talk HIGH STRENGTH AND ENHANCED ELECTRICAL CONDUCTIVITY IN NANOSTRUCTURED ALUMINIUM ALLOYS**

I. Sabirov<sup>1</sup>, M.Yu. Murashkin<sup>2,3</sup> and R.Z. Valiev<sup>2,3</sup>

<sup>1</sup>IMDEA Materials Institute, Madrid, Spain. <sup>2</sup>Ufa State Aviation Technical University, Russia. <sup>3</sup>Saint Petersburg State University, Peterhof, Saint Petersburg, Russia

▶ **17:30 - 18:00 S4G-0014 Invited Talk THE INCREASED STRENGTH AND ELECTRICAL CONDUCTIVITY IN ULTRAFINE-GRAINED Cu-BASED ALLOYS WITH Cr, Zr AND Hf AFTER SEVERE PLASTIC DEFORMATION**

S.V. Dobatkin<sup>1,2</sup>, D.V. Shangina<sup>1,2</sup>, N.R. Bochvar<sup>1</sup>

<sup>1</sup>A.A.Baikov Institute of Metallurgy and Materials Science, Russian Academy of Sciences, Moscow, Russia. <sup>2</sup>National University of Science and Technology "MISIS", Laboratory of Hybrid Nanostructured Materials, Russia

■ **18:15 - 18:30 S4G-0016 THE EFFECT OF SEVERE PLASTIC DEFORMATION ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF TITANIUM MATRIX COMPOSITES**

W.J. Lu<sup>1,2</sup>, Y.F. Han<sup>1</sup>, J.X. Li<sup>1</sup>, G.F. Huang<sup>1</sup>, D. Zhang<sup>1</sup>

<sup>1</sup>State Key Laboratory of Metal Matrix Composites, Shanghai Jiao Tong University, Shanghai, China.

<sup>2</sup>Shanghai Key Laboratory of Advanced High Temperature Materials and Precision Forming, Shanghai, China

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S4G-P001 AZ91 AND AM60 Mg-ALLOYS PROCESSED BY ECAP AND COLD ROLLING: STRUCTURE AND HYDROGENATION PROPERTIES**

E. Prokofiev<sup>1,2</sup>, D. P. Santos<sup>1</sup>, G. Raab<sup>2</sup>, R. Valiev<sup>2</sup>, W. J. Botta<sup>1</sup>, A. M. Jorge Jr.<sup>1</sup>

<sup>1</sup>Departamento de Engenharia de Materiais, Universidade Federal de São Carlos, Brazil. <sup>2</sup>Institute of Physics of Advanced Materials, Ufa State Aviation Technical University, Russian Federation

■ **S4G-P002 STUDY OF A MODIFIED ECAP DIE FOR PRODUCING NANOSTRUCTURED AL6060 ALLOY USING 3D FINITE ELEMENT SIMULATION**

M.A. González<sup>1</sup>, P. Ponce<sup>1</sup>, M.A. Escobedo<sup>1</sup>, R.H. Lara<sup>1</sup>, B. X. Ochoa<sup>2</sup>

<sup>1</sup>Depto. Ciencia de Materiales, Facultad de Ciencias Químicas, UJED, México. <sup>2</sup>Depto. de Ingeniería Ambiental, Facultad de Ciencias Forestales, UJED, México.

■ **S4G-P003 MICROSTRUCTURE AND MECHANICAL PROPERTIES OF BINARY ALUMINUM SYSTEMS Al-Cu, Al-Zn, Al-Mg**

E.V. Bobruk<sup>1,2</sup>, N.A. Enikeev<sup>1,2</sup>, M.Yu. Murashkin<sup>1,2</sup>, X. Sauvage<sup>3</sup>, B. B. Straumal<sup>4</sup>, Z. Valiev<sup>1,2</sup>

<sup>1</sup>Laboratory for Mechanics of Bulk Nanostructured Materials, Saint Petersburg State University, Russia, <sup>2</sup>Institute of Physics of Advanced Materials, Ufa State Aviation Technical University, Russia, <sup>3</sup>Groupe de Physique des Matériaux, France, <sup>4</sup>Moscow Institute of Physics and Technology (State University), Russia

■ **S4G-P004 EVALUATION OF THE CAPABILITY OF USAGE SEVERE PLASTIC DEFORMATION IN CONSOLIDATION OF POWDERS OF ALUMINUM MATRIX COMPOSITES**

Sergio Eliseo Hernández-Martínez<sup>1</sup>, J. J. Cruz-Rivera<sup>1</sup>, R. Martínez-Sánchez<sup>2</sup>, I. Estrada-Guel<sup>2</sup>, J.A. Muñoz-Bolaños<sup>3</sup>, J.M. Cabrera-Marrero<sup>3</sup>, and J. L. Hernández-Rivera<sup>4</sup>.





<sup>1</sup> Instituto de Metalurgia, Universidad Autónoma de San Luis Potosí, Mex. <sup>2</sup> Centro de Investigación en Materiales Avanzados (CIMAV), Mex. <sup>3</sup> Universitat Politècnica de Catalunya, Barcelona, Spain. <sup>4</sup> Instituto de Metalurgia, Universidad Autónoma de San Luis Potosí-Cátedras CONACYT, Mex.

■ **S4G-P005 METALLOGRAPHIC CHARACTERIZATION OF A GTAW WELD JOINT OF ARMCO IRON SEVERELY DEFORMED BY EQUAL-CHANNEL ANGULAR PRESSING (ECAP)**

I. Mejía<sup>1</sup>, C. Maldonado<sup>1</sup>, H. Hernández-Belmontes<sup>1</sup>, J.A. Muñoz-Bolaños<sup>2</sup>, J.M. Cabrera<sup>2,3</sup>

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo, Michoacán, México. <sup>2</sup> Departament de Ciència dels Materials i Enginyeria Metallúrgica, ETSEIB – Universitat Politècnica de Catalunya, Barcelona, Spain. <sup>3</sup> Fundació CTM Centre Tecnològic, Av. de las Bases de Manresa, Spain.

■ **S4G-P006 INFLUENCE OF TOOL DESIGN ON MICROSTRUCTURE AND HOT DEFORMATION BEHAVIOR OF FRICTION STIR PROCESSED AL-MG ALLOYS**

M.A. García-Bernal<sup>1</sup>, R.S. Mishra<sup>2</sup>, R. Verma<sup>3</sup> and D. Hernández-Silva<sup>4</sup>

<sup>1</sup>SEPI, Instituto Politécnico Nacional, ESIME Unidad Ticomán, Mexico. <sup>2</sup>Department of Materials Science and Engineering, University of North Texas, Denton, USA. <sup>3</sup>General Motors, Vehicle Engineering Center, USA. <sup>4</sup>Department of Metallurgical Engineering, Instituto Politécnico Nacional, ESIQIE, Mexico

Tousignant<sup>a</sup>, B.C. Hauback<sup>b</sup>, J. Huot<sup>a</sup>

<sup>a</sup>Hydrogen Research Institute, Université du Québec à Trois-Rivières, Canada. <sup>b</sup>Institute for Energy Technology, Department of Physics, Norway

▶ **09:00 - 09:30 S4G-0017 Invited Talk HYDROGEN STORAGE PROPERTIES OF NANOCRYSTALLINE Mg-Ni COMPOUNDS PRODUCED BY COLD ROLLING**

Floriano, R.<sup>1</sup>; Leiva, D. R.<sup>2</sup>; Figueroa, S. J.A.<sup>3</sup>; Zepon, G.<sup>2</sup>; Botta, W. J.<sup>2</sup>

<sup>1</sup>Faculdade de Ciências Aplicadas, Universidade Estadual de Campinas (UNICAMP), Brasil. <sup>2</sup>Departamento de Engenharia de Materiais, Universidade Federal de São Carlos (UFSCAR), Brasil. <sup>3</sup>Centro Nacional de Pesquisa em Energia e Materiais, Laboratório Nacional Luz Síncrotron (LNLS), Brasil

■ **09:30 - 09:45 S4G-0018 DEVELOPING ALUMINUM ALLOYS FOR HYDROGEN GENERATION IN WATER USING HIGH-PRESSURE TORSION**

Fan Zhang<sup>1,2</sup>, Kaveh Edalati<sup>2</sup>, Makoto Arita<sup>1</sup>, Zenji Horita<sup>1,2</sup>

<sup>1</sup>Department of Materials Science and Engineering, Faculty of Engineering, Kyushu University, Japan. <sup>2</sup>WPI, International Institute for Carbon-Neutral Energy Research (I2CNER), Kyushu University, Japan

▶ **09:45 - 10:00 S4G-0019 Invited Talk BALL MILLED AND SPD-NANOMATERIALS FOR HYDROGEN STORAGE**

D. R. Leiva<sup>1</sup>, R. Floriano<sup>2</sup>, T. T. Ishikawa<sup>1</sup>, C. S. Kiminami<sup>1</sup>, W. J. Botta<sup>1</sup>

<sup>1</sup>Departamento de Engenharia de Materiais, Universidade Federal de São Carlos, Brazil. <sup>2</sup>Faculdade de Ciências Aplicadas, Universidade Estadual de Campinas, Brazil.

▶ **10:00 - 10:30 SNM-0013 Invited Talk HYDROGENATION PROPERTIES OF MG-ALLOYS PROCESSED BY ECAP AND COLD-ROLLING: INFLUENCE OF TEXTURES, GRAIN SIZE, PRECIPITATION AND CATALYSTS**

Alberto Moreira Jorge Júnior<sup>1,2</sup>

<sup>1</sup> Departamento de Engenharia de Materiais, Universidade Federal de São Carlos, Brazil. <sup>2</sup> LEPMI and SiMap Laboratory CNRS, France.

▶ **10:30 - 11:00 S4G-0020 Invited Talk CHARACTERIZATION OF HYDROGEN STORAGE PROPERTIES OF Mg-Fe-CNT COMPOSITES PREPARED BY BALL MILLING, HOT-EXTRUSION AND SEVERE PLASTIC DEFORMATION METHODS**


ROOM MAYA III  
THURSDAY, AUGUST 20

Session with 6Th Latin  
American Conference on  
Metastable and  
Nanostructured Materials  
Symposium

▶ **08:30 - 09:00 SNM-0012 Invited Talk EFFECT OF SUBSTITUTION OF VANADIUM BY FERROVANADIUM IN Ti-V-Mn BCC ALLOYS: HYDROGEN STORAGE PROPERTIES AND NEUTRON DIFFRACTION STUDY**

**Gisele Ferreira de Lima<sup>1</sup>, Maria Regina Martins Triques<sup>2</sup>, Claudio Shyinti Kiminami<sup>2</sup>, Walter Jose Botta<sup>2</sup>, Alberto Moreira Jorge Junior<sup>2</sup>**

<sup>1</sup>Science and Technology Institute, Federal University of São Paulo, São José dos Campos/SP, Brazil; <sup>2</sup>Department of Materials Engineering, Federal University of São Carlos, São Carlos/SP, Brazil.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

**▶ 12:30 - 13:00 S4G-0021 *Invited Talk* MICROSTRUCTURAL EVOLUTION OF Ti6Al-7Nb ALLOYS PROCESSED BY HIGH PRESSURE TORSION AND EQUAL-CHANNEL ANGULAR PRESSING PROCESSES**

**C.S. Kiminami<sup>1</sup>, W.J. Botta<sup>1</sup>, J. Gallego<sup>2</sup>, R. Valiev<sup>3</sup>, C. Bolfarini<sup>1</sup>, and A.M. Jorge Jr<sup>1</sup>**

<sup>1</sup> Department of Materials Engineering, Federal University of São Carlos, São Carlos, São Paulo, Brazil. <sup>2</sup> Department of Mechanical Engineering, UNESP - São Paulo State University, Ilha Solteira, São Paulo, Brazil. <sup>3</sup> Institute of Physics of Advanced Materials, Ufa State Aviation Technical University, Russian Federation

**▶ 13:00 - 13:30 S4G-0022 *Invited Talk* HIGH PRESSURE TORSION OF FERRITIC 430 AND DUPLEX SAF 2507 STAINLESS STEELS**

**C. R. M. Afonso<sup>1</sup>, A. M. Jorge Jr<sup>1</sup>**

<sup>1</sup>Universidade Federal de São Carlos (UFSCar), Departamento de Engenharia de Materiais (DEMa), São Carlos - SP, Brazil.

**▶ 13:30 - 14:00 S4G-0023 *Invited Talk* NANOCRYSTALLIZATION OF METALLIC SURFACES BY DUPLEX TREATMENTS INVOLVING SEVERE SHOT PEENING, PULSED ELECTRON BEAM AND NITRIDING.**  
**Thierry Grosdidier<sup>1,2</sup>, Youssef Samih<sup>1,3</sup>, Thierry Czerwec<sup>2,4</sup>, Chuang Dong<sup>2,3</sup>**

<sup>1</sup>Laboratoire d'Etude des Microstructures et de Mécanique des Matériaux (LEM3), France.

<sup>2</sup>Laboratoire d'Excellence Design des Alliages Métalliques pour l'Allègement de Structures, France. <sup>3</sup>Key Laboratory of Materials Modification, Dalian University of Technology, Dalian, China. <sup>4</sup>Institut Jean Lamour (IJL), CNRS, France.

 **14:00- 16:00 LUNCH**

**▶ 16:00 - 16:30 S4G-0024 *Invited Talk* PHASE DECOMPOSITION OF METASTABLE NANOCRYSTALLINE SOLID SOLUTIONS AND ITS INFLUENCE ON THERMAL STABILITY**

**A. Bachmaier<sup>1</sup>, C. Motz<sup>1</sup>, R. Pippan<sup>2</sup>**

<sup>1</sup>Chair of Materials Science and Methods, Saarland University, Saarbrücken, Germany. <sup>2</sup>Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Austria.

**▶ 16:30 - 17:00 S4G-0025 *Invited Talk* SEVERE PLASTIC DEFORMATION BY ECAP IN ALUMINUM ALLOYS AND ALUMINUM MATRIX COMPOSITE**

**Kátia Regina Cardoso<sup>1</sup>, Maria A. Muñoz-Morris<sup>2</sup>, David Morris<sup>2</sup>, Marcela Lieblich<sup>2</sup>, Dilermando Nagle Travessa<sup>1</sup>, Alberto Moreira Jorge Jr.<sup>3</sup>**

<sup>1</sup>Science and Technology Institute, Federal University of São Paulo, Brazil. <sup>2</sup>Department of Physical Metallurgy, CENIM - CSIC, Madrid, Spain. <sup>3</sup>Department of Materials Engineering, Federal University of São Carlos, São Carlos -SP, Brazil.

**■ 17:00 - 17:15 S4G-0026 IN-SITU CONSOLIDATION OF NANOSTRUCTURED Al<sub>3</sub>Fe NEAR ROOM TEMPERATURE BY HIGH-PRESSURE TORSION**

**J.M. Cubero-Sesin<sup>1,2,3</sup>, Z. Horita<sup>2,3</sup>**

<sup>1</sup>Escuela de Ciencia e Ingeniería de los Materiales, Instituto Tecnológico de Costa Rica, Costa Rica. <sup>2</sup>Department of Materials Science and Engineering, Kyushu University, Japan. <sup>3</sup>WPI, International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan

**■ 17:15 - 17:30 S4G-0027 EVALUATION OF THE TRIBOLOGICAL PROPERTIES OF AN AL-MG-SI ALLOY PROCESSED BY SEVERE PLASTIC DEFORMATION: LUBRICATED CONDITIONS**

**E. Ortiz-Cuellar<sup>1</sup>, M. A. L. Hernandez-Rodriguez<sup>1</sup>, E. García-Sánchez<sup>1</sup>**

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, CIDET, Mexico.

**■ 17:30 - 17:45 S4G-0028 DISLOCATION STUDY OF ARMCO IRON PROCESSED BY ECAP**

**J.A Muñoz<sup>1</sup>, O.F Higuera<sup>1,2</sup>, J. M Cabrera<sup>1,3</sup>**

<sup>1</sup>Department of Materials Science and Metallurgical Engineering ETSEIB, Universidad Politécnica de Catalunya, Barcelona, Spain. <sup>2</sup>Faculty of Mechanical Engineering, Universidad Tecnológica de Pereira, Colombia. <sup>3</sup>Fundació CTM Centre Tecnològic, Manresa, Spain.

S-4G



■ **17:45 - 18:00 S4G-0029 EVOLUTION OF Ni STRUCTURE UNDER ECAP AND DCAP AND FURTHER ANNEALING**

V.V. Popov<sup>1</sup>, E.N. Popova<sup>1</sup>, D.D. Kuznetsov<sup>1</sup>, A.V. Stolbovsky<sup>1</sup>, Reglitz<sup>2</sup>, S.V. Divinsky<sup>2</sup>, G. Wilde<sup>2</sup>, E.V. Shorohov<sup>3</sup>

<sup>1</sup>M.N. Miheev Institute of Metal Physics, Ural Branch of RAS, S., Russia, <sup>2</sup>Institute of Materials Physics, Wilhelm University, Munster, Germany. <sup>3</sup>Russian Federal Nuclear Center of All-Russia Institute of Technical Physics, Snezhinsk, Russia

■ **18:00 - 18:15 S4G-0030 MARTENSITIC TRANSFORMATION ON FeMnSi SHAPE MEMORY ALLOYS INVESTIGATED BY IN-SITU SYNCHROTRON RADIATION AND BY EBSD**

R.E. Bolmaro<sup>1</sup>, M. Avalos<sup>1</sup>, A.V. Druker<sup>1</sup>, J. Malarría<sup>1</sup>, N. Schell<sup>2</sup>, Z.Y. Zhong<sup>2</sup>, H-G. Brokmeier<sup>2</sup>

<sup>1</sup>Instituto de Física Rosario-CONICET-UNR, Rosario, Argentina. <sup>2</sup>Institut für Werkstoffkunde und Werkstofftechnik, TU Clausthal, Hamburg, Germany.

■ **18:15 - 18:30 S4G-0031 THE PHYSICS OF SUPER PLASTIC FLOW IN ADVANCED MATERIALS PROCESSED BY SEVERE PLASTIC DEFORMATION**

D. Muñoz-Andrade<sup>1</sup>

<sup>1</sup>Departamento de Materiales, División de Ciencias Básicas e Ingeniería, Universidad Autónoma Metropolitana Unidad Azcapotzalco, México.

## Symposium 5A

# MICRO AND NANOMECHANICAL TESTING OF MATERIALS

**Edgar O. Garcia Sanchez** / MEXICO / Universidad Autónoma de Nuevo León

**Ruth Schwaiger** / GERMANY / Karlsruhe Institute of Technology

**Jon Molina Aldareguia** / SPAIN / IMDEA Materials Institute

**Eric R. Homer** / USA / Brigham Young University

ROOM: MAYA VIII  
MONDAY, AUGUST 17

 Session Chair: **ERIC HOMER BRIGHAM YOUNG UNIVERSITY, USA**

▶ **09:00 - 09:30 S5A-0001 *Invited Talk* MEASUREMENT OF POWER LAW CREEP PARAMETERS BY INSTRUMENTED INDENTATION METHODS**

G.M. Pharr<sup>1,2</sup>

<sup>1</sup> Department of Materials Science and Engineering, University of Tennessee, USA. <sup>2</sup> Materials Science and Technology Division, Oak Ridge National Laboratory, USA

▶ **09:30 - 10:00 S5A-0002 *Invited Talk* ADVANCES IN INSTRUMENTED INDENTATION: "CONVENTIONAL" MECHANICAL TESTING AT THE MICRON SCALE**

Erica T. Lilleodden<sup>1</sup>,

<sup>1</sup>Department of Experimental Materials Mechanics Institute for Materials Research, Materials Mechanics Helmholtz-Zentrum

Geesthacht Max-Planck-Strasse 1, Germany

■ **10:00 - 10:15 S5A-0003 MECHANICAL TESTING OF  $\alpha$ -BRASS MICROPILLARS CONTAINING A TWIN BOUNDARY**

B. Merle<sup>1</sup>, J. Liebig, M. Göken<sup>1</sup>

<sup>1</sup>Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Materials Science & Engineering 1. Martensstr. 5, Germany

■ **10:15 - 10:30 S5A-0004 DETERMINATION OF CRSS VALUES IN FULLY LAMELLAR TiAl ALLOYS THROUGH MICROPILLAR COMPRESSION**

J.M. Molina-Aldareguia<sup>1</sup>, M.T. Pérez-Prado<sup>1</sup> and A. Palomares-García<sup>1</sup>

<sup>1</sup>IMDEA Materials Institute, Madrid, Spain.

■ **10:30 - 10:45 S5A-0005 PLASTICITY AND FAILURE OF NANOCRYSTALLINE ALLOYS PROBED WITH SMALL-SCALE MECHANICAL TESTING**

Amirhossein Khalajhedayati<sup>1</sup>, Timothy J. Rupert<sup>1,2</sup>

<sup>1</sup>Chemical Engineering and Materials Science, University of California, Irvine, <sup>2</sup>Mechanical and Aerospace Engineering, University of California, Irvine

■ **10:45 - 11:00 S5A-0006 NUCLEATION, PROPAGATION, AND GROWTH OF DEFORMATION TWINS IN HEXAGONAL METALS**

Jian Wang<sup>1</sup>, Carlos N Tome<sup>1</sup>

<sup>1</sup>Los Alamos National Laboratory.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **JON MOLINA ALDAREGUIA IMDEA MATERIALS INSTITUTE, SPAIN**

▶ **12:30 - 13:00 S5A-0007 *Invited Talk* EXPERIMENT AND SIMULATION IN SMALL SCALE PLASTICITY - OVERVIEW AND STEPS TOWARDS A UNIFYING VIEW ON DISLOCATION MICROSTRUCTURE**

Stefan Sandfeld<sup>1</sup>



<sup>1</sup>Friedrich-Alexander Universität Erlangen-Nürnberg (FAU), Germany

▶ **13:00 - 13:30 S5A-0008 *Invited Talk* SCALEBRIDGING SIMULATION OF NANOINDENTATION AND INVERSE METHODS**

Alexander Hartmaier<sup>1</sup>

<sup>1</sup>ICAMS, Ruhr-Universität Bochum, Germany.

▶ **13:30 - 14:00 S5A-0009 *Invited Talk* INVESTIGATING NANOSCALE CONTACT USING AFM-BASED INDENTATION AND MOLECULAR DYNAMICS SIMULATIONS**

S. Schmidt<sup>1</sup>, S. Roy<sup>2</sup>, D. Mordehai<sup>2</sup>, C.A. Volkert<sup>1</sup>

<sup>1</sup>Institute of Materials Physics, Georg-August-University, Göttingen, Germany. <sup>2</sup>Department of Mechanical Engineering, Technion, Haifa, Israel.

✕ **14:00- 16:00 LUNCH**

👤 Session Chair: **EDGAR O. GARCIA SANCHEZ**  
**UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN**  
**MÉXICO**

▶ **16:00 - 16:30 S5A-0010 *Invited Talk* SUPERELASTICITY AND SHAPE MEMORY IN SMALL-SCALE METALS AND CERAMICS**

Christopher A. Schuh<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, MIT

■ **16:30 - 16:45 S5A-0011 TEMPERATURE DEPENDENCE OF SUPERELASTIC BEHAVIOR IN CU-BASED SHAPE MEMORY ALLOY WIRES**

N. Tuncer<sup>1</sup>, J. Formell<sup>1,2</sup>, C.A. Schuh<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, MIT, Cambridge, USA. <sup>2</sup>Departament de Física, Facultat de Ciències, Universitat Autònoma de Barcelona, Spain

■ **16:45 - 17:00 S5A-0012 THE ROLE OF DEFECTS FOR THE STRENGTH OF METALLIC NANOWIRES**

Charlotte Ensslen<sup>1</sup>, Christian Brandl<sup>1</sup>, Reiner Mönig<sup>1</sup>, Oliver Kraft<sup>1</sup>

<sup>1</sup>Karlsruhe Institute of Technology, Institute for Applied Materials, Germany

▶ **17:00 - 17:30 S5A-0013 *Invited Talk* EFFECT OF STRESS ON TEXTURE TRANSFORMATIONS IN THIN Ag FILMS**

S.P. Baker<sup>1</sup>, E.A. Ellis<sup>1</sup>, M. Chmielus<sup>2</sup>, M-T. Lin<sup>1,3</sup>, H. Jores<sup>1,4</sup>, K.A. Visser<sup>1</sup>, A. Woll<sup>4</sup>, R.P. Vinci<sup>5</sup>, W.L. Brown<sup>5</sup>

<sup>1</sup> Cornell University, Department of Materials Science and Engineering, Bard Hall, Ithaca, USA. <sup>2</sup> University of Pittsburgh, Department of Mechanical Engineering & Materials Science, Benedum Hall, Pittsburgh, USA. <sup>3</sup> National Chung Hsing University, Graduate Institute of Precision Engineering, Taiwan. <sup>4</sup> Cornell University, Cornell High Energy Synchrotron Source, Wilson Lab, Ithaca, USA. <sup>5</sup> Lehigh University, Department of Materials Science and Engineering, Whitaker Laboratory, USA

▶ **17:30 - 18:00 S5A-0014 *Invited Talk* CORROSION IN NANOSCALE GRAIN BOUNDARY ENGINEERED MATERIALS**

A.M. Hodge<sup>1</sup>

<sup>1</sup>Department of Aerospace and Mechanical Engineering, The Mork Family Department of Chemical Engineering and Material Science University of Southern California, Los Angeles, USA.

**ROOM: MAYA VIII**  
**TUESDAY, AUGUST 18**

👤 Session Chair: **RUTH SCHWAIGER KARLSRUHE**  
**INSTITUTE OF TECHNOLOGY (KIT), GERMANY**

▶ **09:00 - 09:30 S5A-0015 *Invited Talk* NANOGASSES - EXPANDING OUR VIEWS OF THE AMORPHOUS STATE**

A. Fischer<sup>1</sup>, R. Witte<sup>1</sup>, C. Wang<sup>1</sup>, M. Ghafari<sup>1</sup>, R. Kruk<sup>2</sup>, H. Gleiter<sup>2</sup>, H. Hahn<sup>3</sup>

<sup>1</sup> Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Germany. <sup>2</sup>Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Germany and Herbert Gleiter Institute of Nanoscience, Nanjing University of Science and Technology, Nanjing, China <sup>3</sup>Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Germany, KIT-TUD Joint Research Laboratory Nanomaterials, TU Darmstadt, Darmstadt, Germany and Herbert Gleiter Institute of Nanoscience, Nanjing University of Science and Technology, Nanjing, China

▶ **09:30 - 10:00 S5A-0016 *Invited Talk* COMMONALITIES IN PLASTIC DEFORMATION OF DISORDERED MATERIALS**

D.J. Strickland<sup>1</sup>, D.J. Magagnosc<sup>1</sup>, Y. Huang<sup>2</sup>, D. Lee<sup>2</sup>, D.S. Gianola<sup>1</sup>



<sup>1</sup>University of Pennsylvania, Department of Materials Science and Engineering. <sup>2</sup>University of Pennsylvania, Department of Chemical and Biomolecular Engineering

■ **10:00 - 10:15 S5A-0017 EXPERIMENTS AND SIMULATIONS OF CYCLIC STRENGTHENING IN A METALLIC GLASS**

O. Franke<sup>1,2</sup>, E.R. Homer<sup>1,3</sup>, C. Wallace<sup>1</sup>, C.A. Schuh<sup>1</sup>

<sup>1</sup> Department of Materials Science & Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA. <sup>2</sup> Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, CA, USA. <sup>3</sup> Department of Mechanical Engineering, Brigham Young University, Provo, UT, USA.

■ **10:15 - 10:30 S5A-0018 MECHANICAL PROPERTIES OF SPIN CROSSOVER MATERIALS USING AFM**

Edna M. Hernández<sup>1</sup>, Carlos Quintero<sup>1</sup>, Christophe Thibault<sup>2</sup>, Lionel Salmon<sup>1</sup>, Gábor Molnár<sup>1</sup>, Azzedine Bousseksou<sup>1</sup>

<sup>1</sup> LCC, CNRS & Université de Toulouse (UPS, INP), France. <sup>2</sup> LAAS, CNRS & Université de Toulouse (UPS, INSA, ISAE), France

▶ **10:30 - 11:00 S5A-0019 Invited Talk ELEVATED TEMPERATURE NANOMECHANICAL TESTING TO EXPLORE SIZE EFFECTS IN TRANSITION METALS**

D.F. Bahr<sup>1</sup> and M.R. Maughan<sup>1</sup>

<sup>1</sup>School of Materials Engineering, Purdue University, USA.

☐ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **EDGAR O. GARCIA SANCHEZ** UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN - FIME, MÉXICO

▶ **12:30 - 13:00 S5A-0020 Invited Talk IN-SITU SEM MICRO-MECHANICAL TESTING: HIGH STRAIN RATES AND VARIABLE TEMPERATURES**

Johann Michler<sup>1</sup>

<sup>1</sup>Empa, Materials Science and Technology, Switzerland.

▶ **13:30 - 14:00 S5A-0021 Invited Talk HYDROGEN EMBRITTLMENT FROM A NANOSCALE PERSPECTIVE**

Afroz Barnoush<sup>1</sup>

<sup>1</sup>NTNU, Department of Engineering Design and Materials, Norway.



**14:00- 16:00 LUNCH**

👤 Session Chair: **JON MOLINA ALDAREGUIA** IMDEA MATERIALS INSTITUTE, SPAIN

▶ **16:00 - 16:30 S5A-0022 Invited Talk MULTISCALE PERSPECTIVE OF EXPLORING THE ROLE OF INTERFACES IN METAL-CERAMICS COMPOSITES**

Jian Wang<sup>1</sup>, Shuai Shao<sup>1</sup>, Caizhi Zhou<sup>2</sup>, Amit Misra<sup>3</sup>

<sup>1</sup>Los Alamos National Laboratory; <sup>2</sup>Missouri Science and Technology; <sup>3</sup>University of Michigan

■ **16:30 - 16:45 S5A-0023 CU/AU AND CU/CR MULTILAYERS UNDER SLIDING CONTACT**

Ruth Schwaiger<sup>1</sup>, Zhao-Ping Luo<sup>1</sup>, Guang-Ping Zhang<sup>2</sup>

<sup>1</sup>Karlsruhe Institute of Technology, Institute for Applied Materials, Karlsruhe, Germany. <sup>2</sup>Institute of Metal Research, Chinese Academy of Sciences, Shenyang, P.R. China

■ **16:45 - 17:00 S5A-0024 CHARACTERIZATION OF COATINGS PRODUCED BY PLASMA ELECTROLYTIC OXIDATION (PEO)**

O. Hussein<sup>1</sup>, X. Nie<sup>1</sup>, D. O. Northwood<sup>1</sup>

<sup>1</sup>Department of Mechanical, Automotive and Materials Engineering, University of Windsor, Canada

▶ **17:00 - 17:30 S5A-0025 Invited Talk ON THE USE OF NANO INDENTATION TO PREDICT CONSTITUTIVE BEHAVIOR OF EPOXY RESINS**

P. M. Frontini<sup>1</sup> Carlos Molina<sup>1</sup> and L. Sanchez Fellay<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Ciencia y Tecnología de Materiales (INTEMA) . UNIVERSIDAD Nacional de Mar del Plata, ARG.ENTINA

■ **17:30 - 17:45 S5A-0026 GOING TO THE CHARACTERIZATION OF POLYMERIC ARTIFICIAL MUSCLE FOR NANOPositionING WITH A PROPORTIONAL-INTEGRAL CONTROL SYSTEM**

Valero, Laura L.<sup>1,2</sup>; Otero, Toribio F. <sup>2</sup>; Estévez, Angel<sup>1</sup> Rodríguez, Eduardo<sup>1</sup>

<sup>1</sup> Universidad Autónoma del Estado de México, Engineering school, México. <sup>2</sup> Universidad Politécnica de Cartagena, Physical Chemistry, Center for Electrochemistry and Intelligent Materials (CEMI), Spain

S-5A



ROOM: TERRACE  
TUESDAY, AUGUST 18

► 18:30 -20:30 POSTER SESSION & COFFEE BREAK

■ **S5A-P001 MODELLING SLIP-TWIN INTERACTIONS IN TWINNING INDUCED PLASTICITY STEELS**

C. Ozmenci<sup>1</sup> and D. Canadinc<sup>1</sup>

<sup>1</sup>Koç University, Advanced Materials Group (AMG), Department of Mechanical Engineering, Turkey. <sup>2</sup>Institut für Werkstofftechnik (Institute of Materials Engineering), Technische Universität Bergakademie Freiberg, Germany

■ **S5A-P002 TRIBOCORROSION BEHAVIOUR OF Nb/NbN FILMS**

E. Ruíz<sup>1</sup>, W. Aperador<sup>1</sup>

<sup>1</sup>School of Engineering, Universidad Militar Nueva Granada, Bogotá-Colombia.

■ **S5A-P003 EVALUATION OF THE EFFECT OF THE ENVIRONMENTAL MOISTURE ON THE FORMATION OF A SELF-LUBRICATING FILM ON THE SURFACE OF STAINLESS STEEL WITH POTENTIAL BIOMEDICAL APPLICATIONS**

J. Ramos-López<sup>1</sup>, A. Chino-Ulloa<sup>1</sup>, J. I. Pérez-Zapote<sup>1</sup>, P. A. Ruiz-Trabolsi<sup>1</sup>, M. Hernandez-Alejandro<sup>1</sup>, H. Herrera-Hernández<sup>2</sup> and E. Hernández Sánchez<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, UPIBI, México. <sup>2</sup>Universidad Autónoma del Estado de México, México

■ **S5A-P004 INFLUENCE OF SOLUTE ADDITION IN THE MICROSTRUCTURE AND HARDNESS OF THE Al-Si-Cu ALLOYS**

H.M. Medrano-Prieto<sup>1</sup>, C.G. Garay-Reyes<sup>2</sup>, C.D. Gómez-Esparza<sup>3</sup>, R. Martínez-Sánchez<sup>4</sup>.

<sup>1,2,3,4</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología,

■ **S5A-P005 NANOINDENTATION AND THERMAL ANALYSIS OF TEMPERING OF MARTENSITE IN FV535 HIGH Cr MARTENSITIC STEEL.**

L. Guerra-Fuentes<sup>1</sup>, A. Salinas-Rodríguez<sup>2</sup>, M. A. L. Hernández-Rodríguez<sup>2</sup>, E. García-Sánchez<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad de Nuevo León, San Nicolás de los Garza NL, México, <sup>2</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Saltillo

■ **S5A-P006 SPECIMEN SIZE EFFECTS ON THE WEAKENING OF A BULK METASTABLE AUSTENITIC ALLOY**

Chansun Shin<sup>1</sup>, Sangyeob Lim<sup>2</sup>, Hyung-ha Jin<sup>2</sup>, Junhyun Kwon<sup>2</sup>, Gwang-Min Sun<sup>3</sup>, Peter Hosemann<sup>4</sup>

<sup>1</sup>Department of Materials Science and Engineering, Myongji University, Korea, <sup>2</sup>Nuclear Materials Research Division, Korea Atomic Energy Research Institute, Korea, <sup>3</sup>Neutron Application Technology Division, Korea Atomic Energy Research Institute, Korea, <sup>4</sup>Department of Nuclear Engineering, University of California, Berkeley, USA

■ **S5A-P007 MICRO-SCALE ABRASIVE WEAR OF PVD AND CVD MULTI-LAYER COATINGS**

J. G. Mata-Maldonado<sup>1</sup>, R. D. Mercado-Solis<sup>1</sup>, E. Rodríguez-de-Anda<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, México. <sup>2</sup>Universidad de Guadalajara, Centro Universitario de Ciencias Exactas e Ingenierías, México.

■ **S5A-P008 MICRO-SCALE ABRASIVE WEAR OF PVD AND CVD MULTI-LAYER COATINGS**

J. G. Mata-Maldonado<sup>1</sup>, R. D. Mercado-Solis<sup>1</sup>, E. Rodríguez-de-Anda<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, México. <sup>2</sup>Universidad de Guadalajara, Centro Universitario de Ciencias Exactas e Ingenierías, México.

■ **S5A-P009 SOFTWARE FOR THE CALCULATION OF WEAR VOLUMES IN MICRO-ABRASION TESTS**

P.Guzman<sup>1</sup>, W. Aperador<sup>1</sup>, J. Caballero<sup>1</sup>

<sup>1</sup>School of Engineering, Universidad Militar Nueva Granda, Colombia.

■ **S5A-P010 COMPARISON BETWEEN POINT DEFLECTION AND BULGE TESTING OF RECTANGULAR MEMBRANES**

B. Merle<sup>1</sup>, K. Nicholson, M. Göken<sup>1</sup>

<sup>1</sup>Friedrich-Alexander-University Erlangen-Nürnberg (FAU), Materials Science & Engineering 1. Erlangen, Germany

■ **S5A-P011 COMPARATIVE STUDY OF TiN COATINGS OBTAINED IN A UHV SPUTTERING SYSTEM IN THE DC AND PULSED DC MODES**

Chipateca-Godoy<sup>1</sup>, O. Ceballos-Sánchez<sup>1</sup>, G. Gómez-Sosa<sup>1</sup>, A. DeLuna-Bugallo<sup>1</sup>, Z. Montiel-González<sup>1</sup>, JJ Olaya-Flórez<sup>2</sup>, A. Herrera-Gómez<sup>1</sup>

<sup>1</sup> CINVESTAV-Unidad Querétaro. Querétaro, México. <sup>2</sup> Universidad Nacional de Colombia, Ciudad Universitaria, Colombia

■ **S5A-P012 TRIBOLOGICAL AND TRIBOCORROSION BEHAVIORS OF W-WN MULTILAYER HARD COATING; AN ANALYSIS OF THE WEAR TRACK**

C. D. Rivera-Tello<sup>1</sup>, O. Jimenez<sup>1</sup>, M. Flores Martinez<sup>1</sup>

<sup>1</sup>Centro Universitario de Ciencias Exactas e Ingenierías CUCEI, Universidad de Guadalajara, Guadalajara Jalisco México

■ **S5A-P013 NANOINDENTATION RESPONSE OF NiTi SHAPE MEMORY ALLOY AT SUPERELASTIC CONDITION**

F F R Pereira<sup>1</sup>, J Dean<sup>1</sup>, T W Clyne<sup>1</sup>

<sup>1</sup>Department of Materials Science and Metallurgy, University of Cambridge

■ **S5A-P014 NANOINDENTATION OF DEFORMED AND AGED MICROSTRUCTURES OF 2024 ALUMINUM ALLOY PROCESSED BY EQUAL CHANNEL ANGULAR PRESSING**

M. Torres-López<sup>1</sup>, R. Deaquino-Lara<sup>2</sup>, M. A. L. Hernandez-Rodríguez<sup>1</sup>, E. García-Sánchez<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad de Nuevo León, San Nicolás de los Garza NL, México.

<sup>2</sup>Centro de Investigación y de Estudios Avanzados del IPN, unidad Saltillo.

■ **S5A-P015 CORRELATION BETWEEN STRUCTURAL DEFECTS AND NANOINDENTATION IN A 5083 ALUMINUM ALLOY PROCESSED BY ECAP**

K.A. Leyva-González<sup>1</sup>, E. Hermosillo-Escobedo<sup>1</sup>, R. Deaquino-Lara<sup>2</sup>, E. García-Sánchez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, CIDET, San Nicolás de los Garza, N.L., México. <sup>2</sup>Centro de Investigación y de Estudios Avanzados (CINVESTAV) unidad Saltillo,

■ **S5A-P016 HIGH CYCLE FATIGUE (HCF) BEHAVIOUR OF ARMCO-FE AFTER SEVERE PLASTIC DEFORMATION BY ECAP**

J.A. Muñoz Bolaños<sup>(1)</sup>, O.F. Higuera<sup>(2)</sup>, J.M. Cabrera Marrero<sup>(1,3)</sup>

<sup>(1)</sup>Department of Materials Science and Metallurgical Engineering ETSEIB, Universidad Politecnica de Catalunya, Spain. <sup>(2)</sup>Faculty of Mechanical Engineering, Universidad Tecnológica de Pereira, Colombia. <sup>(3)</sup>Fundación CTM, Spain.

■ **S5A-P017 EVALUATION OF DAMAGE PROGRESSION AND MECHANICAL BEHAVIOR UNDER COMPRESSION OF BONE CEMENTS CONTAINING CORE-SHELL NANOPARTICLES BY USING ACOUSTIC EMISSION TECHNIQUE**

O.F. Pacheco-Salazar<sup>1</sup>, S. Wakayama<sup>2</sup>, T. Sakai<sup>2</sup>, C.R. Ríos-Soberanis<sup>1</sup>, J.M. Cervantes-Uc<sup>1</sup>

<sup>1</sup>Unidad de Materiales, Centro de Investigación Científica de Yucatán, México. <sup>2</sup> Tokyo Metropolitan University, Japan.

■ **S5A-P018 TITANIUM DOPED TUNGSTEN DISULPHIDE/ TITANIUM MULTILAYER SYNTHESIS USING MAGNETRON CO-SPUTTERING**

T.Montenegro<sup>1</sup>, J.M.González<sup>2</sup>, C.Ortega<sup>3</sup>, F.Sequeda<sup>4</sup>

<sup>1</sup>Estudiante de Ingeniería de Materiales, Universidad del Valle, Cali – Colombia, Cali. <sup>2</sup>Ph.D en Ingeniería de Materiales, Universidad del Valle, Cali-Colombia. <sup>3</sup>Estudiante de Maestría en Ingeniería Química, Universidad del Valle, Cali-Colombia, <sup>4</sup>Ph.D en Ingeniería de Materiales, Universidad del Valle, Cali-Colombia.

## Symposium 5B

# STRUCTURAL AND CHEMICAL CHARACTERIZATION OF METALS, ALLOYS AND COMPOUNDS

Ramiro Pérez Campos / MEXICO / Centro de Física Aplicada y Tecnología Avanzada, UNAM

Antonio Contreras Cuevas / MEXICO / Instituto Mexicano del Petróleo

Rodrigo Esparza Muñoz / MEXICO / Centro de Física Aplicada y Tecnología Avanzada, UNAM

ROOM: MAYA VII  
MONDAY, AUGUST 17

 Session Chair: RAMIRO PÉREZ CAMPOS

■ **09:00 - 09:15 S5B-0001 STUDY OF THE THERMOMECHANICAL PROCESSING ON THE FORMABILITY PARAMETERS OF IF STEEL FOR AUTOMOTVE APPLICATIONS**

M. A. Bocanegra Gálván<sup>1</sup>, S. Haro Rodríguez<sup>2</sup>, M. P. Guerrero Mata<sup>1</sup>, O. García Ricón<sup>3</sup>

<sup>1</sup>Maestría en Ciencias de la Ingeniería Mecánica con especialidad en Materiales, <sup>2</sup>Unidad Académica de Ingeniería, Universidad Autónoma de Zacatecas, Zacatecas, México, <sup>3</sup>Ternium México, S.A. de C.V. Monterrey, N.L. México

■ **09:15 - 09:30 S5B-0002 DETERMINATION OF RESIDUAL STRESS ON METAL AND POLYMERIC FORMED PART BY SINGLE POINT INCREMENTAL SHEET FORMING PROCESS BY USING X-RAY DIFFRACTION AND HOLE-DRILLING EXPERIMENTAL TECHNIQUES**

I. Jiménez<sup>1</sup>, C. López<sup>1</sup>, O. Matrínez-Romero<sup>2</sup>, A. Elías-Zuñiga<sup>2</sup>, J. M. Diadd<sup>1</sup>, H. Siller<sup>2</sup>, C.A. Rodríguez<sup>2</sup>, N. J. Hendrichs<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, Tecnológico de Monterrey, ITESM, México. <sup>2</sup>School of Engineering and Science, Tecnológico de Monterrey, ITESM, México.

■ **09:30 - 09:45 S5B-0003 INVESTIGATION OF LOW PRESSURE RADIO FREQUENCY AMMONIA PLASMA TREATEMENT ON POLYPROPYLEN FILM AND FIBERS**

Mustafa Özgür Öteyaka<sup>1</sup>, Lucie Robitaille<sup>2</sup>, Gaetan Laroche<sup>3</sup>

<sup>1</sup>Eskişehir Osmaniye Karamanli Üniversitesi, Eskişehir Meslek Yüksekokulu, Organize Sanayi Bölgesi, Eskişehir, Türkiye. <sup>2</sup>Institut des Matériaux Industriels (IMI), Conseil National de Recherches du Canada, Canada. <sup>3</sup>Laboratoire d'ingénierie de Surface, Centre de Recherche sur les Matériaux Avancés (CERMA), Département de Génie des Mines, de la Metallurgie et des Matériaux, Université Laval, Quebec City, Canada.

■ **09:45 - 10:00 S5B-0004 INFLUENCE OF CHEMICAL COMPOSITION ON MECHANICAL PROPERTIES IN Ni-Cr ALLOYS APPLIED TO AERONAUTIC**

G.M. Hernández-Muñoz<sup>1</sup>, J.F. Macías<sup>2</sup>, P.Zambrano<sup>1</sup>, L.A. Reyes-Osorio<sup>1</sup>, O. Covarrubias A.<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León México. <sup>2</sup>Instituto Tecnológico de Zacatecas. Departamento Metal-Mecánica. México.

■ **10:00 - 10:15 S5B-0005 MICROSTRUCTURAL CHARACTERISTICS AND MECHANICAL PROPERTIES OF FRICTION STIR SPOT WELDING JOINTS OF Ti-6Al-4V TITANIUM ALLOY**

P. Zambrano<sup>1</sup>, F.A García-Castillo<sup>1</sup>, J.A. Rojas-Ortegón<sup>1</sup>, G.M. Hernández-Muñoz<sup>1</sup>, A. Quiroga-Barbosa<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León. Facultad de Ingeniería Mecánica y Eléctrica. Centro de Investigación e Innovación en Ingeniería Aeronáutica,

■ **10:15 - 10:30 S5B-0006 FRICTION STIR SPOT WELDING ON Ti-6Al-4V ALLOY COMPONENTS FOR SPACECRAFT APPLICATION**

F.A. García-Castillo<sup>1</sup>, P. Zambrano<sup>1</sup>, A. Quiroga-Barbosa<sup>1</sup>, G.M. Hernández-Muñoz<sup>1</sup>, J. A. Rojas-Ortegón<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León. Facultad de Ingeniería Mecánica y Eléctrica. Centro de Investigación e Innovación en Ingeniería Aeronáutica,

■ **10:30 - 10:45 S5B-0007 THE INFLUENCE OF Ce DOPING ON THE STRUCTURAL AND OPTOELECTRONIC PROPERTIES OF RF-SPUTTERED ZnO FILMS**

Manuel García-Méndez<sup>1</sup>, Ricardo Rangel Segura<sup>2</sup>, Víctor Coello<sup>3</sup>, Eduardo Martínez Guerra<sup>4</sup>, Alvaro Bedoya-Calle<sup>5</sup>

<sup>1</sup>CICFIM de la FCFM-UANL, México. <sup>2</sup>División de Estudios de Posgrado, Facultad de Ingeniería Química, UMSNH, Francisco J. México. <sup>3</sup>CICESE Unidad Monterrey, México. <sup>4</sup>Centro de Investigación en Materiales Avanzados, S.C. (CIMAV), México. <sup>5</sup>FIME de la UANL, México.

■ **10:45 - 11:00 S5B-0008 STUDY OF 316L STAINLESS STEEL IN CONTACT WITH PHYSIOLOGICAL SOLUTION OF DEXTROSE AND SODIUM CHLORIDE FOR USE IN IMPLANTS**

A. Salazar Peralta<sup>1</sup>, R.H. Chavez<sup>2</sup>, J.A. Pichardo Salazar<sup>3</sup>.

<sup>1</sup>Tecnológico de Estudios Superiores de Jocotitlán, México <sup>2</sup>Instituto Nacional de Investigaciones Nucleares, México. <sup>3</sup>UNITEC Campus Toluca. México.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: RAMIRO PÉREZ CAMPOS**

▶ **12:30 - 13:00 S5B-0009 Invited Talk THERMAL AND PHYSICAL PROPERTIES TECHNIQUES FOR THE CHARACTERIZATION OF METALS, ALLOYS AND COMPOSITES**

Ekkehard Post<sup>1</sup>, Bob Fidler<sup>1</sup>

<sup>1</sup>NETZSCH Geraetebau GmbH, Germany <sup>1</sup>NETZSCH Instruments North America, LLC

■ **13:00 - 13:15 S5B-0010 ENHANCEMENT OF MECHANICAL PROPERTIES OF STEEL 420 USING A TaN COATING DOPED WITH Ag and Cu NANOPARTICLES**

G. Bejarano Gaitán<sup>1</sup>, A. Milena Echavarría<sup>1</sup>

<sup>1</sup>CIDEMAT, Departamento de Ingeniería de Materiales, Facultad de Ingeniería, Universidad de Antioquia, Colombia

■ **13:15 - 13:30 S5B-0011 INFLUENCE OF DRILLING PARAMETERS BY EDM ON THE HSLA STEEL MICROSTRUCTURE**

L. M. Zúñiga-Ortiz<sup>1</sup>, H. M. Hdz-García<sup>1</sup>, E. E. Granda-Gutiérrez<sup>1</sup>, N. P. Hung<sup>2</sup>, P. Pérez-Villanueva<sup>1</sup>, R. Muñoz-Arroyo<sup>1</sup>, J.C. Díaz-Guillen<sup>1</sup>

<sup>1</sup>COMIMSA-Saltillito, México <sup>2</sup>Texas A&M University, Department of Mechanical and Advanced Manufacture, College Station, Texas, USA

■ **13:30 - 13:45 S5B-0012 DIGITAL FRACTURE ANALYSIS OF REHEATED HAZ IN GMAW MULTILAYER WELDED JOINTS ON STRUCTURAL STEEL**

B. Vargas-Arista<sup>1</sup>, O. Mendoza-Camargo<sup>1</sup>, F. García-Vázquez<sup>2</sup>, E. Garfías-García<sup>3</sup>

<sup>1</sup>División de Estudios de Posgrado e Investigación, Instituto Tecnológico de Tlalneapantla, México. <sup>2</sup>Corporación Mexicana de Investigación en Materiales (COMIMSA), México. <sup>3</sup>Departamento de Materiales, UAM-Azcapotzalco, México.

■ **13:45 - 14:00 S5B-0013 MgAl MIXED OXIDES OBTAINED FROM HYDROTALCITES FOR THE DEGRADATION OF 2,4,6-TRICHLOROPHENOL**

E. Ramos Ramírez<sup>1</sup>, N. L. Gutiérrez Ortega<sup>2</sup>, F. Tzompantzi Morales<sup>3</sup>, Claudia M. Gómez<sup>1</sup>, E. Pabón Gelvés<sup>4</sup>

<sup>1</sup>Departamento de Química, División de Ciencias Naturales y Exactas de la Universidad de Guanajuato, México, <sup>2</sup>Departamento de Ingeniería Civil, División de Ingenierías de la Universidad de Guanajuato, México, <sup>3</sup>Ecocatalisis, Departamento de Química, UAM-Iztapalapa, México, <sup>4</sup>Grupo Ciencia de Materiales Avanzados. Facultad de Ciencias, Universidad Nacional de Colombia- Sede Medellín.

✕ **14:00- 16:00 LUNCH**

👤 **Session Chair: RAMIRO PÉREZ CAMPOS**

■ **16:00 - 16:15 S5B-0014 CERTIFICATION PROCESS OF A REFERENCE MATERIAL Cu-Zn ALLOY TO DETERMINATE CONTENT OF PHASES.**

M. de Lourdes Valdes<sup>1</sup>, Héctor Herrera<sup>2</sup>, J. Manuel Juárez<sup>1</sup>





<sup>1</sup> Centro Nacional de Metrología, México. <sup>2</sup> Centro Universitario UAEM Valle de México, Universidad Autónoma del Estado de México. México.

■ **16:15 - 16:30 S5B-0015 THE ROLE OF FRICTION STIR PROCESSING (FSP) PARAMETERS ON TiC REINFORCED SURFACE COMPOSITE Al7075-T651 ALUMINUM ALLOY**

García-Vázquez<sup>1</sup>, D. Verdera<sup>2</sup>, P. Rey<sup>2</sup>, R. Saldaña-Garcés<sup>1</sup>, B. Vargas-Arista<sup>3</sup>, M.A. Aguilar-González<sup>4</sup>

<sup>1</sup>Corporación Mexicana de Investigación en Materiales (COMIMSA), México, <sup>2</sup>Asociación de Investigación Metalúrgica del Noreste (AIMEN), España, <sup>3</sup>Instituto Tecnológico de Tlalnepantla, División de Estudios de Posgrado e Investigación, México, <sup>4</sup>Cinvestav – Unidad Saltillo,

■ **16:30 - 16:45 S5B-0016 TRIBOLOGICAL BEHAVIOUR OF HYDROGENATED CARBON FILM (DLC) DEPOSITED ON STEEL BY PECVD UNDER DRY CONDITIONS**

J. Solis Romero<sup>1</sup>, A. Gómez Vargas<sup>1</sup>, V.A. Castellanos Escamilla<sup>1</sup>

<sup>1</sup>SEP/SES/TNM/IT de Tlalnepantla, Méx.

■ **16:45 - 17:00 S5B-0017 EFFECT OF WC NANOPARTICLES ON THE COBALT BASED OVERLAY DEPOSITED ON H13 STEEL BY PLASMA TRANSFERRED ARC (PTA)**

A.V. Zamora-López<sup>1</sup>, F.J. García-Vázquez<sup>1</sup>, H.M. Hernández-García<sup>1</sup>, A. Arizmendi-Morquecho<sup>2</sup>, A. Reyes-Valdés<sup>1</sup>, J. Acevedo-Dávila<sup>1</sup>

<sup>1</sup>Corporación Mexicana de Investigación en Materiales (COMIMSA), México, <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMAV),

■ **17:00 - 17:15 S5B-0018 SYNTHESIS AND CHARACTERIZATION OF TiO<sub>2</sub> NANOPARTICLES: CONTROLLING THE PARTICLE SIZE BY MICROWAVE ASSISTED METHOD**

M.C. Ceballos-Chur<sup>1</sup> and G. Rodríguez-Gattorno<sup>1</sup>

<sup>1</sup>Departamento de Física Aplicada, Centro de Investigación y Estudios Avanzados del IPN, Yucatán,

■ **17:15 - 17:30 S5B-0019 MEASUREMENTS OF THE CARBON DISTRIBUTION BETWEEN THE NODULES AND PERLITE IN DUCTILE IRON MATRIX**

L. A. Huerta Larrumbe<sup>1</sup>, Eduardo Hurtado Delgado<sup>1</sup>, A. F. Miranda Pérez<sup>1</sup>, G. Y. Pérez Medina<sup>1</sup>

<sup>1</sup> Corporación Mexicana de Investigación en Materiales, COMIMSA, México

■ **17:30 - 17:45 S5B-0020 WC NANOPARTICLES ADDITION IN A Ni-BASED DEPOSITED BY PLASMA TRANSFERRED ARC WITH APPLICATION ON SHALE GAS TRANSPORTATION**

J. Molina-Claros<sup>1</sup>, J. Ruiz-Mondragón<sup>1</sup>, F. García-Vázquez<sup>1</sup>, H.M. Hernández-García<sup>1</sup>, M. Trejo-Aguirre<sup>2</sup>

<sup>1</sup>Corporación Mexicana de Investigación en Materiales (COMIMSA), México, <sup>2</sup>Ingeniería y Prototipos Industriales S.A. de C.V., México

■ **17:45 - 18:00 S5B-0021 WELD BEAD GEOMETRY OF Ni-BASED ALLOY DEPOSITED BY PLASMA TRANSFERRED ARC (PTA) FOR PIPE CONDUCTION OF SHALE GAS**

C. Echavarría-Figueroa<sup>1</sup>, F. García-Vázquez<sup>1</sup>, J. Ruiz-Mondragón<sup>1</sup>, H.M. Hernández-García<sup>1</sup>, D. González-González<sup>1</sup>, A. Vargas<sup>2</sup>

<sup>1</sup>Corporación Mexicana de Investigación en Materiales (COMIMSA), México, <sup>2</sup>Innovación Tecnológica en Soldadura y Superficies S.A. de C.V., México

■ **18:00 - 18:15 S5B-0022 DYNAMIC VULCANIZATION OF EPDM/HDPE BLENDS: USE OF DFT (DENSITY OF FUNCTIONAL THEORY) FOR PEROXIDE SELECTION**

F.I. Beltrán Ramírez<sup>1</sup>, L.F. Ramos de Valle<sup>1</sup>, E. Ramírez Vargas<sup>1</sup>, A. B. Espinoza Martínez<sup>1</sup>, O. Olvera Neria<sup>2</sup>, G. Merino Hernández<sup>3</sup>

<sup>1</sup>Centro de Investigación en Química Aplicada (CIQA), México, <sup>2</sup>Universidad Autónoma Metropolitana (UAM) unidad Azcapotzalco, México, D.F. <sup>3</sup>Centro de Investigación y Estudios Avanzados (CINVESTAV), unidad Mérida, Depto. Física Aplicada, Mérida, Yucatán.

■ **18:15 - 18:30 S5B-0023 X-RAY POWDER DIFFRACTION DATA OF NEBIVOLOL HYDROCHLORIDE**

J.A. Henao<sup>1</sup>, José H. Quintana<sup>1</sup> and J.M. Delgado<sup>2</sup>

<sup>1</sup>Universidad Industrial de Santander, Facultad de Ciencias, Escuela de Química, Grupo de Investigación en Química Estructural (GIQUE), Bucaramanga, Colombia.

<sup>2</sup> Universidad de Los Andes, Facultad de Ciencias, Laboratorio de Cristalografía-LNDRX, Mérida, Venezuela.

ROOM: TERRACE  
MONDAY, AUGUST 17

► 18:30 -20:30 POSTER SESSION & COFFEE BREAK

■ **S5B-P001 BIMETALLIC ALLOY OF Fe304 Ag NANOPARTICLES; CHARACTERIZATION AND STRUCTURAL MODELING**

A. Ruíz-Baltazar<sup>1</sup>, R. Esparza<sup>1</sup>, J. Luis López-Miranda, G. Rosas<sup>2</sup>, R. Pérez<sup>1</sup>

<sup>1</sup> Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México. Juriquilla, Querétaro, México. <sup>2</sup> Instituto de Investigaciones Metalúrgicas. Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México

■ **S5B-P002 CHARACTERIZATION AND GROWTH KINETICS OF Ag NANOSTRUCTURES SYNTHESIZED BY POLYOL METHOD**

A. Ruíz-Baltazar<sup>1</sup>, R. Esparza<sup>1</sup>, O. Tellez<sup>1</sup>, J. Luis Lopez-Miranda<sup>1</sup>, G. Rosas<sup>1</sup>, R. Pérez<sup>1</sup>

<sup>1</sup> Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México. Juriquilla, Querétaro, México. <sup>2</sup> Instituto de Investigaciones Metalúrgicas. Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México

■ **S5B-P003 DETERMINATION OF MECHANICAL PROPERTIES OF HEAT-TREATED INCONEL 718 APPLIED TO AERONAUTIC INDUSTRY**

P. Zambrano<sup>1</sup>, G.M. Hernández-Muñoz<sup>1</sup>, O Covarrubias-Alvarado<sup>1</sup>, F. García Castillo, D. E. Fabela<sup>1</sup>, J.F. Macías-Sandoval<sup>2</sup>

<sup>1</sup> Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León México.

<sup>2</sup> Instituto Tecnológico de Zacatecas. Departamento Metal-Mecánica México.

■ **S5B-P004 THE INFLUENCE OF THE NOBLE METAL NANOPARTICLES ON MULTIWALLED CARBON NANOTUBES FOR DETECTING AMMONIA GAS**

Capula-Colindres<sup>1</sup>, G. Terán<sup>2</sup>, E. Torres-Santillán<sup>3</sup>, J.C. Velázquez<sup>4</sup>, D. Saucedo<sup>5</sup>

<sup>1</sup> Centro de Investigación en Computación, CIC-IPN, <sup>2,4</sup> Departamento de Ingeniería Química Industrial, ESIQIE, IPN, UPALM EDIF. 7, <sup>3</sup> Departamento de Termodinámica, ESIQIE, IPN, UPALM, <sup>5</sup> Centro de Desarrollo Aeroespacial, CDA-IPN,

■ **S5B-P005 ESTIMATION OF FRACTURE TOUGHNESS  $K_{Ic}$  FROM CHARPY IMPACT TEST DATA IN 36 STEEL WITH WET WELDING**

G. Terán<sup>1</sup>, S. Capula-Colindres<sup>2</sup>, D. Ángeles-Herrera<sup>3</sup>, R. Cuamatzi-Meléndez<sup>4</sup>, and J.C. Velázquez<sup>5</sup>

<sup>1,5</sup> Departamento de Ingeniería Química Industrial, ESIQIE, IPN, UPALM. <sup>2</sup> Centro de Investigación en Computación, CIC-IPN, México. <sup>3,4</sup> Instituto Mexicano del Petróleo, México D.F.

■ **S5B-P006 OPTICAL AND STRUCTURAL PROPERTIES CDS:PB2+ NANOCRYSTALS**

Rene Gutiérrez Pérez<sup>1</sup>, G. Hernández Téllez<sup>1</sup>, M. Zamora Tototzintle<sup>1</sup>, O. Portillo Moreno<sup>1</sup>

<sup>1</sup> Benemerita Universidad Atonoma de Puebla, Puebla, México

■ **S5B-P007 STUDY OF GRAIN REFINEMENT OF COMMERCIAL PURE ALUMINUM USING Al-3Ti-0.15C AND Al-5Ti-B MASTER ALLOYS**

Sergio Haro Rodríguez<sup>1</sup>, Gustavo Rodríguez Hernández<sup>2</sup>, Teresa A. Rodríguez Pérez<sup>2</sup>, Simitrio I. Maldonado Ruiz<sup>1</sup>, Martha P. Guerrero Mata<sup>3</sup>, María Teresa Baile Puig<sup>4</sup>, Josep A. Picas<sup>4</sup>.

<sup>1</sup> Maestría en Procesos y Manufactura, <sup>2</sup> Ingeniería Mecánica, Unidad Académica de Ingeniería, Universidad Autónoma de Zacatecas, México, <sup>3</sup> Facultad de Ingeniería Mecánica y Eléctrica, México. <sup>4</sup> Centre de Disseny d'Aliatges Lleugers i Tractaments de Superfície (CDAL), Universitat Politècnica de Catalunya (UPC), Centre Tecnològic de Vilanova i la Geltrú, España.

■ **S5B-P008 NANOCOMPOSITE OF  $Y_{1-x}Sm_xCo_3/Co$  RIBBONS OBTAINED BY MELT-SPINNING**

J.L. Hidalgo-González<sup>1</sup>, J. A. Matutes-Aquino<sup>2</sup>

<sup>1</sup> Instituto Tecnológico Superior de Poza Rica, México. <sup>2</sup> Centro de Investigación en Materiales Avanzados, S. C., México

■ **S5B-P009 SHAPE AND SIZE CONTROLLED SYNTHESIS CdCO<sub>3</sub> IN SITU DOPED Pb<sup>2+</sup>**

Hernández Téllez<sup>1</sup>, O. Portillo Moreno<sup>1</sup>, M. Zamora Tototzintle<sup>1</sup>, Martin Lazcano Hernández<sup>1</sup>, M. Chávez Portillo<sup>1</sup>, R. Gutiérrez Pérez<sup>1</sup>

<sup>1</sup> Benemerita Universidad Autonoma de Puebla

■ **S5B-P010 WEAR ALLOYS RESISTANT TO IRON ORE: HIGH-CHROMIUM IRON AND CARBON MARTENSITIC STEEL: A COMPARTIVE ANALYSIS**

S-5B



S.I. Maldonado-Ruiz<sup>1</sup>, V.H. Baltazar-Hernández<sup>1</sup>, P. Orozco-González, S. Haro-Rodríguez<sup>1</sup>, R.A. Esparza-Muñoz<sup>2</sup>

<sup>1</sup>UAI-Universidad Autónoma de Zacatecas, Lópe, México.

■ **S5B-P011 STUDY OF PRECIPITATION HARDENING IN Fe-Fe<sub>0.34</sub>Ni<sub>0.33</sub>Al<sub>0.33</sub>-Ni DIFFUSION COUPLES DURING AGING TREATMENTS**

A. Díaz-Salazar<sup>1</sup>, C. Ferreira-Palma<sup>1</sup>, S. Cerecedo-Gallegos<sup>1</sup>, H. J. Dorantes-Rosales<sup>1</sup>, D. I. Rivas-López<sup>1</sup>, J. L. González-Velázquez<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, ESIQIE-DIMM, México

■ **S5B-P012 EFFECT OF HEAT TREATMENT AND LITHIUM CONTENT ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF A319 ALUMINUM ALLOY**

P. Orozco-González<sup>1</sup>, D. Gaitán Macías<sup>1</sup>, S. Maldonado-Ruiz<sup>1</sup>

<sup>1</sup>Academic Unit of Engineering, Autonomous University of Zacatecas, Mexico.

■ **S5B-P013 SILVER NANOPARTICLES SYNTHESIZED WITH LEAF EXTRACT OF ALOYSIA TRIPHYLLA**

J. Luis López-Miranda<sup>1</sup>, D. Mendoza-Cachú<sup>1</sup>, A. Ruiz-Baltazar<sup>2</sup>, R. Esparza<sup>2</sup>, G. Rosas<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo, Edificio U Ciudad Universitaria, Morelia Michoacán, México. <sup>2</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

■ **S5B-P014 SYNTHESIS AND CHARACTERIZATION OF BIMETALLIC Pd-Ni/CeO<sub>2</sub> NANOMATERIALS FOR H<sub>2</sub> PRODUCTION BY AUTOTHERMAL STEAM REFORMING OF METHANOL**

R. Conteras Cruz<sup>1,2</sup>, A. Gutiérrez-Martínez<sup>1</sup>, R. Pérez-Hernández<sup>1</sup>

<sup>1</sup>Instituto Nacional de Investigaciones Nucleares, <sup>2</sup>Tecnológico de Estudios Superiores San Felipe del Progreso

■ **S5B-P015 STRUCTURAL AND ELECTROCHEMICAL CHARACTERIZATION OF PtPd BIMETALLIC NANOPARTICLES FOR FUEL CELLS APPLICATIONS**

Ramírez López<sup>1</sup>, A. Santoveña<sup>1</sup>, A. Servín<sup>1</sup>, A. Ruiz-Baltazar<sup>1</sup>, A. Angeles-Pascual<sup>2</sup>, R. Pérez<sup>1</sup> and R. Esparza<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México. <sup>2</sup>Departamento de Ingeniería Eléctrica-SEES, CINVESTAV-IPN, México.

■ **S5B-P016 EFFECT OF THE TEMPERATURE ON THE POLYOL SYNTHESIS OF Ag NANOPARTICLES**

C. Rodríguez-Proenza<sup>1</sup>, A. Santoveña<sup>1</sup>, A. Ruiz-Baltazar<sup>1</sup>, R. Pérez<sup>1</sup> and R. Esparza<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

■ **S5B-P017 SYNTHESIS AND CHARACTERIZATION OF MAGNETIC CORE-SHELL Fe<sub>30</sub>4Au NANOPARTICLES FOR BIOMEDICAL APPLICATIONS**

J.R. Piñón-Hernández<sup>1</sup>, I. Becerril-Juárez<sup>2</sup>, A. Ruiz-Baltazar<sup>1</sup>, A. Angeles-Pascual<sup>2</sup>, R. Pérez<sup>1</sup> and R. Esparza<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

<sup>2</sup>Departamento de Ingeniería Eléctrica-SEES, CINVESTAV-IPN, México.

■ **S5B-P018 STUDY OF BIMETALLIC NANOPARTICLES AuPd AND THEIR CATALYTIC BEHAVIOR ON HIGH EFFICIENCY FUEL CELLS**

A. Santoveña<sup>1</sup>, A. Ruiz-Baltazar<sup>1</sup>, C. Rodríguez-Proenza<sup>1</sup>, A. Angeles-Pascual<sup>2</sup>, D. Bahena<sup>2</sup>, J. Ledesma-García<sup>3</sup>, R. Pérez<sup>1</sup> and R. Esparza<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

<sup>2</sup>Departamento de Ingeniería Eléctrica-SEES, CINVESTAV-IPN, México. <sup>3</sup>División de Investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro, Querétaro, Mexico.

■ **S5B-P019 ELECTROCATALYTIC ACTIVITY OF A Pt@Pd NANOPARTICLES ALLOYS TYPE SUPPORTED ON VULCAN CARBON FOR PRACTICAL APPLICATIONS IN FUEL CELLS**

A. Ruiz-Baltazar<sup>1</sup>, A. Santoveña<sup>2</sup>, J. Luis López-Miranda<sup>2</sup>, G. Rosas<sup>1</sup>, R. Esparza<sup>1</sup>, R. Pérez<sup>1</sup>

<sup>1</sup> Centro de Física Aplicada y Tecnología avanzadas, Universidad Nacional Autónoma de México, Juriquilla, Querétaro, México. <sup>2</sup>Instituto de Investigaciones Metalúrgicas, UMSNH, edificio U, Ciudad Universitaria, Morelia Michoacán, México.

■ **S5B-P020 CHEMICAL AND MINERALOGICAL CHARACTERISTICS OF CLAY FROM ACTOPAN, HIDALGO.**

Moreno-Tovar<sup>1</sup>, O.A. Yañez-Hernández<sup>1</sup>, J. Guerrero-Paz<sup>1</sup>, F. Pérez-Moreno<sup>1</sup>, J.J. Cruz Rivera<sup>2</sup> y V. Rodríguez-Lugo<sup>1</sup>.

<sup>1</sup>Área de Ciencias de la Tierra y Materiales, Instituto de Ciencias Básicas e Ingeniería, Universidad Autónoma del Estado de Hidalgo, Mineral de la Reforma, Hgo. <sup>2</sup>Instituto

de Metalurgia, Universidad Autónoma de San Luis Potosí, San Luis Potosí

■ **S5B-P021 SYNTHESIS AND MICROSTRUCTURAL CHARACTERIZATION OF BIOCOMPATIBLE ALLOYS Ni-Ti and Ni-Ti-Cu**

F. Salgado<sup>1</sup>, I. Rosales-Cadena<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas-FCQel. UAEM, México.

■ **S5B-P022 SYNTHESIS AND STUDY OF THE BEHAVIOR OF A PIEZOELECTRIC MATERIAL BASED ON TITANIUM LEAD ZIRCONATE**

Chávez Martínez Margarita<sup>1</sup>, Salcedo Luna M. Cecilia<sup>2</sup>, Ávila Jiménez Miguel<sup>1</sup>, Hernández Martínez Leonardo<sup>1</sup>, Goñi Cedeño Hermilo<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana Azcapotzalco, Área de Química. México, D. F. <sup>2</sup>Universidad Nacional Autónoma de México, Facultad de Química, USAI, Lab. Rayos-X de Polvos, Ciudad Universitaria, México, D. F.

■ **S5B-P023 SYNTHESIS AND STUDY OF Pb<sub>2</sub>SnSbO<sub>6</sub>.5 YELLOW PIGMENT**

Margarita Chávez Martínez<sup>1</sup>, María Cecilia Salcedo Luna<sup>2</sup>, María de la Luz Soto Téllez, Diana Vázquez Altamirano<sup>2</sup>, Bernardo Mendoza Pérez<sup>2</sup>

<sup>1</sup>Universidad Autónoma Metropolitana Azcapotzalco, Área de Química México, D. F. <sup>2</sup>Laboratorio de Rayos-X, USAI, Facultad de Química, Universidad Nacional Autónoma de México, Ciudad Universitaria, México, D. F.

■ **S5B-P024 HARDFACING OF AN AUSTENITIC HADFIELD STEEL CONE CRUSHER**

V.H. Baltazar Hernández<sup>1</sup>, C.J. Martínez González<sup>1</sup>, F. Alvarado Hernández<sup>1</sup>, E.A. López Baltazar<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Zacatecas, México.

■ **S5B-P025 THE EFFECT OF COPPER ADDITION IN THE TRANSFORMATION TEMPERATURES IN RAPID SOLIDIFIED Ni-Ti-Cu ALLOYS**

George Carlos S Anselmo<sup>1</sup>, Walman Benicio de Castro<sup>2</sup>, Carlos José de Araújo<sup>3</sup>

<sup>1</sup>UFCEG, Campina Grande-PB, Brazil, <sup>2</sup>UFCEG, Campina Grande-PB, Brazil, <sup>3</sup>UFCEG, Campina Grande-PB, Brazil.

■ **S5B-P026 MAGNETIC NANOPARTICLES: A HAADF-STEM STUDY**

A. Angeles-Pascual<sup>1</sup>, A. Ruiz-Baltazar<sup>2</sup> and R. Esparza<sup>2</sup>

<sup>1</sup>Laboratorio Avanzado de Nanoscopia Electrónica, CINVESTAV-IPN, Instituto Politécnico Nacional México

D.F. <sup>2</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

■ **S5B-P027 INCORPORATION OF Er<sup>3+</sup> IONS INTO AN AMORPHOUS MATRIX OF Cd<sub>2</sub>V<sub>2</sub>O<sub>7</sub>, CONTAINING CRYSTALLINE CdO NANOPARTICLES**

E. Cervantes Juárez<sup>1</sup>, J.G. Quiñones-Galván<sup>2</sup>, Y.A. González-Rivera<sup>1</sup>, R. Lozada-Morales<sup>1</sup>, E. Campos-González<sup>3</sup>, S. Jiménez-Sandoval<sup>4</sup>, O. Zelaya-Angel<sup>3</sup>, E. Rubio-Rosas<sup>5</sup>

<sup>1</sup>Benemérita Universidad Autónoma de Puebla. Postgrado en Física Aplicada. Facultad de Ciencias Físico-Matemáticas, México. <sup>2</sup>Departamento de Física, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara, México. <sup>3</sup>Departamento de Física, Centro de Investigación y de Estudios Avanzados, México. <sup>4</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Querétaro, México. <sup>5</sup>Centro Universitario de Vinculación y Transferencia de Tecnología. México.

■ **S5B-P028 DIFFERENT TYPES OF PHOTOLUMINESCENCE OF VANADATE COMPOUNDS BASED ON (CdO-V<sub>2</sub>O<sub>5</sub>)<sub>x</sub>Er**

R. Lozada-Morales<sup>1</sup>, J.G. Quiñones-Galván<sup>2</sup>, Y.A. González-Rivera<sup>1</sup>

<sup>1</sup>Benemérita Universidad Autónoma de Puebla. Postgrado en Física Aplicada. Facultad de Ciencias Físico-Matemáticas. México. <sup>2</sup>Departamento de Física, Centro Universitario de Ciencias Exactas e Ingenierías, Universidad de Guadalajara, México

■ **S5B-P029 STUDY OF THE PERMEATION OF HYDROGEN IN A STEEL 4140 HARD THERMOCHEMICALLY**

S.C. Carranza Florida<sup>1</sup>, D.C. Rojas Olmos<sup>1</sup>, C. Heredia Hernández<sup>1</sup>, M.A. Doñu Ruiz<sup>1</sup>, V.J. Cortés Suárez<sup>2</sup>, N. López Perrusquia<sup>1</sup>.

<sup>1</sup>Universidad Politécnica del Valle de México; Grupo Ciencia e Ingeniería de Materiales, UPVM, Tultitlán, Estado de México. <sup>2</sup>Universidad Autónoma Metropolitana Unidad Azcapotzalco,

■ **S5B-P030 GaN MICROSTRUCTURES OBTAINED FROM NITRIDATION OF GALLIUM ARSENIDE AT ATMOSPHERIC PRESSURE**

F. S. Ramirez<sup>1</sup>, G. García<sup>1</sup>, C. Morales<sup>1</sup>, T. Diaz<sup>1</sup>, E. Rosendo<sup>1</sup>, H. Juarez<sup>1</sup>, M. Pacio<sup>1</sup>, R. Galeazzi<sup>1</sup>, F. Nieto<sup>2</sup>.

<sup>1</sup>CIDS-ICUAP, Benemérita Universidad Autónoma de Puebla México, <sup>2</sup>Benemérita Universidad Autónoma de Puebla, FCQ, México.

S-5B



■ **S5B-P031 AMORPHOUS COATINGS OF Fe-Nb-Si-B GLASSY ALLOY THROUGH SPRAY FORMING AND LASER CLADDING**

M.F. de Carvalho<sup>1</sup>, C. Bolfarini<sup>1</sup>, W.J. Botta<sup>1</sup>, C.S. Kiminami<sup>1</sup>, C.R.M. Afonso<sup>1</sup>

<sup>1</sup>Department of Materials Engineering (DEMa), Federal University of São Carlos (UFSCar), Brazil.

■ **S5B-P032 SYNTHESIS AND CHARACTERIZATION BY SEM OF A POLYMERIC MEMBRANE USED IN GOLD PRECONCENTRATION**

M. E. Núñez Gaytán<sup>1</sup>, A. M. Núñez Gaytán<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Química, Universidad Michoacana de San Nicolás de Hidalgo, México

■ **S5B-P033 CHARACTERIZATION OF METALLIC COBALT AND COBALT OXIDES THROUGH QUANTITATIVE XPS ANALYSIS**

D. Cabrera-German<sup>1</sup>, J.A. Torres-Ochoa<sup>1</sup>, G. Gómez-Sosa<sup>1</sup>, A. Herrera-Gomez<sup>1</sup>

<sup>1</sup>CINVESTAV-Unidad Querétaro, Querétaro, México

■ **S5B-P034 PARTICLE ADDITIONS OF RUBBER SCRAP TIRES TO MODIFY THE MECHANICAL PROPERTIES OF CONCRETE**

J. Hernandez-Morelos<sup>1</sup>, J. Colín<sup>1</sup>, A. Juantorena<sup>1</sup>, S. Serna<sup>2</sup>, A. Molina<sup>2</sup>, M. Montiel<sup>1</sup>.

<sup>1</sup>Facultad de Ciencias Químicas e Ingeniería - Programa Académico de Ingeniería Mecánica, México. <sup>2</sup>Centro de Investigación en Ingeniería y Ciencia Aplicada - UAEM, México

■ **S5B-P035 DBTL AS CATALYST FOR ORMOSIL ANTICORROSION COATING**

Daniel Mata Rodríguez<sup>1</sup>, Cristian Alvarado Cerda<sup>1</sup>, Alan Daniel Cano Lalalde<sup>1</sup>, Carmen Salazar Hernández<sup>1</sup>, Mercedes Salazar Hernández<sup>2</sup>, Ricardo Navarro<sup>3</sup>

<sup>1</sup> Unidad Profesional Interdisciplinaria de Ingenierías Campus Guanajuato. Instituto Politécnico Nacional. México. <sup>2</sup> Departamento de Metalurgia, Minas y Geología División de Ingenierías. Universidad de Guanajuato. <sup>3</sup> División de Ciencias Naturales y Exactas. Universidad de Guanajuato.

■ **S5B-P036 QUALITY EVALUATION OF KAOLINITIC CLAYS BY DIFFUSE REFLECTANCE SPECTROSCOPY**

L.C. Velázquez-Castillo<sup>1</sup>, S. López-Ortiz<sup>1</sup>, F. Legorreta-García<sup>1</sup>, E.A. Chávez-Urbiola<sup>1,2</sup>, L.E. Hernández-Cruz<sup>1</sup>.

<sup>1</sup>Universidad Autónoma Del Estado De Hidalgo, Ciudad del Conocimiento; Edificio del Área Académica de Ciencias

de la Tierra y Materiales. <sup>2</sup>Consejo Nacional de Ciencia y Tecnología (CONACYT).

■ **S5B-P037 EFFECT OF HYDROGEN ON A MICROALLOYED STEEL PERMEATE**

D. C. Rojas Olmos<sup>1</sup>, M. A. Arredondo Ramírez<sup>1</sup>, N. López Perrusquia<sup>1,2</sup>, M. A. Doñu Ruiz<sup>1,2</sup>, J. A. Ortega Herrera<sup>2</sup>.

<sup>1</sup>Universidad Politécnica del Valle de México, Grupo Ciencia e Ingeniería de Materiales. México. <sup>2</sup>Instituto Politécnico Nacional, SEPI-ESIME, Grupo de Ingeniería Mecánica Computacional Adolfo López Mateos, México.

■ **S5B-P038 INFLUENCE OF TEMPERATURE ON THE MICROSTRUCTURAL CHARACTERISTICS OF HYDROXIAPATITE OBTAINED BY HYDROTHERMAL -MICROWAVE PROCESS**

Efraín Flores Díaz<sup>1</sup>, J. García-Serrano<sup>1</sup> and Ventura Rodríguez Lugo<sup>1</sup>

<sup>1</sup>Instituto de Ciencias Básicas e Ingeniería, Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, Carretera Pachuca-Tulancingo, México.

■ **S5B-P039 MICROWAVE ASSISTED SOL-GEL SYNTHESIS AND CHARACTERIZATION OF M-TiO<sub>2</sub> (M=PT, AU) PHOTOCATALYSTS**

R. Hernández<sup>1</sup>, S.M. Durón - Torres<sup>1</sup>, K. Esquivel<sup>2</sup>, C. Guzmán<sup>1,2</sup>

<sup>1</sup>UACQ - UAZ, México. <sup>2</sup> Facultad de Ingeniería, Universidad Autónoma de Querétaro, Cerro de las Campanas, Santiago de Querétaro, Qro., México.

■ **S5B-P040 SYNTHESIS OF SBA-15 TO BE USED AS A SILICON SOURCE IN THE SRO FILMS.**

Zambrano<sup>1</sup>, C. Morales<sup>1</sup>, T. Díaz<sup>1</sup>, A. Romero<sup>1</sup>, R. Galeazzi<sup>1</sup>, G. García<sup>1</sup>, E. Rosendo<sup>1</sup>.

<sup>1</sup>CIDS-ICUAP, Benemérita Universidad Autónoma de Puebla México.

■ **S5B-P041 SYNTHESIS AND CHARACTERIZATION OF HYDROXYAPATITE OBTAINED BY HYDROTHERMAL PROCESS INDUCED BY MICROWAVE AT DIFFERENT REACTION TIME**

Efraín Flores Díaz<sup>1</sup>, J. García-Serrano<sup>1</sup> and Ventura Rodríguez Lugo<sup>1</sup>

<sup>1</sup>Instituto de Ciencias Básicas e Ingeniería, Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, Carretera Pachuca-Tulancingo, México.



■ **S5B-P042 OPTIMIZATION OF A SHORT ROTATORY FURNACE FOR THE PRODUCTION OF SECONDARY LEAD.**

Vega-Rodríguez<sup>1</sup>, A. M. Arato-Tovar<sup>1</sup>, N. Garza-Montes de Oca<sup>1</sup>, F. A. Perez-González<sup>1</sup>, I. Alvarez-Elcoro<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, México

■ **S5B-P043 GaN FILMS GROWN BY NITRIDATION PROCESS ON GaAs SUBSTRATE WITH TEMPERATURE VARIATION.**

Francisco Uribe G.<sup>1</sup>, C. Morales<sup>1</sup>, G. García<sup>1</sup>, E. Rosendo<sup>1</sup>, T. Díaz<sup>1</sup>, F. S. Ramírez<sup>1</sup>, R. Galeazzi<sup>1</sup>.

<sup>1</sup>CIDS-ICUAP, Benemérita Universidad Autónoma de Puebla México

■ **S5B-P044 HAADF-STEM STUDY OF Au, AND AuPd NANOPARTICLES SYNTHESIZED BY A GREEN CHEMISTRY METHOD**

Eduardo Antonio Larios Rodríguez<sup>1,2</sup>, F. F. Castellón-Barraza<sup>3</sup>, Ronaldo Herrera-Urbina<sup>1</sup>, M.J. Yacaman<sup>2</sup>, Alvaro Posada-Amarillas<sup>4</sup>

<sup>1</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora. <sup>2</sup>Department of Physics and Astronomy, University of Texas at San Antonio, USA. <sup>3</sup>Centro de Nanociencias y Nanotecnología, UNAM, México <sup>4</sup>Departamento de Investigación en Física, Universidad de Sonora, México

■ **S5B-P045 EFFECT OF pH IN THE SYNTHESIS OF HYDROXYAPATITE OBTAINED BY MICROWAVE-HYDROTHERMAL PROCESS**

Efraín Flores Díaz<sup>1</sup>, J. García-Serrano<sup>1</sup> and Ventura Rodríguez Lugo<sup>1</sup>

Instituto de Ciencias Básicas e Ingeniería, Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, México.

■ **S5B-P046 SYNTHESIS AND THERMAL CHARACTERIZATION OF HYDROXYAPATITE POWDERS OBTAINED BY SOL-GEL TECHNIQUE**

Y. Jiménez-Flores<sup>1</sup>, and J. B. Rojas-Trigos<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada unidad Legaria. México

■ **S5B-P047 EFFECT OF ANTIMONY DOPING ON THE STRUCTURE, OPTICAL AND ELECTRICAL PROPERTIES OF ZINC OXIDE**

G. Juárez-Díaz<sup>1</sup>, J. Martínez-Juarez<sup>2</sup>, P. Lopez-Salazar<sup>2</sup>, R. Peña-Sierra<sup>3</sup>, J. Contreras-Rascón<sup>4</sup>, J. Diaz-Reyes<sup>5</sup>.

<sup>1</sup>Fac. Ciencias de la Computación, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Centro de Investigación en Dispositivos Semiconductores, ICUAP, BUAP, México.

<sup>3</sup>Sección de Electrónica del Estado Sólido, Centro de Investigación y de Estudios Avanzados del I. P.N., Mexico.

<sup>4</sup>Facultad de Ciencias Químicas, Benemérita Universidad Autónoma de Puebla, México. <sup>5</sup>Centro de Investigación en Biotecnología Aplicada, Instituto Politécnico Nacional, México.

■ **S5B-P048 STRONG PHOTOLUMINESCENCE ENHANCEMENT OF AlGaSb RESULTING FROM RELAXATION AND ISLAND MORPHOLOGY GROWN BY LPE**

P. López-Salazar<sup>1</sup>, J. Martínez-Juárez<sup>1</sup>, G. Juárez-Díaz<sup>2</sup>, F. De Anda-Salazar<sup>3</sup>, and A. García-Borquez<sup>4</sup>

<sup>1</sup>Centro de Investigación en Dispositivos Semiconductores, Benemérita Universidad Autónoma de Puebla, Ciudad Universitaria, México. <sup>2</sup>Facultad de Ciencias de la Computación, Benemérita Universidad Autónoma de Puebla, Ciudad Universitaria, México. <sup>3</sup>Instituto de Investigación en Comunicaciones Ópticas, Universidad Autónoma de San Luis Potosí, México. <sup>4</sup>Ciencia de Materiales, Escuela Superior de Física y Matemáticas del Instituto Politécnico Nacional, México.

■ **S5B-P049 STUDY OF HEXAGONAL BAR SHAPE OF OXIDE OF ZINC PRODUCED BY HYDROTHERMAL TREATMENT**

S. Borjas<sup>1</sup>, P. G. Martínez<sup>1</sup>, A. Medina<sup>2</sup>, L. Béjar-Gómez<sup>3</sup>, C. Aguilar<sup>4</sup>, G. Herrera<sup>5</sup>

<sup>1</sup>UMSNH. Instituto de Física y Matemáticas, <sup>2</sup>Instituto de Investigación en Metalurgia y Materiales, <sup>3</sup>Facultad de Ingeniería Mecánica. Morelia Michoacán México, UMSNH, <sup>4</sup>Depto de Ingeniería Metalúrgica y Materiales. Universidad Técnica Federico Santa María. Chile, <sup>5</sup>Departamento de Ingeniería en Materiales, Instituto Tecnológico Superior de Irapuato, México.

■ **S5B-P050 OPTICAL CHARACTERIZATION OF GALLIUM NITRIDE OBTAINED BY NITRIDATION PROCESS**

Juárez<sup>1</sup>, C. Morales<sup>1</sup>, J. Alvarado<sup>1</sup>, G. García<sup>1</sup>, E. Rosendo<sup>1</sup>, T. Díaz<sup>1</sup>, R. Galeazzi<sup>1</sup>, and F. S. Ramirez<sup>1</sup>.

<sup>1</sup>CIDS-ICUAP, Benemérita Universidad Autónoma de Puebla México



■ **S5B-P051 MAPPING OF POLYCRYSTALLINE FLOW DURING HOT DEFORMATION BY IN-SITU TENSION TEST OF SHEET COPPER ALLOY**

O. Vega-Hernández<sup>1</sup>, J. D. Muñoz-Andrade<sup>1</sup> and E. Garfias-García<sup>1</sup>.

<sup>1</sup>Departamento de Materiales, División de Ciencias Básicas e Ingeniería, Universidad Autónoma Metropolitana Unidad Azcapotzalco, México

■ **S5B-P052 CHARACTERIZATION AND MAGNETIC PROPERTIES OF Nd<sub>0.05</sub>Bi<sub>0.95</sub>Fe<sub>0.95</sub>Co<sub>0.05</sub>O<sub>3</sub>/PVDF-TrFE NANOFIBERS OBTAINED BY ELECTROSPINNING.**

N. Hernández<sup>1</sup>, V. A. González<sup>1</sup>, I. Dzul<sup>1</sup>, I. Moreno<sup>1</sup>, M. A. Garza-Navarro<sup>1</sup>, J. M. Barandiaran<sup>2</sup>, J. Gutierrez<sup>2</sup>, U. Ortiz-Mendez<sup>1</sup>

<sup>1</sup>Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología, Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, Mexico. <sup>2</sup>Basque Center for Materials, Applications and Nanostructures (BCMaterials) and Universidad del País Vasco (UPV/EHU), Spain

■ **S5B-P053 MICROSTRUCTURAL CHARACTERIZATION OF ARCHAEOLOGICAL SAMPLES FROM "CERRO DE LA GALLINA", EAST HIDALGO, MEXICO**

Ballato-Lopez<sup>1</sup>, M. Ramirez-Cardona<sup>1</sup>, O. Sterpone<sup>2</sup>, M.E. Espinosa-Pesqueira<sup>3</sup>, V. Rodriguez-Lugo<sup>1</sup>

<sup>1</sup>Instituto de Ciencias Básicas e Ingeniería Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, México. Universidad Autónoma del Estado de Hidalgo, <sup>2</sup>Instituto Nacional de Antropología e Historia, Centro Hidalgo, Mexico. <sup>3</sup>Instituto Nacional de Investigaciones Nucleares, México.

■ **S5B-P054 MAGNETIC PROPERTIES AND KINETIC OF CRYSTALLIZATION IN AMORPHOUS Sm<sub>0.6</sub>Gd<sub>0.4</sub>Co<sub>5</sub> ALLOYS OBTAINED BY MECHANICAL MILLING.**

J.L. Hidalgo-González<sup>1</sup>, J.T. Elizalde Galindo<sup>3</sup>, J. A. Matutes-Aquino<sup>2</sup>

<sup>1</sup>Instituto Tecnológico Superior de Poza Rica, México. <sup>2</sup>Centro de Investigación en Materiales Avanzados, S. C, México. <sup>3</sup>Departamento de Ciencias Básicas, Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez.

■ **S5B-P055 OBTAINING SnO<sub>2</sub> AND CHARACTERIZATION OF OBTAINED BY THE SOL-GEL**

K.M. Alvarez-Gómez<sup>1</sup>, M. Pacio<sup>1</sup>, T. Díaz<sup>1</sup>, R. Galeazzi<sup>1</sup>, H. Juárez<sup>2</sup>, E. Rosendo<sup>1</sup>, G. García<sup>1</sup> and C. Morales<sup>1</sup>

<sup>1</sup>Center for Semiconductor Devices, Autonomous University of Puebla, Mexico

■ **S5B-P056 TEXTURE EVOLUTION OF EXPERIMENTAL SILICON STEEL GRADES DURING ROLLING**

J. Sandoval Robles<sup>1</sup>, A. Salas Zamarripa<sup>1</sup>, Ma. de J. Nañez<sup>1</sup>, J.L. Cavazos<sup>1</sup> and M. P. Guerrero Mata<sup>1</sup>

<sup>1</sup> Universidad Autónoma de Nuevo León, México.

■ **S5B-P057 MICROSTRUCTURAL AND MECHANICAL CHARACTERIZATION OF GMA WELDMENTS FOR AUTOMOTIVE APPLICATIONS**

F. Curiel<sup>1</sup>, M. C. Ramirez<sup>2</sup>, R.R. Ambriz<sup>3</sup>, M.A. Garcia<sup>1</sup>, L.A. Falcón<sup>1</sup> and J.A. Cabral<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Coahuila (UAdeC), Facultad de Metalurgia, México. <sup>2</sup>Centro de Investigación e Innovación en Ingeniería Aeronáutica-FIME, Universidad Autónoma de Nuevo León, México. <sup>3</sup>Instituto Politécnico Nacional, CIITEC-IPN, México.

■ **S5B-P058 INFLUENCE OF RECOVERY TIME IN A 21-2N DEFORMED STAINLESS STEEL**

A. Olmos A<sup>1</sup>, A. de Ita de la T<sup>1</sup>, P. Ugalde V.<sup>1</sup>

<sup>1</sup>Área de Ciencia de Materiales, Departamento de Materiales, UAM - Azcapotzalco, México, DF.

■ **S5B-P059 COMPLEX DIELECTRIC PERMITTIVITY AND CONDUCTIVITY OF CuInSe<sub>2</sub> SINGLE CRYSTALS**

S.N. Mustafaeva<sup>1</sup>, M.M. Asadov<sup>2</sup>, D.T. Guseinov<sup>1</sup>, I. Kasimoglu<sup>1</sup>

<sup>1</sup>Institute of Physics, National Academy of Sciences of Azerbaijan, Baku. <sup>2</sup>Institute of Catalysis and Inorganic Chemistry, National Academy of Sciences of Azerbaijan, Baku, G. Javid

ROOM: MAYA VII  
TUESDAY, AUGUST 18

👤 Session Chair: RODRIGO ESPARZA MUÑOZ

■ **09:00 - 09:15 S5B-0024 FRACTURE TOUGHNESS, NUMERICAL AND EXPERIMENTAL ANALYSIS.**

M. Beltrán<sup>1</sup>, J. González<sup>1</sup>, D. Rivas<sup>1</sup>, F. Hernández<sup>2</sup>

<sup>1</sup> Instituto Politécnico Nacional/Escuela Superior de Ingeniería Química e Industrias Extractivas, México D.F. <sup>2</sup> Instituto Politécnico Nacional/Escuela Superior de Ingeniería Mecánica y Eléctrica, México, D.F.

■ **09:15 - 09:30 S5B-0025 DETERMINATION OF THE ACTIVATION ENERGY OF COPPER DURING IN-SITU TENSION TEST BY SEM**

**D. Morán García<sup>1</sup>, E. Garfías-García<sup>1</sup>, and J. D. Muñoz-Andrade<sup>1</sup>.**

<sup>1</sup>Departamento de Materiales, División de Ciencias Básicas e Ingeniería, Universidad Autónoma Metropolitana Unidad Azcapotzalco, México.

■ **09:30 - 09:45 S5B-0026 HYDROGEL STRUCTURED BY ELECTROSPINNING FOR DRUG DELIVERY SYSTEMS**

**G. A. Molina<sup>1</sup>, A.R. Martínez-Hernández<sup>2</sup>, M. Estevez<sup>2</sup>**

<sup>1</sup>Posgrado en Ciencia e Ingeniería de Materiales, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México. <sup>2</sup>Departamento de Ingeniería Molecular de Materiales, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México

■ **09:45 - 10:00 S5B-0027 SYNTHESIS OF Mg50Ca50 ALLOY BY MECHANICAL ALLOYING TECHNIQUE**

**Thirumurugan<sup>1,a</sup>, C. Aguilar<sup>1</sup>, D. Guzman<sup>2</sup>, S.Kumaran<sup>3</sup>**

<sup>1</sup>Departamento de Ingeniería Metalúrgica y Materiales, Universidad Técnica Federico Santa María, Chile. <sup>2</sup>Departamento de Metalurgia, Universidad de Atacama, Chile. <sup>3</sup>Department of Metallurgical and Materials Engineering, National Institute of Technology, India. Corresponding author: Departamento de Ingeniería Metalúrgica y de Materiales, Universidad Técnica Federico Santa María, Valparaíso, Chile.

■ **10:00 - 10:15 S5B-0028 INFLUENCE OF DEMOULDING TIME ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF DUCTILE IRON AUTOMOTIVE PART**

**J. J. Ramírez Natera<sup>1</sup>, R. Colás Ortíz<sup>2</sup>, S. Haro Rodriguez<sup>3</sup>, P. Gil Ramos<sup>4</sup>**

<sup>1</sup>Maestría en Ciencia De la Ingeniería Automotriz, Universidad Autónoma de Nuevo León, México, <sup>2</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, México. <sup>3</sup>Maestría en Procesos y Manufactura, Unidad Académica de Ingeniería, Universidad Autónoma de Zacatecas, México, <sup>4</sup>Blackhawk de México, S.A. México.

■ **10:15 - 10:30 S5B-0029 EVALUATION OF DISTORTION IN WELDING UNIONS OF 304 STAINLESS STEEL WITH ELLIPTIC TRAJECTORY USING A WELDING ROBOT**

**L.A. Carrasco-González<sup>1</sup> E. Hurtado-Delgado<sup>1</sup>, F.A. Reyes-Valdés<sup>1</sup>**

<sup>1</sup>Corporación Mexicana de Investigación en Materiales S.A. de C.V. (COMIMSA), México

■ **10:30 - 10:45 S5B-0030 MICROSTRUCTURAL CHARACTERIZATION OF AISI 347 STAINLESS STEEL WELDS OBTAINED WITH MAGNETIC FIELDS.**

**V. L. Cruz Hernández<sup>1</sup>, R. García Hernández<sup>1</sup>, V. H. López Morelos<sup>1</sup>, M. A. García Rentería<sup>2</sup>, F. F. Curiel López<sup>2</sup>.**

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>2</sup>Facultad de Metalurgia, Universidad Autonoma de Coahuila, México.

■ **10:45 - 11:00 S5B-0031 EFFECT OF HEAT INPUT AND FATIGUE DAMAGE ON MECHANICAL PROPERTIES OF DISSIMILAR AL-6XN/316L WELDED JOINT**

**R. Briones Flores<sup>1</sup>, V.H. López Morelos<sup>2</sup>, C. Rubio González<sup>3</sup>, A. Ruíz Marines<sup>2</sup>**

<sup>1</sup>Instituto Tecnológico Superior de Uruapan, México. <sup>2</sup>Instituto de Investigación en Metalurgia y Materiales, UMSNH (México), México. <sup>3</sup>Centro de Ingeniería y Desarrollo Industrial, México.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: RODRIGO ESPARZA MUÑOZ**

▶ **12:30 - 13:00 S5B-0032 Invited Talk IN-SITU X-RAY STUDIES CHARACTERIZING THE GROWTH BEHAVIOR OF EPITAXIAL COMPLEX OXIDE THIN FILMS**

**J.A. Eastman<sup>1</sup>, M.J. Highland<sup>1</sup>, D.D. Fong<sup>1</sup>, Carol Thompson<sup>2</sup>, G. Ju<sup>1</sup>, P.M. Baldo<sup>1</sup>, H. Zhou<sup>3</sup>, and P.H. Fuoss<sup>1</sup>**

<sup>1</sup>Materials Science Division, Argonne National Laboratory, Argonne, <sup>2</sup>Department of Physics, Northern Illinois University, DeKalb. <sup>3</sup>X-ray Science Division, Argonne National Laboratory, Argonne,

■ **13:00 - 13:15 S5B-0033 PHASES QUANTIFICATION IN DP600 STEELS WELDED BY GTAW PROCESS USING SCANNING ELECTRON MICROSCOPY AND ATOMIC FORCE MICROSCOPY**

**G. Y. Pérez Medina<sup>1</sup>, A. M. Gil Gallegos<sup>1</sup>, E. Hurtado Delgado<sup>1</sup>, A. F. Miranda Pérez<sup>1</sup>, J. J. Ruiz Mondragón<sup>1</sup>.**

<sup>1</sup>Corporación Mexicana de Investigación en Materiales, COMIMSA, México

■ **13:15 - 13:30 S5B-0034 SYNTHESIS, MAGNETIC AND STRUCTURAL CHARACTERIZATION OF THE RARE-EARTH OXYNITRIDES REFeO<sub>3-x</sub>Nx (RE= Nd, Sm)**

**L.A. Morales<sup>1</sup>, O. L. Arnache<sup>2</sup>, G.A. Sierra<sup>1</sup>**



<sup>1</sup>Departamento de Materiales y Minerales, Facultad de Minas, Universidad Nacional de Colombia, Colombia.  
<sup>2</sup>Instituto de Física, Universidad de Antioquia, Colombia.

■ **13:30 - 13:45 S5B-0035 EFFECT OF HOLDING TIME ON MECHANICAL PROPERTIES AND ELECTRIC CONDUCTIVITY OF 2205 DUPLEX STAINLESS STEEL AGED AT 750 °C**

A. Ruíz Marines<sup>1</sup>, J.P. Calderón Tapia<sup>1</sup>, N. Ortiz Lara<sup>1</sup>, H.G. Carreón Garcidueñas<sup>1</sup>, A. Medina Flores<sup>1</sup>

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, UMSNH (México), México

■ **13:45 - 14:00 S5B-0036 MECHANICAL AND CHEMICAL CHARACTERIZATION OF AGAVE ANGUSTIFOLIA HAW NATURAL FIBERS**

Rey F. García-Méndez<sup>1,3</sup>, Froylán Martínez-Suarez<sup>2</sup>, Y. Gochi-Ponce<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Oaxaca, Department of Chemical and Biochemical Engineering, México <sup>2</sup>Centro Nacional de Metrología, Department of Materials Metrology, <sup>3</sup>Instituto Tecnológico Superior de Teposcolula, México,



**14:00- 16:00 LUNCH**

👤 Session Chair: **RODRIGO ESPARZA MUÑOZ**

■ **16:00 - 16:15 S5B-0037 THERMAL BEHAVIOUR OF A HSLA STEEL AND THE IMPACT IN PHASE TRANSFORMATION: SAW PROCESS APPROACH TO PIPELINES**

P.S. Costa<sup>1</sup>, F.A. Reyes-Valdés<sup>1</sup>, R. Saldaña-Garcés<sup>1</sup>, E. R. Delgado-Albavera<sup>2</sup>, A. Salinas-Rodríguez<sup>3</sup>

<sup>1</sup>Estudios de Posgrado e Investigación, Posgrado en Tecnología de la Soldadura Industrial de la Corporación Mexicana de Investigación en Materiales, Saltillo-México, <sup>2</sup>TUMEX Grupo ITISA, Tecámac-México, <sup>3</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Ramos Arizpe-México

■ **16:15 - 16:30 S5B-0038 STUDY OF INTERGRANULAR AMORPHOUS FILMS IN SILICON NITRIDE CERAMICS**

S.B. Alemán-Córdova<sup>1</sup>, L. Ceja-Cárdenas<sup>1</sup>, J.J. Tena-Martínez<sup>1</sup>, J. Lemus-Ruiz<sup>2</sup>

<sup>1</sup>Departamento de Metal-Mecánica, Instituto Tecnológico de Morelia., Morelia, Michoacán, México. <sup>2</sup>Instituto de Investigaciones en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo, Ed. "U", Morelia, Michoacán, México.

■ **16:30 - 16:45 S5B-0039 COMPARISON OF MECHANICAL PROPERTIES OF HYDROXYAPATITE-BASED COMPOSITE MATERIAL**

S. Alonso-Sierra<sup>1</sup>, B. Millán-Malo<sup>2</sup>, R. Velázquez<sup>1</sup>, E.M. Rivera-Muñoz<sup>2</sup>.

<sup>1</sup>División de Investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro, México.

<sup>2</sup>Centro de Física Aplicada y Tecnología Avanzada de la UNAM,

■ **16:45 - 17:00 S5B-0040 CHARACTERIZATION OF MECHANICAL PROPERTIES OF Ti-Nb-Ta ALLOYS FOAMS**

D. Muñoz<sup>1</sup>, S. Lascano<sup>1</sup>, C. Aguilar<sup>1</sup>, F. Gotor<sup>2</sup>, L. Perez<sup>1</sup>, Y. Torres<sup>3</sup>

<sup>1</sup>Departamento de Ingeniería Mecánica, Departamento de Ingeniería Metalúrgica y Materiales, Universidad Técnica Federico Santa María, Chile. <sup>2</sup>Instituto de Ciencia de Materiales, Universidad de Sevilla, España. <sup>3</sup>Departamento de Ingeniería y Ciencia de los Materiales y del Transporte, Universidad de Sevilla, España

■ **17:00 - 17:15 S5B-0041 NANOCOMPOSITES: GREEN SYNTHESIS, STRUCTURAL CHARACTERIZATION AND CATALYTIC ACTIVITY.**

A.R. Vilchis-Nestor<sup>1</sup>, G. López-Téllez<sup>1</sup>, N. Torres-Gómez<sup>1</sup>, A. Luque-Morales<sup>2</sup> and V. Sánchez-Mendieta<sup>3</sup>

<sup>1</sup>Centro Conjunto de Investigación en Química Sustentable UAEM-UNAM. México, Facultad de Ingeniería, Arquitectura y Diseño, UABC. <sup>2</sup>Facultad de Química, Universidad Autónoma del Estado de México. México,

■ **17:15 - 17:30 S5B-0042 HYDROGEN PRODUCTION BY REACTION BETWEEN DISTILLATED WATER, TAP WATER AND SEAWATER WITH AN Al+Al4Ca MIX.**

A. G. Hernández-Torres<sup>1</sup>, T. A. Reyes-Hernández<sup>2</sup>, G. Rosas<sup>2</sup>.

<sup>1</sup>Facultad de Química, UNAM, Circuito Exterior, Ciudad Universitaria, México DF. <sup>2</sup>Instituto de Investigaciones Metalúrgicas UMSNH,

■ **17:30 - 17:45 S5B-0043 PRIMARY RECRYSTALLIZATION IN FE-3%SI CHARACTERIZED BY EBSD.**

Ana María Salcedo-Garrido<sup>1</sup>, Francisco Cruz-Gandarilla<sup>1</sup>, Raúl Bolmaro<sup>2</sup>, Natalia S. De Vincentis<sup>2</sup>, Thierry Baudin<sup>3,4</sup>, José G. Cabañas-Moreno<sup>5</sup> and Héctor F. Mendoza León<sup>6</sup>

<sup>1</sup>Instituto Politécnico Nacional, ESFM. Mexico. <sup>2</sup>Instituto de Física Rosario. CONICET. U N Rosario, Argentina. <sup>3</sup>CNRS, ICMMO, LPCES, France. <sup>4</sup>UPS, France. <sup>5</sup>CINVESTAV IPN. Mexico. <sup>6</sup>Instituto Politécnico Nacional, CNMN, México.

■ **17:45 - 18:00 S5B-0044 CHARACTERIZATION OF EUTECTOID STEEL WITH DIFFERENT HEAT TREATMENTS BY PHOTOCARRIER RADIOMETRY**

C.J. Ortiz-Echeverri<sup>1</sup>, I. Rojas-Rodríguez<sup>2</sup>, J.A. Lara-Guevara<sup>3</sup>, R. Vázquez-Hernández<sup>2</sup>, M-E. Rodríguez-García<sup>4</sup>

<sup>1</sup>Universidad de Quindío Carrera 15 Colombia.

<sup>2</sup>Universidad Tecnológica de Querétaro, México

<sup>3</sup>Universidad Autónoma de Querétaro México <sup>4</sup>Centro e Física Aplicada y Tecnología Avanzada, UNAM Campus Juriquilla Querétaro Qro. México

■ **18:00 - 18:15 S5B-0045 EFFECT OF NIOBIUM ON THE MICROSTRUCTURE OF HIGH CHROMIUM WHITE CAST IRON**

C.G. Oliveira<sup>1</sup>, I.P.P. Silva<sup>1</sup>

<sup>1</sup>Centro Federal de Educação Tecnológica de Minas Gerais, CEFET-MG Brasil.

■ **18:15 - 18:30 S5B-0046 GREEN SYNTHESIS OF SILVER NANOPARTICLES USING A TAMARIX GALLICA LEAVES EXTRACT AND THEIR ANTIBACTERIAL ACTIVITY**

J. Luis López-Miranda<sup>1</sup>, N. Fletes<sup>1</sup>, R. Esparza<sup>2</sup>, G. Rosas<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, UMSNH, México.

<sup>2</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

ROOM: TERRACE  
TUESDAY, AUGUST 18

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S5B-P060 SYNTHESIZED ZNO PARTICLES HEAT TREATED CATALYST USED FOR C<sub>16</sub>H<sub>18</sub>CLN<sub>3</sub>S DEGRADATION STUDY.**

J.R. Torres-Hernández<sup>1</sup>, G. Pérez-Hernández<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, México.

■ **S5B-P061 SCIENTIFIC ANALYSIS OF PATINAS & METALLIC SAMPLES FROM BRONZE SCULPTURE KNOWN AS "EL CABALLITO" OF M. TOLSA (19TH CENTURY).**

M.E. Espinosa-Pesqueira<sup>1</sup>, D. Mendoza<sup>1</sup>, Luis Escobar<sup>2</sup>.

<sup>1</sup>Depto. Tecnología de Materiales, Instituto Nacional de Investigaciones Nucleares, México. <sup>2</sup>Depto. de Física, Instituto Nacional de Investigaciones Nucleares, Mexico.

■ **S5B-P062 EVALUATION OF ACTIVATION ENERGY FOR PLASTIC FLOW AT DIFFERENT CROSS HEAD VELOCITY ON 430 STAINLESS STEEL**

P.G. Rodríguez-López<sup>1</sup>, E. Garfias-García<sup>1</sup>, J. D. Muñoz-Andrade<sup>1</sup>, and M. Aguilar Sánchez<sup>1</sup>.

<sup>1</sup>Departamento de Materiales, División de Ciencias Básicas e Ingeniería, Universidad Autónoma Metropolitana Unidad Azcapotzalco, México.

■ **S5B-P063 THERMAL CONDUCTIVITY MEASUREMENT IN CONCRETE WITH SPHERES OF CLAY AND POLYSTYRENE BY MEANS OF THE HOT DISK TECHNIQUE**

J. Guarachi<sup>1</sup>, A. Calderon<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada Unidad Legaria del Instituto Politécnico Nacional, México.

■ **S5B-P064 INTERFACIAL INSIGHTS DURING ARSENOPYRITE BIOOXIDATION BY ACIDITHIOBACILLUS THIOOXIDANS CELLS USING ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY AND BIOCHEMICAL METHODS**

M.A. González<sup>1</sup>, R.H. Lara<sup>1</sup>, J.G. Vázquez<sup>2</sup>, H. Ramírez-Aldaba<sup>1</sup>, J.A. Rojas<sup>3</sup>, P. Valles<sup>3</sup>, A. Anguiano<sup>1</sup>, E. Ruiz<sup>1</sup>, M. Meraz<sup>2</sup>

<sup>1</sup>Universidad Juárez del Estado de Durango. México.

<sup>2</sup>Universidad Autónoma Metropolitana, México. <sup>3</sup>Instituto Tecnológico de Durango. México.

■ **S5B-P065 ELECTRICAL AND OPTICAL CHARACTERIZATION OF Al<sub>x</sub>Ga<sub>1-x</sub>As GROWN BY ORGANOMETALLIC VAPOUR PHASE EPITAXY AND SOLID ARSENIC**

Roberto S. Castillo-Ojeda<sup>1</sup>, Joel Díaz-Reyes<sup>2</sup>, María de la Cruz Peralta-Clara<sup>3</sup>, Julieta Salomé Veloz-Rendón<sup>4</sup>

<sup>1</sup>Universidad Politécnica de Pachuca, México, <sup>2</sup>Instituto Politécnico Nacional, México, <sup>3</sup>Instituto Politécnico Nacional, México, <sup>4</sup>Instituto Politécnico Nacional, México,

<sup>4</sup>Instituto Politécnico Nacional, México,

■ **S5B-P066 ELECTROCHEMICAL CHARACTERIZATION OF LOW CARBON STEEL UNDER STRESS AND CORROSION**

A. Carmona-Hernandez<sup>1</sup>, R. Orozco-Cruz<sup>1</sup>, A. Contreras-Cuevas<sup>2</sup>, R. Galván-Martínez<sup>1</sup>

<sup>1</sup>Unidad Anticorrosión, Instituto de Ingeniería, Universidad Veracruzana, México. <sup>2</sup>Instituto Mexicano del Petróleo, México D.F.





■ **S5B-P067 MEASURING VOLUMETRIC EXPANSION OF AN ALUMINUM ALLOY INTO THE MELT BY DILATOMETRY**

Fabian Wohlfahrt<sup>1</sup>, Doreen Rapp<sup>1</sup>, Martin Hager<sup>1</sup>, Dr. Alexander Schindler<sup>1</sup>, Dr. Ekkehard Post<sup>1</sup>, Alexander Frenzl<sup>1</sup>, Bob Fidler<sup>2</sup>

<sup>1</sup>NETZSCH Geraetebau GmbH, Germany, <sup>2</sup>NETZSCH Instruments NA LLC, USA

■ **S5B-P068 CONTROLLED DEPOSIT ZnO FILMS OBTAINED BY CBD TECHNIQUE, MICROWAVE ASSISTED AND CHARACTERIZATION**

R. Galeazzi<sup>1</sup>, T. Díaz<sup>1</sup>, R. Silva<sup>2</sup>, E. Rosendo<sup>1</sup>, C. Morales<sup>1</sup>, G. García<sup>1</sup>, R. Romano<sup>1</sup>, and E.V. Reyes-Cervantes.

<sup>1</sup>CIDS-ICUAP, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, México.

■ **S5B-P069 CHARACTERIZATION OF THE DECARBURIZED LAYER OF THE D2, D3 AND H13 STEELS BY SCANNING ELECTRON MICROSCOPY AND VICKERS MICRO HARDNESS PROFILE**

C. Palomino-Naranjo<sup>1</sup>, D. Villalobos-Correa<sup>1</sup>, ID. Romero-Fonseca<sup>1,2</sup>

<sup>1</sup>Universidad ECCI, Bogotá, Colombia. <sup>2</sup>University of North Carolina at Charlotte, Charlotte, NC, USA

■ **S5B-P070 PHYSICAL PROPERTIES CHARACTERIZATION OF CdSe<sub>1-x</sub>S<sub>x</sub> NANOLAYERS DEPOSITED BY CBD AT LOW TEMPERATURE**

J. E. Flores-Mena<sup>1</sup>, J. I. Contreras-Rascón<sup>2</sup>, J. Díaz-Reyes<sup>3</sup>, R. S. Castillo-Ojeda<sup>4</sup>

<sup>1</sup>FCE-BUAP, México, <sup>2</sup>Universidad del Valle de Puebla, México, <sup>3</sup>CIBA-IPN, México, <sup>4</sup>Universidad Politécnica de Pachuca, México.

■ **S5B-P071 STRUCTURE, MORPHOLOGY AND TRANSPORT PROPERTIES OF CE<sub>1-x</sub>REX O<sub>2-δ</sub> (RE=GD, SM) AS ELECTROLYTES FOR IT-SOFC**

P. Ramos-Alvarez<sup>1</sup>, M.E. Villafuerte-Castrejón<sup>1</sup>, C. Flores<sup>1</sup> and J. Chávez-Carvayar<sup>1</sup>

<sup>1</sup> Instituto de Investigaciones en Materiales, México

■ **S5B-P072 IMPROVING ADHESIVE BONDING OF CARBON FIBER REINFORCED EPOXY RESIN BY SURFACE PROCESSING**

S. Y. Vargas-Islas<sup>1</sup>, V. H. Martínez-Landeros<sup>1</sup>, S. Barrera<sup>2</sup>, K. Mourtazov<sup>2</sup>, R. Ramírez-Bon<sup>1</sup>, M. Quevedo-López<sup>3</sup>.

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Querétaro, México. <sup>2</sup>Bombardier Aerospace México, S.A. De C. V., México. <sup>3</sup>University of Texas at Dallas, Department of Materials Science & Engineering,

■ **S5B-P073 SOFT NITRIDATION OF HAFNIUM OXIDE USING REMOTE PLASMA SOURCE**

Y.L. Chipatecua-Godoy<sup>1</sup>, O. Ceballos Sánchez, D. Cabrera-German<sup>1</sup>, J.A. Torres-Ochoa<sup>1</sup>, G. Gómez-Sosa<sup>1</sup>, Z. Montiel-González, A. De Luna-Bugallo<sup>1</sup> and A. Herrera-Gomez<sup>1</sup>.

<sup>1</sup>CINVESTAV- Unidad Querétaro, Querétaro, México

■ **S5B-P074 SUBSURFACE MICROSCOPY OF BIASED POLYCRYSTALLINE SILICON TRACKS: PHOTOTHERMAL AND THERMOREFLECTANCE IMAGES**

Hernández Rosales<sup>1</sup>, E. Marín<sup>1</sup>, A.M. Mansanares<sup>2</sup>.

<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, México. <sup>2</sup>Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, UNICAMP, Brazil.

■ **S5B-P075 IMPROVEMENT OF IMPACT TOUGHNESS AT - 40 °C OF DUPLEX STAINLESS STEEL WELDED JOINTS WITH ELECTROMAGNETIC INTERACTION OF LOW INTENSITY**

M.A. García Rentería<sup>1</sup>, V. H. López Morelos<sup>2</sup>, V. L. Cruz Hernández<sup>2</sup>, R. García Hernández<sup>2</sup>, F. F. Curiel López<sup>1</sup>, L. A. Falcón Franco<sup>1</sup>

<sup>1</sup>Facultad de Metalurgia, Universidad Autónoma de Coahuila, México. <sup>2</sup>Instituto de Investigación en Metalurgia y Materiales. Universidad Michoacana de San Nicolás de Hidalgo. México.

■ **S5B-P076 A METHOD FOR MEASUREMENT THERMAL DIFFUSIVITY OF LOW THERMAL CONDUCTIVITY SOLIDS USING INFRARED DETECTION.**

K. Martínez<sup>1</sup>, E. Marín<sup>1</sup>, A. Calderón<sup>1</sup>.

<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, Unidad Legaria, Legaria México.

■ **S5B-P077 IMAGES OF MICROSTRUCTURED SYSTEMS USING PHOTOTHERMAL REFLECTANCE MICROSCOPY**

E. Cedeño<sup>1</sup>, A. Mansanares<sup>2</sup>, E. Marín<sup>1</sup>.

<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, Unidad Legaria, México. <sup>2</sup>Universidade Estadual de Campinas (UNICAMP). Instituto de Física Gleb Wataghin (IFGW), Campinas, Brasil.

■ **55B-P078 CHARACTERIZATION OF POROUS NITRIDED Ti<sub>6</sub>Al<sub>4</sub>V BIOMEDICAL ALLOYS PRODUCED BY SOLID STATE SINTERING**

Ivan F<sup>1</sup>, O. Jiménez<sup>1</sup>, L. Olmos<sup>2</sup>, H. Vergara<sup>3</sup>, F. Alvarado<sup>4</sup>, J. Cabezas<sup>5</sup>

<sup>1</sup>Departamento de Ingeniería de Proyectos José Guadalupe México. <sup>2</sup>Coordinación de la Investigación Científica, Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>3</sup>Posgrado en ciencias en metalurgia, Instituto tecnológico de Morelia, México. <sup>4</sup>Unidad Académica de ingeniería. Universidad Autónoma de Zacatecas. <sup>5</sup>Instituto de investigaciones en Metalurgia y Materiales, universidad Michoacana de san Nicolas de Hidalgo.

■ **55B-P079 CORROSION BEHAVIOR OF DISSIMILAR WELDS COMPRISING SUPERDUPLEX STAINLESS STEEL AND HSLA-API STEEL IN A BRINE ENVIRONMENT**

Victor Vargas<sup>1</sup>, Cuahutémoc Maldonado<sup>1</sup>, Apolinar Albiter<sup>2</sup>.

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo, Ciudad México. <sup>2</sup>Instituto Mexicano del Petróleo, Dirección de Investigación y Posgrado. México.

■ **55B-P080 EFFECT OF MN IN AMORPHOUS PHASE FORMATION OF Ti-BASE ALLOY**

C. Aguilar<sup>1</sup>, P. Guzman<sup>1</sup>, C. Salvo<sup>1</sup>, L. Béjar<sup>2</sup>, A. Medina<sup>2</sup>, S. Lascano<sup>1</sup>, P.A. Rojas<sup>4</sup>

<sup>1</sup>Departamento de Ingeniería Metalúrgica y Materiales, Departamento de Ingeniería Mecánica, Universidad Técnicas Federico Santa María, Chile. <sup>2</sup>Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacan, México. <sup>3</sup>Universidad Adolfo Ibáñez, Chile.

■ **55B-P081 INVESTIGATION OF OPTICAL PROPERTIES OF ZnMnO THIN FILMS GROWN BY PULSED LASER DEPOSITION**

Stefania Orozco<sup>1</sup>, Karen Lizeth Salcedo<sup>2</sup>, Henry Riascos<sup>1</sup>

<sup>1</sup>Plasma, Láser y Aplicaciones, Universidad Tecnológica de Pereira, Colombia. <sup>2</sup>Departamento de Física, Universidad Nacional de la Plata, Argentina.

■ **55B-P082 PHOTOLUMINESCENCE QUENCHING OF CADMIUM SULFIDE THIN SOLID FILMS WITH NOBLE METAL NANOPARTICLES**

I. López<sup>1</sup>, M. Ceballos<sup>1</sup>, Y. Peña<sup>1</sup>, I. Gómez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, UANL, Facultad de Ciencias Químicas, Laboratorio de Materiales I, San Nicolás de los Garza, Nuevo León, Mexico.

■ **55B-P083 SOLID PARTICLE EROSION OF THE 6061-T6 ALUMINUM TREATED BY THE LASER SHOCK PROCESSING TECHNIQUE.**

J. Ibarra<sup>1</sup>, E. Rodríguez<sup>2</sup>, O. Jiménez<sup>2</sup>, G. Gómez-Rosas<sup>2</sup>, M. Flores<sup>2</sup>.

<sup>1</sup>Instituto Tecnológico Superior de Zapopan, Jalisco México. México. <sup>2</sup>Universidad de Guadalajara, Centro Universitario de Ciencias Exactas e Ingenierías. México.

■ **55B-P084 TRIBOLOGICAL BEHAVIOR OF TUNGSTEN CARBIDE ON ZAM60 STEEL UNDER BOUNDARY LUBRICATION CONDITIONS**

Daniel González Álvarez<sup>1</sup>, Iván Domínguez López<sup>1</sup>, Adrián Luis García García<sup>1</sup>, J. D. Oscar Barceinas Sánchez<sup>1</sup>, Víctor Martínez Fuentes<sup>2</sup>.

<sup>1</sup>CICATA-IPN, Unidad Querétaro, México. <sup>2</sup>Universidad Politécnica de Querétaro, México.

■ **55B-P085 TRIBOCORROSION STUDY OF TITANIUM ALLOY Ti-6Al-4V WITH ANODIC OXIDATION TREATMENT IN PHYSIOLOGICAL AND MARINE ENVIRONMENTS**

M. Alvarado<sup>1</sup>, O. Jiménez<sup>1</sup>, M. Flores<sup>1</sup>.

<sup>1</sup>Departamento de Ingeniería de Proyectos México

■ **55B-P086 SYNTHESIS OF HYBRID LAYERED DOUBLE HYDROXIDE WITH ZEOLITE TYPE [Mg<sub>1-x</sub>Al<sub>x</sub>(OH)<sub>2</sub>] (Si Al O<sub>4</sub>)<sub>x</sub> (ZEOLITE ANION)<sub>m</sub> H<sub>2</sub>O. STUDY OF THE ACIDITY AND BASICITY OF THE MATERIAL.**

Andrea P. Aparicio<sup>1</sup>, Cristian Garnica<sup>1</sup>, Jose H. Quintana<sup>1</sup>, J. A Henao Martínez<sup>1</sup>

<sup>1</sup>Universidad Industrial de Santander, Bucaramanga-Santander-Colombia, Facultad de Ciencias, Escuela de Química, Grupo de Investigación en Química Estructural (GIQUE).

■ **55B-P087 SCC ASSESSMENT OF X-70 PIPELINE WELDMENT IN DILUTED NaHCO<sub>3</sub> SOLUTIONS**

M.A. Espinosa-Medina<sup>1</sup>, G. Carbajal-De la Torre<sup>1</sup>, C. Ángeles-Chávez<sup>2</sup>, T. Zeferino-Rodríguez<sup>3</sup>, J.G. González-Rodríguez<sup>3</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica, México. <sup>2</sup>Instituto Mexicano del Petróleo, México. <sup>3</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas, México.

■ **55B-P088 CHARACTERIZATION AND PROPERTIES OF HEAT TRATED TITANIUM ALLOYS**

O. Jimenez<sup>1</sup>, M. Flores<sup>1</sup>, L. Olmos<sup>2</sup>, H. Vergara<sup>3</sup>, E.

Rodríguez<sup>1</sup>, M. Gonzalez<sup>1</sup>, J. Chavez<sup>1</sup>, F. Alvarado<sup>4</sup>, C. Tello



<sup>1</sup>Universidad de Guadalajara. <sup>2</sup>Coordinación de la Investigación Científica, Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>3</sup>Posgrado en ciencias en metalurgia, Instituto tecnológico de Morelia, México. <sup>4</sup>Unidad Académica de Ingeniería I, Universidad Autónoma de Zacatecas,

■ **S5B-P089 MICROMACHINED AND CHARACTERIZATION OF COOLED a-Si:B:H MICROBOLOMETER ARRAY IN TERAHERTZ REGION.**

A.Orduña-Díaz<sup>1</sup>, C.G. Treviño-Palacios<sup>2</sup>, A. Torres-Jácome<sup>2</sup>, M. Rojas-López<sup>1</sup>, R. Delgado-Macuil<sup>1</sup>, V. López-Gayou<sup>1</sup> O. Zaca-Moran<sup>1</sup> and M.A. Domínguez-Jiménez<sup>3</sup>.

<sup>1</sup> Centro de Investigación en Biotecnología Aplicada del Instituto Politécnico Nacional (CIBA-IPN), Tlaxcala, Tlax., México. <sup>2</sup>Instituto Nacional de Astrofísica Óptica y Electrónica (INAOE) México. <sup>3</sup>Centro de Investigaciones en Dispositivos Semiconductores, Instituto de Ciencias, Benemérita Universidad Autónoma de Puebla (BUAP), México.

■ **S5B-P090 THERMAL DIFFUSIVITY DETERMINATION IN SOLIDS BY MEANS OF THREE-NEEDLE HOT WIRE TECHNIQUE**

A. Calderón<sup>1</sup>, J. Guarachi<sup>1</sup>, J. Hernández Wong<sup>1</sup>, V. Suarez<sup>1</sup> and R. A. Muñoz Hernández<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada Unidad Legaria del Instituto Politécnico Nacional CICATA-IPN Unidad Legaria, México.

■ **S5B-P091 TEMPERATURE EFFECTS OF SINTERING 3Al<sub>2</sub>O<sub>3</sub> SiO<sub>2</sub> / 1 wt. % Ag COMPOSITES MANUFACTURED BY POWDER TECHNIQUES**

J.G. Miranda-Hernández<sup>1</sup>, M. Vázquez-Bustamante<sup>1</sup>, H. Herrera-Hernández<sup>1</sup>, <sup>2</sup>R. Rocha Rangel, <sup>3</sup>J. M. Juárez García.

<sup>1</sup>Universidad Autónoma del Estado de México (CU-UAEM-VM), Atizapán de Zaragoza, Estado de México, México, <sup>2</sup>Universidad Politécnica de Victoria (UPV), México, <sup>3</sup>Centro Nacional de Metrología (CENAM), México

■ **S5B-P092 PHOTOTHERMAL ANALYSIS ON THIN FILMS OF AL<sub>2</sub>O<sub>3</sub> DEPOSITED BY ULTRASONIC SPRAY PYROLYSIS TECHNIQUE**

I. G. Fernández<sup>1</sup>, D. Quintero<sup>1</sup>, U. Nogal<sup>1</sup>, M. Aguilar-Frutis<sup>1</sup>, A. Calderón<sup>1</sup> and A. G. Juárez<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, CICATA Unidad Legaria, México.

■ **S5B-P093 ELASTIC PROPERTIES AND ELECTRONIC STRUCTURE OF THE Ni<sub>3</sub>Sb INTERMETALLIC**

**C. E. Deluque Toro**<sup>1</sup>, S. Ramos de Debiaggi<sup>2,3,4</sup> and A. Fernández Guillermet<sup>4,5</sup>

<sup>1</sup>Grupo de Nuevo Materiales, Facultad de Ingeniería Universidad de la Guajira, Colombia. <sup>2</sup>Departamento de Física - Facultad de Ingeniería Universidad Nacional del Comahue Buenos Aires, Argentina. <sup>3</sup>Instituto de Investigación y Desarrollo en Ingeniería de Procesos, Biotecnología y Energías Alternativas – CONICET-UNCo, Argentina. <sup>4</sup>CONICET. <sup>5</sup>Instituto Balseiro, Centro Atómico Bariloche, Argentina.

■ **S5B-P094 PHOTOACOUSTIC SPECTROSCOPY MEASUREMENT ON THIN FILMS AL<sub>2</sub>O<sub>3</sub> DEPOSITED BY ULTRASONIC SPRAY PYROLYSIS TECHNIQUE**

D. Quintero<sup>1</sup>, I. G. Fernández<sup>1</sup>, M. Aguilar-Frutis<sup>1</sup> A. Calderón<sup>1</sup>, J. B. Rojas-Trigos<sup>1</sup> and E. Marín<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, CICATA Unidad Legaria, México

■ **S5B-P095 MECHANICAL AND METALLURGICAL PROPERTIES OF GRADE X70 STEEL LINEPIPE PRODUCED BY NON-CONVENTIONAL HEAT TREATMENT**

C. Natividad<sup>1</sup>, R. García<sup>1</sup>, V. H. López<sup>1</sup>, L. A. Falcón<sup>2</sup> and M. Salazar<sup>3</sup>.

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, México. <sup>2</sup>Facultad de Metalurgia UAdeC, México. <sup>3</sup>Instituto Mexicano del Petróleo, México.

■ **S5B-P096 BIO-SYNTHESIS OF SILVER NANOPARTICLES USING LEAVES OF SALVIA MICROPHYLLA KUNING PLANT EXTRACT**

J. Luis López-Miranda<sup>1</sup>, M. Vázquez-González<sup>1</sup>, A. Ruíz-Baltazar<sup>2</sup>, R. Esparza<sup>2</sup>, G. Rosas<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, UMSNH, México. <sup>2</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

■ **S5B-P097 METALLURGICAL CHARACTERIZATION OF API X65 STEEL JOINT WELDED BY MIG WELDING PROCESS WITH EXTERNAL MAGNETIC FIELD**

C. Natividad<sup>1</sup>, R. García<sup>1</sup>, V. H. López<sup>1</sup>, A. Contreras<sup>2</sup> and M. Salazar<sup>2</sup>.

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, México. <sup>2</sup>Instituto Mexicano del Petróleo, México.

■ **S5B-P098 ZnO/p-Si PHOTODETECTOR: DEPENDENCE ON Si RESISTIVITY AND ANNEALING PROCESSES**

José A. García<sup>1</sup>, H. Juárez<sup>2</sup>, M. Pacio<sup>2</sup>, C. Bueno<sup>2</sup>, E. Osorio<sup>2</sup> and T. Díaz<sup>2</sup>.

<sup>1</sup>Preparatoria "Gral. Lázaro Cárdenas del Río". <sup>2</sup>CIDS-ICUAP, Universidad Autónoma de Puebla, México

■ **S5B-P099 CHARACTERIZATION OF SERUM FERRITIN BY RAMAN SPECTROSCOPY FOR BIOMEDICAL APPLICATIONS**

J.M. Ruvalcaba López<sup>1</sup>, T Córdoba Fraga<sup>1</sup>, M G de la Rosa Álvarez<sup>1</sup>, J J Bernal Alvarado<sup>1</sup>

<sup>1</sup>División de Ciencias e Ingenierías, Campus León, Universidad de Guanajuato, México

■ **S5B-P100 PHOTOPYROELECTRIC TECHNIQUE FOR THERMAL EFFUSIVITY MEASUREMENTS OF LIQUIDS**

J. A. Balderas-López<sup>1</sup>, Y. M. Gómez y Gómez<sup>1</sup>, M. E. Bautista-Ramírez<sup>1</sup> and J. Díaz-Reyes<sup>2</sup>

<sup>1</sup>Instituto Politécnico Nacional-UPIBI, México. <sup>2</sup>Instituto Politécnico Nacional-CIBA, México.

■ **S5B-P101 GREEN SYNTHESIS AND CHARACTERIZATION OF SILVER NANOPARTICLES USING AQUEOUS EXTRACT OF VALERIANA OFFICINALIS**

Noemi Fletes<sup>1</sup>, Gerardo Rosas<sup>1</sup>

<sup>1</sup>Universidad Michoacana de San Nicolás de Hidalgo, Instituto de Investigaciones Metalúrgicas, Morelia, Michoacán México

■ **S5B-P102 BILIRUBIN EFFECT ON CHOLESTEROL CRYSTALLIZATION**

J.M. Bravo-Arredondo<sup>1,2</sup>, J.A. Gavira<sup>3</sup>, A. Suárez-Rojas<sup>1</sup>, M.E. Mendoza<sup>4</sup>

<sup>1</sup>Facultad de Ciencias Básicas, Ingeniería y Tecnología - Universidad Autónoma de Tlaxcala, México. <sup>2</sup>Universidad Politécnica Metropolitana de Puebla. México. <sup>3</sup>Instituto Andaluz de Ciencias de la Tierra. España. <sup>4</sup>Instituto de Física - Benemérita Universidad Autónoma de Puebla México

■ **S5B-P103 EFFECTS OF AGING ON CAST 35Cr-45Ni HEAT RESISTING ALLOYS**

Ileri Aydée Sustaita Torres<sup>1</sup>, Sergio Haro Rodríguez<sup>1</sup>, and Rafael Colás Ortiz<sup>2,3</sup>.

<sup>1</sup>Unidad Académica de Ingeniería, Universidad Autónoma de Zacatecas, México, <sup>2</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, México. <sup>3</sup>Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología, Universidad Autónoma de Nuevo León, México.

■ **S5B-P104 MICROSTRUCTURAL AND MECHANICAL CHARACTERIZATION OF Al-5%Ag-4%Cu-0.3%Mg COATING**

J. Moreno Palmerin<sup>1</sup>, L. S. Lara Solis<sup>1</sup>, H. J. Dorantes Rosales<sup>2</sup>, C. I. Enriquez Flores<sup>3</sup>, E. Cruz Valeriano<sup>3</sup>, M. Caudillo González<sup>1</sup>

<sup>1</sup>Universidad de Guanajuato, Departamento de Minas, Metalurgia y Geología. <sup>4</sup>Instituto Politécnico Nacional, E.S.I.Q.I.E-DIM. México, D.F. <sup>3</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional,

■ **S5B-P105 PREPARATION OF Zn(OH)2 IN ALKALINE MEDIUM USING CHEMICAL PRECIPITATION**

G. Herrera-Pérez<sup>1</sup>, J. N. Ortega-Aguilar<sup>1</sup>, C. E. Contreras-Villegas<sup>1</sup>, O. Muñoz-Serrato<sup>1</sup>

<sup>1</sup>Ingeniería en Materiales, Instituto Tecnológico Superior de Irapuato, México.

■ **S5B-P106 MECHANICAL BEHAVIOR OF A COMPOSITE OF ALUMINUM BASE ALLOY REINFORCED WITH NiAlFe INTERMETALLIC PARTICLES**

Villanueva<sup>1</sup>, S. Serna<sup>2</sup>, J. Colín<sup>1</sup>, A. Molina<sup>2</sup>, M. Acosta<sup>1</sup>, A. Torres-Islas.

<sup>1</sup>Facultad de Ciencias Químicas e Ingeniería - Programa Académico de Ingeniería Mecánica, México. <sup>2</sup>Centro de Investigación en Ingeniería y Ciencia Aplicada - UAEM, México

■ **S5B-P107 REMOVAL OF IRON IN FLY ASH TYPE F**

A.A. Zaldívar-Cadena<sup>1</sup>, J.A. Barrientos-Gaspar<sup>1</sup>, F. Vázquez-Acosta<sup>1</sup>, M.A. Aguilar-Gonzalez<sup>2</sup>, N. Elizondo-Villarreal<sup>3</sup>, J.R. Gonzalez-López<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil, Mexico. <sup>2</sup>CINVESTAV-IPN Unidad Saltillo, Mexico. <sup>3</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Físico Matemáticas, Mexico.

■ **S5B-P108 ANALYSIS OF MECHANICAL TURNING ON THE TRANSFORMATION TEMPERATURES OF NiTiNOL CHIPS**

F F R Pereira<sup>1,3</sup>, A C Araújo<sup>2</sup>, C J de Araújo<sup>3</sup>

<sup>1</sup>Department of Materials Science and Metallurgy, University of Cambridge. <sup>2</sup>Department of Mechanical Engineering, Universidade Federal do Rio de Janeiro. <sup>3</sup>Department of Mechanical Engineering, Universidade Federal de Campina Grande

■ **S5B-P109 CHARACTERIZATION OF BOROSILICATE CULLET MILLED FOR APPLICATIONS AS PARTIAL REPLACEMENT IN CEMENT MORTARS**

S-5B



**A.A. Zaldívar-Cadena<sup>1</sup>, J.M. Villarreal-Ortega<sup>1</sup>, F. Vázquez-Acosta<sup>1</sup>, R.X. Magallanes-Rivera<sup>1</sup>, J. Ibarra-Rodríguez<sup>2</sup>, J.R. González-López<sup>1</sup>, M.A. Aguilar-González<sup>3</sup>**

<sup>1</sup>Facultad de Ingeniería Civil, Mexico. <sup>2</sup>Facultad de Ciencias Químicas, Mexico. <sup>3</sup>CINVESTAV-IPN Unidad Saltillo, Mexico.

■ **S5B-P110 EFFECT OF THE SUBSTRATE ON THE GROWTH OF  $\text{In}_x\text{Ga}_{1-x}\text{N}$  MICROSTRUCTURES GROWN BY MOCVD**

**A. Ramos-Carrasco<sup>1,2</sup>, R. García-Gutierrez<sup>1</sup>, Berman-Mendoza<sup>1</sup>, O. E. Contreras<sup>3</sup>**

<sup>1</sup> Departamento de Investigación en Física de la Universidad de Sonora, Hermosillo, Sonora, México. <sup>2</sup> Centro de Investigación en Materiales Avanzados, S. C., Chihuahua, Chihuahua, México. <sup>3</sup> Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, Baja California, México

■ **S5B-P111 CLAYS FRACTION CHARACTERIZATION BY X RAY DIFFRACTION IN SOILS OF TLAHUAC MEXICO**

**B. M. Millán-Malo<sup>1</sup>, D. Carreón-Freyre<sup>2</sup>, S. Solís<sup>2</sup>, M. Vega-González<sup>2</sup>, E. Rivera-Muñoz<sup>1</sup>, M. D. Martínez-Alfaro<sup>2</sup>**

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México. <sup>2</sup>Centro de Geociencias, Universidad Nacional Autónoma de México, México.

■ **S5B-P112 ESTIMATION OF THE MAGNETIC ANISOTROPY OF STEEL PIPELINES BY MEAN OF THE MAGNETIC BARKHAUSEN NOISE**

**P. Martínez-Ortiz<sup>1</sup>, J.H. Espina-Hernández<sup>1</sup>, J.A. Pérez-Benítez<sup>1</sup>, A. F. Chávez-González<sup>1</sup>, and F. Caleyó<sup>2</sup>**

<sup>1</sup> Laboratorio de Evaluación No Destructiva Electromagnética (LENDE), ESIME-SEPI, UPALM México. <sup>2</sup> Departamento de Ingeniería Metalúrgica, ESIQIE, UPALM México

■ **S5B-P113 CHARACTERIZATION OF 3,3-DIMETHYLGUTARIC ANHYDRIDE**

**M. López Ortega, M.A. García Castr<sup>1</sup>, M.P. Amador Ramírez<sup>1</sup>,**

<sup>1</sup>Posgrado en Ingeniería Química, BUAP, <sup>2</sup>Facultad de Ciencias Químicas, BUAP, México.

■ **S5B-P114 THERMOCHEMISTRY OF 3-HYDROXYPHTHALIC ANHYDRIDE**

**M. López Ortega<sup>1</sup>, M. A. García Castro<sup>1</sup>, M. P. Amador Ramírez<sup>2</sup>, A. Rojas Aguilar<sup>3</sup>**

<sup>1</sup>Posgrado en Ingeniería Química, BUAP, México. <sup>2</sup>Facultad de Ciencias Químicas, BUAP, México. <sup>3</sup>Departamento

de Química del CINVESTAV-IPN. Av. Instituto Politécnico Nacional.

■ **S5B-P115 CHARACTERIZATION OF CoCuNiZnMo, CoCuNiZnW, AgNbTiWMo AND AgNbTiWMo HIGH ENTROPY ALLOYS PRODUCED BY MECHANICAL ALLOYING.**

**Jesús Cruz-Rivera<sup>1</sup>, O. Coreño-Alonso<sup>2</sup>, J. Guerrero-Paz<sup>3</sup>, J. Coreño-Alonso<sup>3</sup>, N. L. Gutierrez-Ortega<sup>2</sup>**

<sup>1</sup>Facultad de Ingeniería-Instituto de Metalurgia, UASLP, México. <sup>2</sup> Departamento de Ingeniería Civil, D. I., Universidad de Guanajuato, México. <sup>3</sup>Área Académica Materiales y Ciencias de la Tierra, UAEH,

■ **S5B-P116 BORO-NITRIDING PROCESS: MICROSTRUCTURAL AND MECHANICAL PROPERTIES OF MULTICOMPONENTIAL LAYERS FORMED ON ARMC0 IRON**

**A. Gómez<sup>1</sup>, M. Ortiz<sup>2</sup>, M. Elias<sup>3</sup>, J. Solís<sup>1</sup>, R. Vazquez<sup>1</sup>, A. Arenas<sup>4</sup>, M. Abreu<sup>2</sup>, Z. Silva<sup>2</sup>**

<sup>1</sup>Instituto Tecnológico de Tlalhepantla-ITTLA, México, <sup>2</sup>Universidad Autónoma del Estado de Hidalgo, Escuela Superior de Ciudad Sahagún-Ingeniería Mecánica, México, <sup>3</sup>Instituto Tecnológico y de Estudios Superiores de Monterrey-ITESM Campus Santa Fe, México, <sup>4</sup>Universidad Autónoma del Estado de Hidalgo-AACTyM, México.

■ **S5B-P117 CHARACTERIZATION OF METALLURGICAL SLAGS FOR USE IN TERNARY AND QUATERNARY CEMENTITIOUS SYSTEMS**

**A.G. García-Saucedo<sup>1</sup>, R.X. Magallanes-Rivera<sup>1</sup>, J.R. González-López<sup>2</sup>, A.A. Zaldívar-Cadena<sup>2</sup>**

<sup>1</sup>Universidad Autónoma de Coahuila – UAdeC, Facultad de Ingeniería, México. <sup>2</sup>Universidad Autónoma de Nuevo León – UANL, Facultad de Ingeniería Civil, México

■ **S5B-P118 EFFECT OF GRAIN SIZE, STACKING FAULTS AND COOLING RATE ON MARTENSITE FORMATION IN TRIP/TWIP STEEL**

**Dinesh Kumar<sup>1</sup>**

<sup>1</sup>Department of Metallurgical and Materials Engineering, Indian Institute of Technology Kharagpur, West, India,



ROOM: MAYA VII  
WEDNESDAY, AUGUST 19

 Session Chair: **ANTONIO CONTRERAS CUEVAS**

■ **09:00 - 09:15 S5B-0047 REINFORCEMENT EFFECTS OF SILVER METALLIC PARTICLES IN COMPOSITES  $Al_2O_3$  / Ag MANUFACTURED BY POWDER METALLURGY**

J.G. Miranda-Hernández<sup>1</sup>, O. Figueroa-Martínez<sup>1</sup>, H. Herrera-Hernández<sup>1</sup>, C.O González-Moran<sup>1</sup>, E. Refugio-García<sup>2</sup>, J. Osorio-Ramos<sup>2</sup>

<sup>1</sup>Universidad Autónoma del Estado de México (CU-UAEM-VM), Estado de México, México, <sup>2</sup>Universidad Autónoma Metropolitana-Azcapotzalco, México.

■ **09:15 - 09:30 S5B-0048 OPTICAL AND THERMAL CHARACTERIZATION OF SCINTILLATOR THIN FILMS USING THERMAL LENS INTERFEROMETRY IN FREQUENCY DOMAIN**

J. B. Rojas-Trigos<sup>1</sup>, Y. Jiménez-Flores<sup>1</sup>, V. Suárez<sup>1</sup>, and M. Suárez<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada unidad Legaria, México D.F.

■ **09:30 - 09:45 S5B-0049 ALOE-VERA GEL AS POTENTIAL GREEN CORROSION INHIBITOR FOR CONCRETE STEEL REINFORCEMENT**

Héctor Herrera H.<sup>1</sup>, M.I. Franco F.<sup>1</sup>, J.G. Miranda H.<sup>1</sup>, A. Espinoza V.<sup>2</sup>, G. Fajardo<sup>3</sup>

<sup>1</sup>Universidad Autónoma del Estado de México, Ingeniería Industrial (área de electroquímica y corrosión de materiales), México. <sup>2</sup>Universidad Mexiquense del Bicentenario, México. <sup>3</sup> Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil, México.

■ **09:45 - 10:00 S5B-0050 EFFECT OF MULTIPASS FLUX-CORED ARC WELDING PROCESS ON THICK STEEL PLATES**

R. Saldaña-Garcés<sup>(1)</sup>, J. Pérez-Piña<sup>(1)</sup>, F.A. Reyes-Valdés<sup>(1)</sup>, F.J. García-Vázquez<sup>(1)</sup>, E.J. Gutiérrez-Castañeda<sup>(2)</sup>

<sup>1</sup> Mexican Corporation of Material Research S.A. de C.V. (COMIMSA). <sup>2</sup> Institute of Metallurgy of The Autonomous university of San Luis Potosí.

■ **10:00 - 10:15 S5B-0051 EFFECT ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF THE STRUCTURAL STEEL WELDED IN MARINE ENVIRONMENT**

M. Flores Luna<sup>1</sup>, J. J. Ruiz Mondragón<sup>1</sup>, F. Macías López<sup>1</sup>, J.Acevedo Dávila<sup>1</sup>.

<sup>1</sup> COMIMSA-Salttillo, México.

■ **10:15 - 10:30 S5B-0052 STUDY OF TiO NANOSTRUCTURES FOR THIN FILM PHOTOVOLTAICS BY SMALL ANGLE X-RAY SCATTERING**

Davor Gracin<sup>1</sup>, Daniel Meljanac<sup>1</sup>, Krunoslav Juraic<sup>1,2</sup>, Milivoj Plodinec<sup>1</sup>, Kresimir Solomon<sup>3</sup>, Sigrid Bernstorff<sup>4</sup>, Miran Ceh<sup>5</sup>

<sup>1</sup>Rudjer Boskovic Institute, Croatia. <sup>2</sup>Institute of Inorganic Chemistry, Graz University of Technology, Graz, Austria. <sup>3</sup>Institute of Physic, Croatia. <sup>4</sup>Elettra-Sincrotrone Trieste, Italy. <sup>5</sup>Jozef Stefan Institute, Slovenia

■ **10:30 - 10:45 S5B-0053 GROWTH KINETICS AND MECHANICAL PROPERTIES OF LAYERS FORMED ON AISI 9840 STEEL DURING BORIDING PROCESS**

A. Gómez<sup>1</sup>, M. Ortiz<sup>2</sup>, M. Elias<sup>3</sup>, M. Paredes<sup>1</sup>, J. Solis<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Tlalhepantla-ITTLA, México, <sup>2</sup>Universidad Autónoma del Estado de Hidalgo, Escuela Superior de Ciudad Sahagún-Ingeniería Mecánica, México, <sup>3</sup>Instituto Tecnológico y de Estudios Superiores de Monterrey-ITESM Campus Santa Fe, México.

■ **10:45 - 11:00 S5B-0054 PHASE TRANSFORMATIONS DURING TEMPERING OF AISI L6 LOW ALLOY TOOL STEEL.**

D. I. Quiñones-Salinas<sup>1</sup>, R. D. Mercado-Solis<sup>1</sup>, L.A. Leduc-Lezama<sup>1</sup>, F. Fernandez-Guzman<sup>2</sup>, R. Cerda-Rojas<sup>2</sup>.

<sup>1</sup>Universidad Autonoma de Nuevo León, México. <sup>2</sup>Frisa Forjados S.A. de C.V., México.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **ANTONIO CONTRERAS CUEVAS**

▶ **12:30 - 13:00 S5B-0055 Invited Talk WELDABILITY OF 2024 ALUMINUM ALLOY BY FRICTION STIR SPOT WELDING PROCESS**

A. F. Miranda Pérez<sup>1</sup>, N. Becerra Zamarripa<sup>1</sup>, F. J. García Vázquez<sup>1</sup>, G. Y. Pérez Medina<sup>1</sup>

<sup>1</sup> Corporación Mexicana de Investigación en Materiales, COMIMSA, México

S-5B



■ **13:00 - 13:15 S5B-0056 WELDABILITY AND MICROSTRUCTURAL EVOLUTION IN NANOSTRUCTURED STEELS WELDED BY GMAW AND RSW PROCESS**

A. Z. Rodríguez Díaz<sup>1</sup>, G. Y. Pérez Medina<sup>1</sup>, M. P. Guerrero Mata, F. A. Reyes Valdés<sup>1</sup>

<sup>1</sup>Corporación Mexicana de Investigación en Materiales, COMIMSA, México

■ **13:15 - 13:30 S5B-0057 PHYSICOCHEMICAL CHARACTERIZATION OF CLAYS FROM THE GUAVIARE RIVER, VEREDA DE LA PAZ, GUAVIARE, COLOMBIA**

D. Landinez<sup>1</sup>, M. Calvo<sup>1</sup>, C. Cardenas<sup>1</sup>

<sup>1</sup> Universidad Nacional de Colombia

■ **13:30 - 13:45 S5B-0058 EFFECT OF COPPER ADDITIONS ON SECONDARY CARBIDE PRECIPITATION IN HIGH-CHROMIUM WHITE CAST IRON**

F.V. Guerra<sup>1</sup>, A. Bedolla-Jacuinde<sup>1</sup>, J. Zuno-Silva<sup>2</sup>, I. Mejía<sup>1</sup>, C. Maldonado<sup>1</sup>

<sup>1</sup> Instituto de Investigaciones Metalúrgicas, UMSNH, México. <sup>2</sup> Universidad Autónoma del Estado de Hidalgo, México

■ **13:45 - 14:00 S5B-0059 COMBINED DIFFRACTION, DSC AND VIBRATIONAL SPECTROSCOPIC STUDY OF UNIQUE POLYMORPHISM OF N-PHENYLBIGUANIDIUM OXALATE CRYSTALS - NOVEL ORGANIC NLO MATERIAL**

I. Nemeč<sup>1</sup>, I. Matulkova<sup>1</sup>, I. Cisarova<sup>1</sup>, P. Vanek<sup>2</sup>, P. Nemeč<sup>3</sup>

<sup>1</sup>Department of Inorganic Chemistry, Faculty of Science, Charles University in Prague, Czech Republic <sup>2</sup>Department of Dielectrics, Institute of Physics ASCR, Czech Republic <sup>3</sup>Department of Chemical Physics and Optics, Faculty of Mathematics and Physics, Charles University in Prague, Czech Republic.



**14:00- 16:00 LUNCH**



Session Chair: **ANTONIO CONTRERAS CUEVAS**

■ **16:00 - 16:15 S5B-0060 IMPLEMENTATION AND CHARACTERIZATION OF A PROCESS TO PRODUCE NICKEL-PHOSPHORUS PROTECTIVE COATINGS ON 4320 ALLOYED STEEL IMPELLERS**

M. Ruiz B.<sup>(1)</sup>, E. Rodríguez M.<sup>(1)</sup>, J. J. Montes R.<sup>(2)</sup>, A. L. Martínez H.<sup>(1)</sup>

<sup>(1)</sup>Instituto Tecnológico de Querétaro. <sup>(2)</sup>Centro de Ingeniería y Desarrollo Industrial,.

■ **16:15 - 16:30 S5B-0061 EFFECT OF COLD WORKING AFTER BRAZING PROCESS ON ALUMINUM ALLOYS TO HEAT EXCHANGERS OF VEHICLES.**

E. Galarza<sup>1</sup>, J. Cruz Rivera<sup>2</sup>, A. Torres<sup>2</sup>, Claudia Elias<sup>2</sup>, Ana L. Torres<sup>1</sup>

<sup>1</sup> Valeo Engine Cooling San Luis Potosi, <sup>2</sup> Universidad Autónoma de SLP (UASLP).

■ **16:30 - 16:45 S5B-0062 TOPOGRAPHY AND PHASE RECOGNITION USING AFM IN DUCTILE IRON**

E. Hurtado-Delgado<sup>1</sup>, F. García-Vázquez<sup>1</sup>, L.A. Huerta-Larumbe<sup>1</sup>, G.Y. Pérez-Medina<sup>1</sup>,

<sup>1</sup>Corporación Mexicana de Investigación en Materiales S.A. de C.V. (COMIMSA), México

■ **16:45 - 17:00 S5B-0063 ORMOSIL ANTICORROSION COATING APPLIED ON ALUMINUM ALLOYS**

<sup>1</sup>Cristian Alvarado, <sup>1</sup>Daniel Mata, <sup>1</sup>Carmen Salazar, <sup>2</sup>Mercedes Salazar.

<sup>1</sup>Unidad Profesional Interdisciplinaria de Ingenierías Campus Guanajuato. Instituto Politécnico Nacional. México. <sup>2</sup>Departamento de Metalurgia, Minas y Geología División de Ingenierías. Universidad de Guanajuato.

■ **17:00 - 17:15 S5B-0064 DETONATOR MATERIALS CHARACTERIZATION FOR INDUSTRIAL APPLICATION**

Michael E. Cournoyer<sup>1</sup>

<sup>1</sup>Los Alamos National Laboratory, United States of America

■ **17:15 - 17:30 S5B-0065 SURFACE QUALITY EVALUATION OF HOT DEFORMED ALUMINIUM**

L. A. Espinosa<sup>1</sup>, F. A. Pérez-González<sup>1</sup>, O. Zapata<sup>1</sup>, N. F. Garza-Montes-de-Oca<sup>1</sup>, S. Haro<sup>2</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, UANL, México. <sup>2</sup>Unidad Académica de Ingeniería, Universidad Autónoma de Zacatecas, México.

■ **17:30 - 17:45 S5B-0066 SYNTHESIS AND CHARACTERIZATION OF AMINO-FUNCTIONALIZED METAL-ORGANIC FRAMEWORKS**

B. González Santiago<sup>1</sup>, A. Greenaway<sup>1</sup> and P. A. Wright<sup>1</sup>

<sup>1</sup> EaStCHEM School of Chemistry, University of St Andrews, Purdie Building, UK.

■ **17:45 - 18:00 S5B-0067 SYNTHESIS, CHARACTERIZATION, AND FUNCTIONALIZATION OF**

**MAGNETIC NANOPARTICLES AND THEIR POTENTIAL USE AS A DRUG DELIVERY SYSTEM**

D. Salas-Meza<sup>1</sup>, A. R. Hernández-Martínez<sup>1</sup>, M. R. Estévez González<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México Mexico

- **18:00 - 18:15 S5B-0068 CORROSION BEHAVIOR OF CASTOR OIL BIODIESEL - DIESEL BLENDS ON CHARACTERISTIC METAL ALLOYS MATERIALS OF A DIESEL ENGINE**

L. Perdomo-Hurtado<sup>1</sup>, J. P. Cárdenas Tabares<sup>1</sup>, C. Álvarez Zapata<sup>1</sup>, J. G. Hoyos Salazar<sup>1</sup>

<sup>1</sup>Departamento de Mecánica y Producción, Universidad Autónoma de Manizales, Antigua, Colombia.

- **18:15 - 18:30 S5B-0069 CHEMICAL AND ELECTRICAL CHARACTERIZATION OF CrB<sub>2</sub>-Si-SiC THIN FILM RESISTORS BY CO-SPUTTERING DEPOSITION**

M. Mireles-Ramírez<sup>1</sup>, N. Dellas<sup>2</sup>, Q. Z. Hong<sup>2</sup> and M. A. Quevedo Lopez<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, University of Texas at Dallas, Richardson, Texas, USA.  
<sup>2</sup>Texas Instruments Incorporated, , Dallas, Texas, USA

L.M. Apátiga Castro<sup>1</sup>, N. Méndez-Lozano<sup>1</sup>, E.M. Rivera-Muñoz<sup>1</sup>, B. Millán Malo<sup>1</sup> and A. Manzano-Ramírez<sup>2</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

<sup>2</sup>Centro de Investigación y de Estudios Avanzados, Unidad Querétaro, México

- **S5B-P121 ELECTROCHEMICAL NOISE FOR DETECTION OF STRESS CORROSION CRACKING OF LOW CARBON STEEL EXPOSED TO SYNTHETIC SOIL SOLUTION**

A.M. Gaona<sup>1</sup>, A. Carmona<sup>2</sup>, R. Galvan<sup>2</sup>, A. Contreras<sup>3</sup>.

<sup>1</sup>Instituto Tecnológico de Morelia, México.<sup>2</sup> Unidad Anticorrosión, Instituto de Ingeniería, Universidad Veracruzana, Veracruz, México <sup>3</sup>Instituto Mexicano del Petróleo, México.

- **S5B-P122 COMPARATIVE ASSESSMENT OF INTERNAL SCC SUSCEPTIBILITY PRODUCED BY EXTRA-HEAVY OIL IN LOW CARBON STEELS**

V. M. Camarena<sup>1</sup>, R. Galvan-Martínez<sup>2</sup>, L. M. Quej<sup>3</sup>, A. Contreras<sup>3</sup>

<sup>1</sup>Escuela Superior de Ingeniería Química e Industrias Extractivas, México.<sup>2</sup>Unidad Anticorrosión, Instituto de Ingeniería, Universidad Veracruzana, Veracruz, México.<sup>3</sup> Instituto Mexicano del Petróleo, México.

- **S5B-P123 COMPLEMENTARY STUDY TO ESTABLISH THE CONDITIONS OF EQUILIBRIA SYSTEMS CaO-Al<sub>2</sub>O<sub>3</sub>-ZnO and CaO-Fe<sub>2</sub>O<sub>3</sub>-ZnO BY SOLID STATE REACTION CONTROLLED**

F. Martínez-Ortiz<sup>1</sup>, Y.Y. Sánchez-Reyna<sup>1</sup>, B.A. Vázquez<sup>1</sup>

Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, Mex.

- **S5B-P124 PREDICTION OF THE SARA CONTENTS IN VACUUM RESIDUE OF COLOMBIAN CRUDE OILS USING FOURIER TRANSFORM INFRARED PHOTOACOUSTIC SPECTROSCOPY (FTIR-PAS) AND PARTIAL LEAST SQUARE REGRESSION**

G. E. Vargas<sup>1</sup>, R. Cabanzo<sup>1</sup>, E. Mejía-Ospino<sup>1</sup>

<sup>1</sup>Laboratorio de Espectroscopia Atómica y Molecular (LEAM). Centro de Materiales y Nanociencias (CMN). Universidad Industrial de Santander, Colombia

- **S5B-P120 SYNTHESIS AND CHARACTERIZATION OF α-Fe<sub>2</sub>O<sub>3</sub> THIN FILMS DEPOSITED ONTO Si WAFERS BY THE PULSED INJECTION MOCVD TECHNIQUE USING A LIQUID PRECURSOR**

- **S5B-P125 ELECTROCHEMICAL STUDY OF LOW CARBON STEEL WITH NO CONVENTIONAL HEAT TREATMENT IMMERSED IN SYNTHETIC SOIL SOLUTION**

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

- ▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

- **S5B-P119 EFFECT OF SYNTHESIS PARAMETERS ON STRUCTURAL PROPERTIES OF HYDROXYAPATITE NANOFIBERS USING THE HYDROTHERMAL METHOD**

N. Méndez-Lozano<sup>1</sup>, R. Velázquez-Castillo<sup>2</sup>, E.M. Rivera-Muñoz<sup>1</sup>, A. Manzano-Ramírez<sup>3</sup>, M.A. Ocampo<sup>1</sup> and L.M. Apatiga-Castro<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.<sup>2</sup>División de Investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro, México <sup>3</sup>Centro de Investigación y de Estudios Avanzados, Unidad Querétaro, México

S-5B



A.E. Santiago-López<sup>1</sup>, R. Orozco-Cruz<sup>1</sup>, C. Natividad<sup>2</sup>, A. Contreras<sup>3</sup>, R. Galván-Martínez<sup>1</sup>

<sup>1</sup>Unidad Anticorrosión, Instituto de Ingeniería, Universidad Veracruzana, México. <sup>2</sup>Instituto de Investigaciones Metalúrgicas, de la UMSNH, Morelia, Mich. México. <sup>3</sup>Instituto Mexicano del Petróleo, México D.F.

■ **S5B-P126 UNDOPED AND FLUORINE DOPED ZINC OXIDE (ZnO:F) THIN FILMS DEPOSITED BY ULTRASONIC CHEMICAL SPRAY: EFFECT OF THE SOLUTION ON THE ELECTRICAL AND OPTICAL PROPERTIES**

Chávez-Vargas<sup>1</sup>, M. de la L. Olvera-Amador<sup>1</sup>, A. Jimenez-Gonzalez<sup>2</sup>, A. Maldonado<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Eléctrica, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, SEES, México  
<sup>2</sup>Instituto de Energías Renovables, IER-UNAM Priv. México

■ **S5B-P127 COMPARISON OF THREE SULFURIC BASED ACID SOLUTIONS FOR CORROSION PROTECTION IN ANODIZING PROCESS**

J. Torres-González<sup>1</sup>, J.C. Ávalos-Yépez<sup>2</sup>, R. Antaño-López<sup>1</sup>, F. Castañeda-Zaldívar<sup>1</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica S.C Parque México <sup>2</sup>Meggitt Aircraft Braking Systems S. de R.L. de C.V, México

■ **S5B-P128 CHARACTERIZATION OF A ALLOY RIBBON Ti58Cu26Ni16 PRODUCED IN MELT SPINNING: TEMPERATURE TRANSFORMATION VERSUS AMORPHIZATION**

Ramos, A. P.<sup>1</sup>, Anselmo, G. C. dos S.<sup>2</sup>, Castro, W. B.<sup>3</sup>

<sup>1,2,3</sup>Universidade Federal de Campina Grande, Brazil

■ **S5B-P129 CORROSION SUSCEPTIBILITY OF Al-Fe<sub>2</sub>O<sub>3</sub> wt% ALLOY IN SEAWATER ALKALINE SOLUTIONS**

J. E. Flores<sup>1</sup>, M. A. Espinosa-Medina<sup>2</sup>, A. Bedolla-Jacuinde<sup>1</sup>, G. Rosas<sup>1</sup>.

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, UMSNH, Morelia, Mich. México, <sup>2</sup>Facultad de Ingeniería Mecánica, UMSNH, México.

■ **S5B-P130 CHEMICAL AND MINERALOGICAL CHARACTERIZATION OF A RARE EARTH DEPOSIT, LOCATED NORTHEAST OF THE STATE OF HIDALGO, MEXICO**

E. Salinas-Rodríguez<sup>1</sup>, E. Cerecedo-Sáenz<sup>1</sup>, V. Rodríguez-Lugo<sup>1</sup>, J. Hernández-Ávila<sup>1</sup>, E. Cardoso-Legorreta<sup>1</sup>, A. Arenas-Flores<sup>1</sup>

<sup>1</sup>Universidad Autónoma del Estado de Hidalgo. Área Académica de Ciencias de la Tierra y Materiales – ICBI. Ciudad del Conocimiento,

■ **S5B-P131 STRUCTURAL EFFECTS OF Fe SUBSTITUTION BY Mn IN YBaFeMnO8**

Solórzano<sup>1</sup>, R. Falconi<sup>1</sup>

<sup>1</sup>División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, México.

■ **S5B-P132 PREPARATION OF DOPED CERIUM BETA-CALCIUM PYROPHOSPHATE: STUDY OF LUMINESCENT BEHAVIOR**

I. B. Lozano<sup>1</sup>, J. Roman-Lopez<sup>2</sup>, J.A.I. Díaz-Góngora<sup>1</sup>, J. Azorín<sup>3</sup>

<sup>1</sup>Instituto Politécnico Nacional, Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, México, <sup>2</sup>Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, <sup>3</sup>Departamento de Física, Universidad Autónoma Metropolitana-Iztapalapa, México.

■ **S5B-P133 CHARACTERIZATION OF MEXICAN REFRACTORY AGGREGATES 40% Al<sub>2</sub>O<sub>3</sub> WITH NANOPARTICLES OF ALUMINA**

A. M. Paniagua-Mercado<sup>1</sup>, P. Estrada-Díaz<sup>2</sup>, A. Méndez Sanchez<sup>1</sup>, E. Díaz-Valdés<sup>1</sup>, C. Mejía-García<sup>1</sup>

<sup>1</sup>Escuela Superior de Física y matemáticas, Dpto. de Física, México.

■ **S5B-P134 EFFECT OF THE ADDITION OF NANOPARTICLES OF SILVER IN BASE MULLITE COMPOSITES**

Téllez Arias Mercedes Gabriela<sup>1</sup>, Miranda Hernández José G.<sup>1</sup>, Olea Mejía Oscar Fernando<sup>2</sup>, Lemus Ruiz José<sup>3</sup>.

<sup>1</sup>Universidad Autónoma del Estado de México (CU-UAEM-VM), Estado de México. <sup>2</sup> Universidad Autónoma del Estado de México, Facultad de Química (CIQS-UAEM-UNAM).

<sup>3</sup> Universidad Michoacana de San Nicolás de Hidalgo, (IIMM), , Morelia, Michoacán,

■ **S5B-P135 THE CORRELATION BETWEEN THE OPEN CIRCUIT VOLTAGE AND HOMO ENERGY OF POLYMERS CONDUCTORS IN ORGANIC SOLAR CELLS**

Iliana Hernandez-Cruz<sup>1</sup>, J.I. Rodriguez<sup>1</sup> and F.L Castilo-Alvarado<sup>1</sup>

<sup>1</sup> Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, México.

■ **S5B-P136 SYNTHESIS AND ELECTRICAL EVALUATION OF CERMET Al<sub>2</sub>O<sub>3</sub> - Ag (5%/10%)**

C. O. González-Morán<sup>1</sup>, J. A. Arcos-Ordaz<sup>1</sup>, H. Herrera-Hernández<sup>1</sup>, J. G. Miranda-Hernández<sup>1</sup>

<sup>1</sup>Universidad Autónoma del Estado de México (CU-UAEM-VM), Atizapán de Zaragoza, Estado de México

- **S5B-P137 VALENCE-BAND AND CHEMICAL-STATE ANALYSES OF Fe, Co, Ni AND Zn OXIDES BY XPS**  
Huerta<sup>1</sup>, M. Romero<sup>2</sup>, E. Bernal-García<sup>1</sup>, A. A. Castro<sup>1</sup>, F. Barffuson<sup>3</sup>, and R. Escamilla<sup>1,4</sup>.

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México; <sup>2</sup>Facultad de Ciencias, Universidad Nacional Autónoma de México, México.

<sup>3</sup>Departamento de Física, Universidad de Sonora. México.

<sup>4</sup>ESIME-Culhuacán, Instituto Politécnico Nacional, México.

- **S5B-P138 BIOSYNTHESIS OF SILVER NANOPARTICLES USING EXTRACTS OF MEXICAN MEDICINAL PLANTS**  
J. Luis López-Miranda<sup>1</sup>, C. Baltazar-Mendez<sup>1</sup>, M. Torres-Chacón<sup>1</sup>, A. Ruiz-Baltazar<sup>2</sup>, R. Esparza<sup>2</sup>, G. Rosas<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, UMSNH, México.

<sup>2</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

- **S5B-P139 MICROHARDNESS AND MICROSTRUCTURAL EVOLUTION OF A HEAT TREATED BORON STEEL**

A. Contreras-Briseño<sup>1</sup>, M. De J. Soria-Aguilar<sup>2</sup>, F. R. Carrillo-Pedroza<sup>2</sup>

<sup>1</sup> Universidad Autónoma de Coahuila, Facultad de Ciencias Químicas, Posgrado en Ciencia y Tecnología de Materiales.; <sup>2</sup> Facultad de Metalurgia, Universidad Autónoma de Coahuila,

- **S5B-P140 PHOTOLUMINESCENCE OF B-Ga<sub>2</sub>O<sub>3</sub> PARTICLES OBTAINED BY ELECTROLYSIS**

F. G. Nieto-Caballero<sup>1</sup>, G. García-Salgado<sup>2</sup>, T. Díaz-Becerril<sup>2</sup>, E. Rosendo-Andrés<sup>2</sup>, H. Juárez-Santiesteban<sup>2</sup>, A. Tovar-Corona<sup>1</sup>.

<sup>1</sup>Facultad de Ciencias Químicas. Benemérita Universidad Autónoma de Puebla. <sup>2</sup>Centro de Investigaciones en Dispositivos Semiconductores (CIDS-ICUAP), Benemérita Universidad Autónoma de Puebla.

- **S5B-P141 SYNTHESIS AND STRUCTURAL, VIBRATIONAL AND INTERNAL HYPERFINE MAGNETIC FIELD CHARACTERIZATION OF THE LaFeO<sub>3</sub>**

M. Romero<sup>1</sup>, R. W. Gómez<sup>1</sup>, V. Marquina<sup>1</sup>, J. L. Pérez-Mazariego<sup>1</sup>, R. Escamilla<sup>2</sup> and A. A. Castro<sup>2</sup>

<sup>1</sup> Facultad de Ciencias, Universidad Nacional Autónoma de México, México, <sup>2</sup> Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México.

- **S5B-P142 THE INFLUENCE OF TIN CONTENT ON THE CORROSION POTENTIAL AT CATHODE GRIDS OF LEAD-ACID BATTERIES**

M. B. Queiroz<sup>1</sup>; E. O. Vilar<sup>2</sup>; J. F. Lima<sup>3</sup>

<sup>1</sup> Teacher of UFERSA - Universidade Federal Rural do Semi-Árido - Campus. <sup>2</sup>Teacher of UAEQ – Unidade Acadêmica de Engenharia Química UFCG - Universidade Federal de Campina Grande Brazil. <sup>3</sup> PhD student of PPGEq-UFCG.

- **S5B-P143 A THERMOSET-THERMOPLASTIC BLEND: SPECTROSCOPY CHARACTERIZATION**

F.A. Mesa-Rueda<sup>1</sup>, A. Cuellar-Burgos<sup>1</sup>

<sup>1</sup>Laboratorio de Polímeros y Materiales Compuestos, Universidad Nacional de Colombia, Colombia.

- **S5B-P144 CHARACTERIZATION OF A PHOTOCATALYTIC FRIT AS PRECURSOR OF SELF-CLEANING CERAMIC GLAZE**

V.A. González Pérez<sup>1</sup>, J.J. Ruiz Valdés<sup>1</sup>, L. Maya<sup>1</sup>, G. Turnes<sup>2</sup>, F. Maya<sup>2</sup>

<sup>1</sup> Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, México.; <sup>2</sup> Department of Chemistry, Facultad de Ciencias, Universitat de les Illes Balears, España

- **S5B-P145 STRUCTURAL AND OPTICAL PROPERTIES OF MAGNETITE NANOPARTICLES SUPPORTED ON SiO<sub>2</sub> MICROSPHERES.**

A. J. Carmona-Carmona<sup>1</sup>, M. A. Palomino-Ovando<sup>1</sup>, M. Toledo-Solano<sup>1</sup>, E. Sánchez-Mora<sup>2</sup>.

<sup>1</sup>Facultad de Ciencias Físico Matemáticas, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Instituto de Física “Luis Rivera Terrazas”, Benemérita Universidad Autónoma de Puebla, México

- **S5B-P146 MICROSTRUCTURE PREDICTION IN ALUMINUM DIE CASTING FOR AUTOMOTIVE COMPONENTS**

G. Rodríguez-Ortiz<sup>1</sup>, A. E. Salas-Reyes<sup>1</sup>

<sup>1</sup>Ingeniería en Metalúrgica, Universidad Politécnica de Juventino Rosas.

- **S5B-P147 STRUCTURAL CHARACTERIZATION OF SOLIDS WITH PREFERRED ORIENTATION USING RIETVELD REFINEMENT TECHNIQUE**

Akhilesh Tripathi<sup>1</sup>

<sup>1</sup>Rigaku Americas Corporation New Trails Drive The Woodlands





- 55B-P148 SYNTHESIS AND CHARACTERIZATION OF ZnO:Mn POWDERS OBTAINED BY MWCB**  
E. V. Reyes-Cervantes<sup>1</sup>, R. Galeazzi<sup>1</sup>, E. Rosendo<sup>1</sup>, G. García Salgado<sup>1</sup>, H. Juárez Santiesteban<sup>1</sup>, T. Díaz<sup>1</sup>, M. Pacio Castillo<sup>1</sup>, C. Morales<sup>1</sup>  
<sup>1</sup> CIDS-ICUAP, BUAP, México
- 55B-P149 DIELECTRIC SPECTROSCOPY OF Ti6Si4**  
M.M. Asadov<sup>1</sup>, S.N. Mustafaeva<sup>2</sup>, D.M. Babanly<sup>1</sup>, D.B. Tagiev<sup>1</sup>  
<sup>1</sup>Institute of Catalysis and Inorganic Chemistry, Azerbaijan National Academy of Sciences. <sup>2</sup>Institute of Physics, Azerbaijan National Academy of Sciences.
- 55B-P150 DETERMINATION OF THE ABSORPTION BANDS OF Al<sub>2</sub>O<sub>3</sub>-SiC REFRACTORIES**  
Jacobo Martínez-Reyes<sup>2</sup>, A.M. Paniagua-Mercado<sup>1</sup>  
<sup>1</sup>School of Physics and Mathematics, México. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México. México,
- 55B-P151 INFLUENCE OF OXYGEN AND ALUMINUM DIFFUSION IN TGO FORMATION IN A THERMAL BARRIER COATING BY PLASMA SPRAY**  
J. Torres González<sup>1</sup>, S. Bravo Murillo<sup>2</sup>, O. A. Jiménez Arévalo<sup>2</sup>, R. Antaño López<sup>1</sup>, F. Castañeda Zaldívar<sup>1</sup>  
<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica S.C. <sup>2</sup>Universidad Aeronáutica en Querétaro México
- 55B-P152 CHEMICAL REDUCTION SYNTHESIS OF IRON ALUMINIDE POWDERS**  
N.N. Zurita-Méndez<sup>1</sup>, G. Carbajal-De la Torre<sup>1</sup>, M.L. Ballesteros-Almanza<sup>2</sup>, M. Villagomez-Galindo<sup>1</sup>, A. Sánchez-Castillo<sup>1</sup>, M.A. Espinosa-Medina<sup>1</sup>  
<sup>1</sup>Facultad de Ingeniería Mecánica, UMSNH, <sup>2</sup>Facultad de Biología, UMSNH, México.
- 55B-P153 NANOHARDNESS COMPARISON ON JOINTS OF STAINLESS STEEL (AISI 316L) JOINED BY BRAZING USING METALLIC GLASS RIBBONS AS THE FILLER METALS**  
Briselda Leal<sup>1</sup>, Jorge A. Verduzco<sup>2</sup>, Juan Zárate<sup>2</sup>  
Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo (UMSNH), México.
- 55B-P154 CORROSION STUDY OF 316L/AL-6XN STAINLESS STEEL JOINTS JOINED WITH Fe- AND Ni-BASE METALLIC GLASS RIBBONS**  
T.E. Ortega<sup>1</sup>, D. Cabrera de la Cruz<sup>1</sup>, J.A. Verduzco-Martínez<sup>1</sup>  
<sup>1</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo (UMSNH), México.
- 55B-P155 BIOMIMETIC GROWTH OF HYDROXYAPATITE ON SiO<sub>2</sub>-PMMA HYBRID COATINGS**  
E. Rubio-Rosas<sup>1</sup>, E. Reyes-Cervantes<sup>1</sup>, C. de la Cerna-Hernández<sup>1</sup>, R. Agustín<sup>1</sup> and J. Varela-Caselis<sup>1</sup>  
<sup>1</sup>Centro Universitario de Vinculación y Transferencia de Tecnología, Benemérita Universidad Autónoma de Puebla.
- 55B-P156 MICROSTRUCTURAL CHARACTERIZATION OF SENSITIZED 304 STAINLESS STEEL BY FRICTION STIR WELDING**  
N. A. Rodríguez Rosales<sup>1</sup>, E. Almanza Casas<sup>1</sup>, M. J. Pérez López<sup>1</sup>, C. R. Muñiz Valdez<sup>2</sup>, J. C. Ortiz Cuellar<sup>2</sup>  
<sup>1</sup>Instituto Tecnológico de Saltillo, México. <sup>2</sup>Universidad Autónoma de Coahuila, Facultad de Ingeniería, México.
- 55B-P157 COMPOSITION CHANGES OF BASIC AND NON-BASIC NITROGEN COMPOUNDS DURING RESIDUE HYDROPROCESSING BY ESI FT-ICR MA**  
Can Li<sup>1</sup>, Ruiyu Zhao<sup>1</sup>, Peng Wu<sup>1</sup>, Chaohe Yang<sup>1</sup>, Yusheng Zhao<sup>2</sup>, Yuansheng Zhao<sup>2</sup>, Chenguang Liu<sup>1</sup>  
<sup>1</sup>Key Laboratory of Catalysis, State Key Laboratory of Heavy Oil Processing, China University of Petroleum (East China), China. <sup>2</sup>PetroChina Company Limited Research Institute of Petroleum and Chemical industry, China.
- 55B-P158 A VIEW POINT OF PHASE BOUNDARY OF BRASS BY EBSD**  
V. Medrano V.<sup>1</sup>, B. Campillo<sup>1,2</sup>, O. Flores<sup>2</sup>.  
<sup>1</sup>Departamento de Ingeniería Metalúrgica, Facultad de Química, UNAM, México, D.F., <sup>2</sup>Instituto de Ciencias Físicas, UNAM, Cuernavaca, Morelos, México.
- 55B-P159 SYNTHESIS AND CHARACTERIZATION AND ANTIBACTERIAL ACTIVITY OF COPPER OXIDE PARTICLES**  
I. Valencia de Lima<sup>1</sup>, E. Reyes Cervantes<sup>2</sup>, C. de la Cerna Hernández, R. Agustín Serrano<sup>2</sup>, J. Varela Caselis<sup>2</sup> and E. Rubio Rosas<sup>2</sup>.  
<sup>1</sup>Facultad de Ingeniería Química; Ingeniería en materiales, Benemérita Universidad Autónoma de Puebla. <sup>2</sup>Centro Universitario de Vinculación y Transferencia de Tecnología, Benemérita Universidad Autónoma de Puebla, Puebla.
- 55B-P160 SYNTHESIS AND EFFECT OF COPPER INCORPORATION ON THE THERMOLUMINESCENCE AND STRUCTURAL PROPERTIES OF SiO<sub>2</sub> SPHERICAL PARTICLES**

E. Burruel-Ibarra<sup>1</sup>, C. Cruz-Vázquez<sup>1</sup>, R. Bernal<sup>2</sup>, C. J. Salas-Juarez<sup>2</sup>, A. R. García-Haro<sup>3</sup>, V. M. Castaño<sup>4</sup>

<sup>1</sup>Departamento de Investigación en Polímeros y Materiales de la Universidad de Sonora, México. <sup>2</sup>Centro de Investigación en Física de la Universidad de Sonora, México. <sup>3</sup>Departamento de Ciencias Químico Biológicas, Universidad de Sonora, Hermosillo, Sonora México. <sup>4</sup>Departamento de Física Aplicada y Tecnología Avanzada, Instituto de Física, Universidad Nacional Autónoma de México, México.

■ **S5B-P161 DEVELOPMENTS IN NANOPROBES FOR HIGH RESOLUTION IMAGING AND CHEMICAL SENSING OF MATERIALS USING ELECTROCHEMICAL MICROSCOPY**

R.M. Souto<sup>1</sup>, J. Izquierdo<sup>1</sup>

<sup>1</sup>Department of Chemistry, University of La Laguna, Spain.

■ **S5B-P162 EUTECTIC NANOPOWDERS OBTAINED VIA MECANO-THERMAL PROCESS: THE HETEROGENEITIES ROLE**

Rojas-Chávez<sup>1</sup>, D.A. Mora-Alvarado<sup>1</sup>, M.L. Mondragón-Sánchez<sup>2</sup>, J.A. Andraca-Adame<sup>3</sup>

<sup>1</sup>Instituto Tecnológico de Tláhuac II - Tecnológico Nacional de México, México. <sup>2</sup>Instituto Tecnológico de Morelia - Tecnológico Nacional de México, México. <sup>3</sup>Centro de Nanociencias y Micro y Nanotecnologías - IPN,

■ **S5B-P163 RESIDUAL STRESS ANALYSIS BY XRD IN NITRIDE LAYERS**

Héctor Wenceslao Jiménez Díaz<sup>1</sup>, José Alberto Andraca Adame<sup>2</sup>, David Márquez Sánchez<sup>1</sup>, German Aníbal Rodríguez Castro<sup>1</sup>.

<sup>1</sup>Instituto Politécnico Nacional, Grupo Ingeniería de Superficies, SEPI-ESIME México. <sup>2</sup>Instituto Politécnico Nacional, Centro de Nanociencias y Micro y Nanotecnologías. México

■ **S5B-P164 MONITORING THE KINETICS OF FORMATION OF AGGREGATES IN IONIC SOLUTIONS BY LIGHT SCATTERING**

Oscar Ivan Perez San Martin<sup>1</sup> and N. Muñoz-Aguirre<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, Sección de Estudios de Posgrado e Investigación, Escuela Superior de Ingeniería Mecánica y Eléctrica-UA. México.

■ **S5B-P165 EFFECT OF CARBON VACANCIES "X" AND NITROGEN CONTENT IN Ti(C<sub>1-x</sub>N<sub>1-y</sub>) ON HIGH TEMPERATURE CORROSION RESISTANCE**

Marta Ziemnicka-Sylwester<sup>1,2</sup>Ludolaw Stobierski<sup>2</sup>, Sebastien Chevalier<sup>3</sup>, Tadashi Narabayashi<sup>4</sup>

<sup>1</sup>Hokkaido University, Faculty of Engineering, Division of Materials Science and Engineering, Japan <sup>2</sup>AGH University of Science and Technology, Department of Ceramics and Refractories, Faculty of Materials Science and Ceramics, Poland <sup>3</sup>Universite de Bourgogne, Laboratoire de Recherches sur la Reactivite des Solides, France <sup>4</sup>Hokkaido University, Nuclear Reactor Engineering Laboratory, Japan

■ **S5B-P166 STUDY OF MECHANICAL PROPERTIES IN Al-5%Ag-4%Cu-0.3%Mg COATING USING MAGNETRON SPUTTERING TECHNIQUE.**

Cruz Valeriano<sup>1</sup>, J. Moreno Palmerin<sup>2</sup>, H. J. Dorantes Rosales<sup>3</sup>, J. M. Yañez Limón<sup>1</sup>, F. J. Espinoza-Beltrán<sup>1</sup>, C. I. Enriquez Flores<sup>1</sup>.

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, <sup>2</sup>Universidad de Guanajuato, Departamento de Minas, Metalurgia y Geología., <sup>3</sup>Instituto Politécnico Nacional, E.S.I.Q.I.E-DIM. México, D.F.

■ **S5B-P167 "MECHANICAL PROPERTIES OF SiO<sub>2</sub> COATINGS FOR CORROSION PROTECTION OF 304 STAINLESS STEEL"**

M. Aguilar Sánchez<sup>1</sup>, J. Reyes Miranda<sup>1</sup>, E. Garfias García<sup>1</sup>. D.Y. Medina Velazquez<sup>1</sup>, A. de J. Morales Ramírez<sup>2</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Azcapotzalco, Departamento de Materiales, Ciencias Básicas e Ingeniería, México. <sup>2</sup>Instituto Politécnico Nacional-CIITEC, Mexico

■ **S5B-P168 AMPEROMETRIC RESPONSE AND CYCLIC VOLTAMMETRY OF A BIOSENSOR, ENZYME LACCASE IMMOBILIZATION IN NANOSTRUCTURED TiO<sub>2</sub>**

M. Romero-Arcos<sup>1</sup>, M.G. Garnica-Romo<sup>2</sup>, M Villicaña-Mendez<sup>3</sup>, J.A. Rodriguez-Castro<sup>2</sup>, L.L. Diaz-Flores<sup>4</sup>, L Garcia-Gonzalez<sup>5</sup>

<sup>1</sup>Estudiante de Programa Institucional de Doctorado en Ciencias Biológicas. Universidad Michoacana de San Nicolás de Hidalgo. México. <sup>2</sup> Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo. México. <sup>3</sup> Facultad de Ingeniería Química, Universidad Michoacana de San Nicolás de Hidalgo. México. <sup>4</sup> División Académica de Ingeniería y Arquitectura Universidad Juárez Autónoma de Tabasco México. <sup>5</sup>Centro de Investigación en Micro y Nanotecnología, Universidad Veracruzana, México.

■ **S5B-P169 EFFECT OF MATRIX STRUCTURE ON ULTRASONIC ATTENUATION IN A Ti-6Al-4V ALLOY**

S-5B



H. Carreón<sup>1</sup>, A. Dueñas<sup>1</sup>, A. Ruiz<sup>1</sup>, G. Barrera, L. Béjar<sup>2</sup>, A. Medina<sup>1</sup>.

<sup>1</sup>Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México, <sup>2</sup>Instituto de Investigaciones Metalúrgicas, <sup>2</sup>Facultad de Ingeniería Mecánica

■ **S5B-P170 EFFECT OF CERIUM ON THE PROPERTIES AND MICROSTRUCTURE OF AN ALUMINIUM ALLOY AA-356**

J.G. Ramos<sup>1</sup>, S. Luna Álvarez<sup>1</sup>, M. Gallardo<sup>1</sup>, J. C. Ortiz<sup>1</sup>, R. Muñiz<sup>1</sup>, J.F. Martínez V<sup>1</sup>, N.A. Rodríguez<sup>2</sup>, A. Lucio<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería, Universidad Autónoma de Coahuila, México. E. <sup>2</sup>Instituto Tecnológico de Saltillo, Boulevard Venustiano Carranza, México.

■ **S5B-P171 DILATOMETRIC STUDY OF AGING TREATMENT ON A NICKEL BASE ALLOY**

O. Vazquez-Gómez<sup>1,2</sup>, H. J. Vergara-Hernández<sup>1</sup>, P. Garnica-González<sup>1</sup>, L. Olmos<sup>3</sup>, E. López-Martínez<sup>4</sup>, J. A. Barrera-Godínez<sup>4</sup>

<sup>1</sup>Posgrado en Ciencias en Metalurgia, Instituto Tecnológico de Morelia, México. <sup>2</sup>Consejo Nacional de Ciencia y Tecnología, México. <sup>3</sup>Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>4</sup>Facultad de Química, Departamento de Ingeniería Metalúrgica, Universidad Nacional Autónoma de México, México.

■ **S5B-P172 THE EFFECT OF DIFFERENT HEAT TREATMENTS ON THE OCCURRENCE OF DYNAMIC STRAIN AGING IN INCONEL 718**

M.C. Rezende,<sup>1,2</sup> L.S. Araújo<sup>1</sup>, Gabriel, S.B.<sup>1</sup>, de Almeida, L.H.<sup>1</sup>

<sup>1</sup> Universidade Federal do Rio de Janeiro, Departamento de Engenharia Metalúrgica e de Materiais, Brazil. <sup>2</sup>Centro de Tecnologia SENAI – CTS Solda,

■ **S5B-P173 SYNTHESIS AND THERMOLUMINESCENCE OF NEW Li<sub>2</sub>SO<sub>4</sub>:Eu AND Li<sub>2</sub>SO<sub>4</sub>:Dy PHOSPHORS EXPOSED TO BETA RADIATION.**

A. R. García Haro<sup>1</sup>, R. Bernal<sup>2</sup>, C. Cruz Vázquez<sup>3</sup>, G. A. Bustamante López<sup>1</sup>, A. I. Castro Campoy<sup>1</sup>, V. M. Castaño<sup>4</sup>, S.E. Burruel-Ibarra<sup>3</sup>.

<sup>1</sup>Departamento de Ciencias Químico Biológicas, Universidad de Sonora, Hermosillo, Sonora, México.

<sup>2</sup>Departamento de Investigación en Física de la Universidad de Sonora, Hermosillo, Sonora, México.

<sup>3</sup>Departamento de Investigación en Polímeros y Materiales de la Universidad de Sonora, México. <sup>4</sup>Departamento de Física Aplicada y Tecnología Avanzada, Instituto de Física de la Universidad Nacional Autónoma de México, México.

■ **S5B-P174 STRUCTURAL CHARACTERIZATION AND ANALYSIS OF BIMETALLIC NANOPARTICLES OF Fe-Au PRODUCED BY MICROWAVES**

A. García-Ruiz<sup>1</sup> and N. Castillo<sup>2</sup>

<sup>1</sup>UPIICSA-COFAA, Instituto Politécnico Nacional, Mexico. <sup>2</sup>Física, Centro de Investigación y Estudios Avanzados del IPN (CINVESTAV-IPN), México D. F, Mexico.

■ **S5B-P175 THE EFFECT OF FUSED DEPOSITION MODELING ON THE MECHANICAL PROPERTIES OF PURE AN FILLED POLYLACTIC ACID (PLA)**

Josue Asarel Salcedo Casillas<sup>1</sup>, Jorge Alberto Pérez Naitoh<sup>2</sup>, Mayra Elizabeth García Sánchez<sup>2</sup>, Rosa María Jiménez Amezcua<sup>1</sup>, Pedro Ortega Gudiño<sup>1</sup>, Luis Carlos Rosales Rivera<sup>1</sup>, Inés Jiménez Palomar<sup>2</sup>

<sup>1</sup>Departamento de Ingeniería Química, CUCEI, Universidad de Guadalajara, México. <sup>2</sup>INMATERIIS S.A. de C.V. México.

■ **S5B-P176 THE EFFECT OF LSP ON FATIGUE CRACK GROWTH ON COMPONENTS WITH STRESS CONCENTRATORS AND PREVIOUS FATIGUE DAMAGE OF 6061-T6 ALUMINUM ALLOY**

C. Rubio-González<sup>1</sup>, Y. Parra-Torres<sup>1</sup>, G. Gomez-Rosas<sup>2</sup>

<sup>1</sup>Centro de Ingeniería y Desarrollo Industrial, México. <sup>2</sup>Departamento de Física, Centro Universitario de Ciencias Exactas e Ingenierías, CUCEI. Universidad de Guadalajara, México

## Symposium 5C

# ELECTRON MICROSCOPY OF MATERIALS AND NANOMATERIALS

**Hector A. Calderon** / MEXICO / Instituto Politécnico Nacional

**Paulo Ferreira** / USA / University of Texas at Austin

**Christian Kisielowski** / USA / Lawrence Berkeley National Laboratory

ROOM: MAYA III  
MONDAY, AUGUST 17

 Session Chair: **HECTOR CALDERON**

■ **08:30 - 08:45 S5C-0001 IMAGING DYNAMIC PROCESSES IN LIQUIDS BY (S)TEM**

N. D. Browning<sup>1</sup>, P. Abellan<sup>1</sup>, J. Evans<sup>2</sup>, E. Jensen<sup>1</sup>, L. Kovarik<sup>2</sup>, B. L. Mehdi<sup>1</sup>, L. R. Parent<sup>1</sup>, W. A. Schroeder<sup>3</sup>, A. Stevens<sup>4</sup>

<sup>1</sup>Fundamental and Computational Science Directorate, Pacific Northwest National Laboratory, Richland, WA, USA, <sup>2</sup>Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory, Richland, WA, USA, <sup>3</sup>Department of Physics, University of Illinois at Chicago, Chicago, USA, <sup>4</sup>National Security Directorate, Pacific Northwest National Laboratory, Richland, WA, USA

■ **08:45 - 09:00 S5C-0002 TRANSMISSION ELECTRON MICROSCOPY OF COMPLEX OXIDES FOR ENERGY APPLICATIONS**

R. Erni<sup>1</sup>

<sup>1</sup>Electron Microscopy Center, Empa – Swiss Federal Laboratories for Materials Science and Technology, Ueberlandstr. Dübendorf, Switzerland

■ **09:00 - 09:15 S5C-0003 PRACTICAL ASPECTS OF LOW DOSE RATE ELECTRON MICROSCOPY**

C. Kisielowski<sup>1</sup> and P. Specht<sup>2</sup>

<sup>1</sup>The Molecular Foundry and Joint Center for Artificial Photosynthesis, Lawrence Berkeley National Laboratory, USA. <sup>2</sup>Department of Material Science & Engineering, USA

■ **09:15 - 09:30 S5C-0004 ATOMIC-SCALE DYNAMICS AND REACTIVITY STUDIED BY TEM**

Stig Helveg<sup>1</sup>,


<sup>1</sup>Haldor Topsoe A/S, Haldor Topsøes Allé 1, Lyngby, Denmark

■ **10:30 - 10:45 S5C-0005 ATOMIC RESOLUTION TOMOGRAPHY: RETRIEVAL OF 3D ATOMIC STRUCTURE AND SHAPE FROM AN EXIT WAVE**

Fu-Rong Chen<sup>1</sup>, Dirk Van Dyck<sup>2</sup>, Christian Kisielowski<sup>3</sup>, Angus I. Kirkland<sup>4</sup>, Gu Liu<sup>1</sup>,

<sup>1</sup>National Tsing-Hua University Hsin Chu Taiwan.

<sup>2</sup>University of Antwerp, EMAT, Department of Physics, Belgium. <sup>3</sup>Molecular Foundry and Joint Center for Artificial Photosynthesis, Lawrence Berkeley National Laboratory, Rd., USA. <sup>4</sup>University of Oxford. Dept. Materials science.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **CHRISTIAN KISIELOWSKI**

■ **12:30 - 12:45 S5C-0006 ACEM STUDIES OF COMPOUND SEMICONDUCTORS**

David J. Smith<sup>1</sup>

<sup>1</sup>Department of Physics, Arizona State University, Tempe, USA

■ **13:00 - 13:15 S5C-0007 NANOBEAM DIFFRACTION ANALYSIS OF SUPERLATTICE FORMATION IN AuPd NANOCUBES**



**Alejandra Londono Calderon<sup>1</sup>, Alina Bruma<sup>1</sup> and Miguel Jose Yacamán<sup>1</sup>**

<sup>1</sup>University of Texas at San Antonio, USA.

■ **13:30 - 13:45 S5C-0008 ATOMIC-SCALE COMBINED DUALEELS AND EDS ACQUISITION APPLIED TO LaFeO<sub>3</sub> / SrTiO<sub>3</sub> INTERFACES**

**P. Longo<sup>1</sup>, T. Topuria<sup>2</sup>, P. Rice<sup>2</sup>, P.J. Phillips<sup>3</sup>, R.D. Twesten<sup>1</sup>, R.F. Klie<sup>3</sup>**

<sup>1</sup>Gatan Inc. Pleasanton, USA. <sup>2</sup>IBM Research Division, Almaden Research Center, USA. <sup>3</sup>Department of Physics, University of Illinois at Chicago, USA

■ **13:45 - 14:00 S5C-0009 DETECTING COMPOSITIONAL DIFFERENCES IN NANOMATERIALS WITH IN-LENS ANGULAR FILTERING**

**D. Phifer<sup>1</sup>, P. Wandrol<sup>1</sup>, D.Wall<sup>1</sup> and A. Sandu<sup>1</sup>**

<sup>1</sup>FEI Company, Eindhoven, the Netherlands

■ **14:00 - 14:15 S5C-0010 STEM-HAADF IMAGING STUDY OF SPINEL CUBIC ANODE NANOCRYSTALS**

**Xiangcheng Sun<sup>1</sup> and Kai Sun<sup>2</sup>**

<sup>1</sup>Department of Electrical and Computer Engineering, University of Waterloo, Ontario, Canada. <sup>2</sup>Department of Materials Science and Engineering, University of Michigan, USA.



**14:00 - 16:00 LUNCH**



Session Chair: **PAULO FERREIRA**

■ **16:00 - 16:15 S5C-0011 X-RAY, SCANNING ELECTRON MICROSCOPY AND ELECTRICAL PROPERTIES OF MULTIFUNCTIONAL MATERIAL BI<sub>1-x</sub>ND<sub>x</sub>FeO<sub>3</sub> (WHERE X = 0.00, 0.05, 0.10, 0.15, 0.20 AND 0.25).**

**Vikash Kumar Jha<sup>1</sup> and M. Roy<sup>1</sup>**

<sup>1</sup>Mohanlal Sukhadia University, Rajasthan, India

■ **16:15 - 16:30 S5C-0012 QUANTITATIVE ATOMIC RESOLUTION SECONDARY ELECTRON IMAGING OF OXIDE SURFACES**

**J. Ciston<sup>1</sup>, H. G. Brown<sup>2</sup>, A. J. D'Alfonso<sup>2</sup>, P. Koirala<sup>3</sup>, C. Ophus<sup>1</sup>, Y. Lin<sup>3</sup>, Y. Suzuki<sup>4</sup>, H. Inada<sup>5</sup>, Y. Zhu<sup>6</sup>, L. J. Allen<sup>2</sup> and L. D. Marks<sup>3</sup>**

<sup>1</sup>National Center for Electron Microscopy, The Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, USA. <sup>2</sup>School of Physics, University of Melbourne, Parkville, Australia. <sup>3</sup>Department of Materials Science

and Engineering, Northwestern University. <sup>4</sup>Application Development Dept., Hitachi High Technologies Corp., Ibaraki, Japan. <sup>5</sup>Advanced Microscope Design Dept., Hitachi High Technologies Corp., Ibaraki, Japan.

<sup>6</sup>Condensed Matter Physics and Materials Science, Brookhaven National Laboratory, Upton, USA

■ **16:45 - 17:00 S5C-0013 EXTREME LOW VOLTAGE IMAGING IN SEM**

**N. Erdman<sup>1</sup> and M. Shibata<sup>1</sup>**

<sup>1</sup>JEOL USA Inc., Peabody, MA.

■ **17:15 - 17:30 S5C-0014 UNDERSTANDING THE ATOMIC STRUCTURE OF LI-ION SPINEL BATTERY CATHODES WITH ABERRATION-CORRECTED HAADF STEM**

**C. Amos<sup>1</sup>, J. Song<sup>1</sup>, J. Goodenough<sup>1</sup>, P.J. Ferreira<sup>1</sup>**

<sup>1</sup>Materials Science and Engineering Program, The University of Texas at Austin, Austin, USA

■ **17:45 - 18:00 S5C-0015 SURFACE ENGINEERING OF CARBON NANOSTRUCTURES: IMAGING CHEMICAL REACTIVITY BY TRANSMISSION ELECTRON MICROSCOPY**

**Mildred Quintana<sup>1</sup>**

<sup>1</sup>Instituto de Física, Universidad Autónoma de San Luis Potosí, SLP

■ **18:15 - 18:30 S5C-0016 ELECTRON TOMOGRAPHY OF COLLOIDAL SUPERSTRUCTURES AT SUB-NANOMETER RESOLUTION**

**Nonappa<sup>1</sup>, Haataja<sup>1</sup>, P. Englehardt<sup>2,3</sup>, O. Ikkala<sup>1</sup>**

<sup>1</sup>Department of Applied Physics, Molecular Materials Group, Aalto University School of Science, Finland.

<sup>2</sup>Nanomicroscopy Centre, Aalto University School of Science, Espoo, Finland. <sup>3</sup>Department of Pathology and Virology, Haartman Institute, University of Helsinki, Finland.

■ **18:30 - 18:45 S5C-0017 ELECTRON CRYSTALLOGRAPHY OF INCOMMENSURATE MODULATED STRUCTURES**

**R. Villaurrutia<sup>1</sup>, A. Pelaiz-Barranco<sup>2</sup>,**

<sup>1</sup>FEI Technology, Mexico, <sup>2</sup>Facultad de Física/IMRE, Cuba.



ROOM: MAYA III  
TUESDAY, AUGUST 18

 Session Chair: **PAULO FERREIRA**

■ **08:30 - 08:45 S5C-0018 IMAGING OF QUANTUM MATERIALS USING LOW-VOLTAGE ABBERATION CORRECTED MICROSCOPY**

D.C. Bell<sup>1</sup> and F. Von Cube<sup>1</sup>

<sup>1</sup>School of Engineering and Applied Sciences, Harvard University, Cambridge,

■ **09:00 - 09:15 S5C-0019 PROBING THE PHYSICAL PROPERTIES OF NANOMAGNETS AT THE ATOMIC SCALE**

Rellinghaus<sup>1</sup>, D. Pohl<sup>1</sup>, A. Surrey<sup>1,2</sup>, S. Schneider<sup>1,2</sup>, J. Rusz<sup>3</sup>, P. Tiemeijer<sup>4</sup>, and L. Schultz<sup>1</sup>.

<sup>1</sup>IFW Dresden, Institute for Metallic Materials, Germany.

<sup>2</sup>TU Dresden, Institut für Festkörperphysik, Germany.

<sup>3</sup>Department of Physics and Astronomy, Uppsala, Sweden.

<sup>4</sup>FEI Company, The Netherlands.

■ **09:30 - 09:45 S5C-0020 CHEMICAL ANALYSIS OF ENERGY CONVERSION AND STORAGE MATERIALS WITH ATOMIC RESOLUTION USING ABERRATION-CORRECTED STEM IMAGING AND SPECTROSCOPY**

P.J. Phillips<sup>1</sup>, A. Mukherjee<sup>1</sup>, T. Paulauskas<sup>1</sup> and R.F. Klie<sup>1</sup>

<sup>1</sup>University of Illinois at Chicago, Department of Physics,

■ **10:00 - 10:15 S5C-0021 ATOMIC RESOLUTION TOMOGRAPHY AND DYNAMICS OF NANO-OBJECTS**

Dirk Van Dyck<sup>1</sup>, C. Kisielowski<sup>2</sup>, F-R. Chen<sup>3</sup>, A.I. Kirkland<sup>4</sup>, Gu Liu Chen<sup>5</sup>


<sup>1</sup>University of Antwerp, EMAT, Department of Physics, Belgium, <sup>2</sup> Molecular Foundry and Joint Center for Artificial Photosynthesis, Lawrence Berkeley National Laboratory, One Cyclotron Rd., Berkeley USA. <sup>3</sup>National Tsing-Hua University Hsin Chu Taiwan. <sup>4</sup>University of Oxford. Dept Materials science. <sup>5</sup>National Tsing-Hua University Hsin Chu Taiwan.

■ **10:30 - 10:45 S5C-0022 TRANSMISSION ELECTRON MICROSCOPY AT ATMOSPHERIC PRESSURE**

Xiaoqing Pan<sup>1</sup>, Shuyi Zhang<sup>1,2</sup>, Sheng Dai<sup>1,2</sup>, George W. Graham<sup>2</sup>

<sup>1</sup>Department of Chemical Engineering and Materials Science and Department of Physics and Astronomy, University of California - Irvine, US. <sup>2</sup>Department of

Materials Science and Engineering, University of Michigan, Ann Arbor, US.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **HECTOR CALDERON**

■ **12:30 - 12:45 S5C-0023 ELECTRON ENERGY LOSS SPECTROSCOPY OF SEMICONDUCTING HETEROSTRUCTURES IN THE LOW LOSS REGION TO HIGHLIGHT OPTOELECTRONIC PROPERTIES AT THE NANOSCALE**

A. Eljarrat<sup>1</sup>, L. López-Conesa<sup>1</sup>, J. López-Vidrier<sup>1</sup>, S. Hernández<sup>1</sup>, B. Garrido<sup>1</sup>, Ž. Gačević<sup>2</sup>, E. Calleja<sup>2</sup>, S. Estradé<sup>1</sup>, F. Peiró<sup>1</sup>

<sup>1</sup>Laboratory of Electron NanoScopies, Dept. Electrònica, Universitat de Barcelona, Spain. <sup>2</sup>Instituto de Sistemas Optoelectrónicos y Microtecnología (ISOM), Universidad Politécnica de Madrid, Spain

■ **12:45 - 13:00 S5C-0024 ATOMIC RESOLUTION OF BEAM SENSITIVE ENERGY MATERIALS BY MEANS OF LOW DOSE TEM**

H. A. Calderon<sup>1</sup>, Y. Liang<sup>2</sup>, H. D. Yoo<sup>2</sup>, Y. Li<sup>2</sup>, S. Jing<sup>3</sup>, F. C. Robles-Hernandez<sup>4</sup>, L. C. Grabow<sup>5</sup>, Y. Yao<sup>2,6</sup>, S. Ramirez-Rave<sup>7</sup>, R. Gomez<sup>7</sup>.

<sup>1</sup>Departamento de Física, ESFM-IPN, México. <sup>2</sup>Dept. Elec. and Comp. Eng. and Mats. Sci. and Eng. Program, <sup>3</sup>Dept. of Physics, <sup>4</sup>College of Technology, <sup>5</sup>Department of Chemical & Biomolecular Engineering, <sup>6</sup>Texas Center for Superconductivity, U. of Houston, USA. <sup>7</sup>UAM-Iztapalapa, Depto. Química, ECOCATAL, Mexico

■ **13:00 - 13:15 S5C-0025 DEVELOPMENT OF ULTRA-HIGH SENSITIVITY DUAL SDD SYSTEM FOR X-RAY ANALYSIS WITH CS CORRECTED STEM**

E. Okunishi<sup>1</sup>, T. Sasaki<sup>1</sup>, I. Onishi<sup>1</sup>, Y. Jimbo<sup>1</sup>, Y. Iwasawa<sup>1</sup>, K. Miyatake<sup>1</sup>, S. Yuasa<sup>1</sup>, H. Sawada<sup>1</sup>, T. Kaneyama<sup>1</sup>

<sup>1</sup>EM Business Unit, JEOL Ltd. Japan

■ **13:30 - 13:45 S5C-0026 DEFECT STRUCTURE AND MIGRATION DYNAMICS IN TWO DIMENSIONAL CRYSTALS AND VAN DER WAALS HETEROSTRUCTURES**

N. Alem<sup>1</sup>, P. Ercius<sup>2</sup>, A.L. Elias<sup>3</sup>, M. Terrones<sup>3</sup>, S. Eichfeld<sup>1</sup>, J. Robinson<sup>1</sup>, X. Zou<sup>4</sup>, B. Yakobson<sup>4</sup>

<sup>1</sup>Materials Science Department, The Pennsylvania State University, Millennium Science Complex, University Park, USA. <sup>2</sup>National Center for Electron Microscopy, Lawrence Berkeley National Lab, Berkeley, USA. <sup>3</sup>Physics



Department, The Pennsylvania State University,  
Millennium Science Complex, University Park, USA.

<sup>4</sup>Materials Science and Nanoengineering Department, Rice  
University, USA.

■ **14:00 - 14:15 S5C-0027 STUDY OF Bi SEGREGATION ON GRAIN BOUNDARIES IN Cu BY ABERRATION-CORRECTED ANALYTICAL SCANNING TRANSMISSION ELECTRON MICROSCOPY**

C. Austin Wade<sup>1</sup>, Masashi Watanabe<sup>1</sup>

<sup>1</sup>Dept. of Materials Science and Engineering, Lehigh University, Bethlehem, PA, USA.



**14:00- 16:00 LUNCH**



Session Chair: CHRISTIAN KISIELOWSKI

■ **16:00 - 16:15 S5C-0028 QUANTITATIVE INTERPRETATION OF ELECTRON EXIT WAVES FROM HIGH-END AND MID-RANGE TEM USING AUTOMATED ABERRATION CORRECTION**

B. Barton<sup>1</sup>, L.P. Hansen<sup>2</sup>, S. Helveg<sup>2</sup>, U. Kolb<sup>1</sup> and C. Kisielowski<sup>3</sup>

<sup>1</sup>Inst. of Physical Chemistry, Johannes Gutenberg University, Mainz, Germany. <sup>2</sup>Haldor Topsøe A/S, Kgs. Lyngby, Denmark. <sup>3</sup>National Center for Electron Microscopy, Lawrence Berkeley Nat'l Laboratory, Berkeley, CA, USA

■ **16:30 - 16:45 S5C-0029 SYNTHESIS OF GRAPHENE/ GRAPHITIC CARBON NANOSTRUCTURES WITH A UNIQUE SP<sup>2</sup> "CROSS-LINKED" BONDING**

Anderson-Okonkwo<sup>1</sup>, I. Estrada-Guel<sup>1,2</sup>, V. G. Hadjiev<sup>3</sup>, H. A. Calderon<sup>4</sup> F. Alvarez- Ramírez<sup>5</sup>, F.C. Robles-Hernandez<sup>1</sup>

<sup>1</sup> Department of Mechanical Engineering Technology, University of Houston, Houston, USA. <sup>2</sup> Centro de Investigación en Materiales Avanzados, CIMAV, México. <sup>3</sup> Texas Center for Superconductivity and Department of Mechanical Engineering University of Houston, Houston, USA. <sup>4</sup> Departamento de Física, ESFM-IPN, Mexico <sup>5</sup> Instituto Mexicano del Petróleo,

■ **16:45 - 17:00 S5C-0030 STEM CHARACTERIZATION OF GOLD-COPPER ANISOTROPIC NANOCRYSTALS**

Lourdes Bazán-Díaz<sup>1,2</sup>, Rubén Mendoza-Cruz<sup>1,2</sup>, J. Jesús Velázquez-Salazar<sup>1</sup>, Ulises Santiago<sup>1</sup>, Daniel Bahena Uribe<sup>3</sup>, Miguel José-Yacamán<sup>1</sup>

<sup>1</sup>Department of Physics & Astronomy, The University of Texas at San Antonio, One UTSA Circle, San Antonio, USA.

<sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México México. <sup>3</sup>Investav. Av. Instituto Politécnico Nacional

■ **17:00 - 17:15 S5C-0031 ABERRATION CORRECTED SCANNING TRANSMISSION ELECTRON MICROSCOPY STUDY OF NEARLY LATTICE-MATCHED Zn<sub>1-x</sub>Cd<sub>x</sub>Se/Zn<sub>1-y</sub>MgySe QUANTUM WELL HETEROSTRUCTURES**

Daniel Bahena,<sup>1</sup> Gerardo Villa,<sup>2</sup> František Šutara,<sup>2</sup> Alvaro Angeles,<sup>1</sup> and Isaac Hernández-Calderón,<sup>2</sup>

<sup>1</sup>. Laboratorio Avanzado de Nanoscopia Electrónica, Centro de Investigación y de Estudios Avanzados del I.P.N.

<sup>2</sup>. Departamento de Física, Centro de Investigación y de Estudios Avanzados del I.P.N.

■ **17:15 - 17:30 S5C-0032 ASSEMBLY OF HIGH ORDERED AuPd/Au MULTI-SHELL NANOSTRUCTURES AND 3D RECONSTRUCTION USING ELECTRON TOMOGRAPHY**

A. Londono-Calderon<sup>1</sup>, J. Jesus Velazquez-Salazar<sup>1</sup>, A. Bruma<sup>1</sup>, D. Bahena-Uribe<sup>2</sup>, M. J. Yacamán<sup>1</sup>

<sup>1</sup>University of Texas at San Antonio; One UTSA Circle, San Antonio, USA. <sup>2</sup>Laboratorio Avanzado de Nanoscopia Electrónica, Cinvestav; México.

■ **17:30 - 17:45 S5C-0033 QUANTIFICATION OF LOW-COORDINATED ATOM DENSITY OF NANOCATALYST SURFACES 3D MORPHOLOGY**

Xiaoyan Zhong<sup>1</sup>

<sup>1</sup> National Center for Electron Microscopy in Beijing, Laboratory of Advanced Materials and Department of Materials Science and Engineering, Tsinghua University, China

■ **17:45 - 18:00 S5C-0034 DEGRADATION MECHANISM OF PLATINUM NANOCATALYSTS ON CARBON NANOTUBES IN HIGH TEMPERATURE FUEL CELLS- ABERRATION CORRECTED TEM STUDY**

S. Rasouli<sup>1</sup>, M.R. Berber<sup>2</sup>, T. Fujigaya<sup>2</sup>, P. Ferreira<sup>1</sup>, N. Nakashima<sup>2</sup>

<sup>1</sup>Materials Science and Engineering Program, University of Texas at Austin, USA. <sup>2</sup>Department of Applied Chemistry, Kyushu University, Japan.

■ **18:00 - 18:15 S5C-0035 ROLE OF TEMPERATURE IN MICROSTRUCTURE AND PIEZOELECTRICAL PROPERTIES IN Ba<sub>0.9</sub>Ca<sub>0.1</sub>Ti<sub>0.9</sub>Zr<sub>0.1</sub>O<sub>3</sub> COMPOUND**

G. Herrera<sup>1</sup>, A. Reyes<sup>2</sup>, L. Fuentes<sup>2</sup>, L. de la Torre<sup>2</sup>, E. Guerrero<sup>2</sup>, D. Lardizabal<sup>2</sup>, P. Pizá<sup>3</sup>, R. Ochoa<sup>3</sup>, O. Solís<sup>3</sup>, K. Campos<sup>3</sup>

<sup>1</sup>Cátedra CONACYT assigned to Department of Physics of Materials. Centro de Investigación en Materiales Avanzados (CIMAV), México. <sup>2</sup>Department of Physics of Materials Department. Centro de Investigación en Materiales Avanzados (CIMAV), México. <sup>3</sup>Laboratorio Nacional de Nanotecnología. Centro de Investigación en Materiales Avanzados (CIMAV), México.

■ **18:15 - 18:30 S5C-0036 UNDERSTANDING THE SURFACE STRUCTURE OF LiMn2O4 SPINEL CATHODES WITH ABERRATION-CORRECTED HAADF STEM AND EELS**

C. Amos<sup>1</sup>, M.A. Roldan<sup>2,3</sup>, M. Varela<sup>2,3</sup>, J.B. Goodenough<sup>1</sup>, P.J. Ferreira<sup>1</sup>

<sup>1</sup>Materials Science and Engineering Program, The University of Texas at Austin, Austin, TX, USA. <sup>2</sup>The STEM Group, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA. <sup>3</sup>Universidad Complutense de Madrid, Madrid, Spain

■ **18:30 - 18:45 S5C-0037 AN ELECTRON MICROSCOPY STUDY OF PULSED LASER DEPOSITED MICRO AND NANOMETRIC ALKALI HALIDES THIN FILMS**

Dwight R. Acosta<sup>1</sup>, Elsi Mejía<sup>2</sup>, Citlali Sánchez<sup>2</sup>

<sup>1</sup>Instituto de Física, <sup>2</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, Universidad Nacional Autónoma de México

ROOM: TERRACE  
TUESDAY, AUGUST 18

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S5C-P001 SYNTHESIS AND CHARACTERIZATION OF HIGH CRYSTALLINE AND PREFERENTIAL CRYSTAL ORIENTED HAP NANOFIBERS BY MICROWAVE ASSISTED HYDROTHERMAL METHOD**

Alanís-Gómez J.R.<sup>1</sup>, Nava-Mendoza R.<sup>1</sup>, Velázquez-Castillo R.<sup>1</sup>, Cervantes-Medina J.S.<sup>2</sup> and Rivera-Muñoz E.M.<sup>2</sup>

<sup>1</sup>División de Investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro, México. <sup>2</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

■ **S5C-P002 Cs-CORRECTED HAADF-STEM STUDY OF NANOCLUSTERS OF LOW ATOMICITY**

Eduardo A. Larios Rodríguez<sup>1,2</sup>, M.J. Yacaman<sup>2</sup>

<sup>1</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora. <sup>2</sup>Department of Physics and Astronomy, University of Texas at San Antonio, USA.

■ **S5C-P003 STUDY THE GRAIN SIZE IN As2O3 COMPOUND FABRICATED BY MECHANICAL MILLING.**

Maira Ramos<sup>1,2</sup>, Elizabeth Chavira<sup>2</sup>, Adriana Tejeda<sup>2</sup>, Omar Novelo<sup>2</sup>, Josué Romero-Ibarra<sup>2</sup>, Patricia Santiago<sup>3</sup>, Guadalupe Zavala<sup>4</sup>.

<sup>1</sup>Facultad de Ingeniería, Universidad Nacional Autónoma de México, México. <sup>2</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México. <sup>3</sup>Instituto de Física, Universidad Nacional Autónoma de México, México. <sup>4</sup>Instituto de Biotecnología, Universidad Nacional Autónoma de México, México.

■ **S5C-P004 SCANNING THERMAL MICROSCOPY (STHM) MODULE EVALUATION TO DETERMINE THERMAL CONDUCTIVITY**

C. M. Frausto-Avila<sup>1</sup>, J. M. Yañez-Limón<sup>1</sup>, C. I. Enriquez-Flores<sup>1</sup>.

<sup>1</sup>CINVESTAV-Unidad Querétaro, México.

■ **S5C-P005 MICROSTRUCTURAL CHARACTERIZATION OF BIOMASS FOR BIOETHANOL CONVERSION**

C. de la Cerna<sup>1</sup>, E. Reyes-Cervantes<sup>1</sup>, S. E Trejo<sup>2</sup>

<sup>1</sup> Benemérita Universidad Autónoma de Puebla, CUWYT.

■ **S5C-P006 GROWTH AND CHARACTERIZATION OF TiO2-ZnO HETEROSTRUCTURES AND Zn2TiO4 COMPOUNDS**

C. Bueno-Avenidaño<sup>1</sup>, D. Maestre<sup>2</sup>, A. Cremades<sup>2</sup>, T. Díaz<sup>1</sup>, H. Juárez<sup>1</sup> and J. Piqueras<sup>2</sup>

<sup>1</sup>CIDS-ICUAP, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Dept. Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, España

■ **S5C-P007 ZnO NANOSTRUCTURES FABRICATED THROUGH VAPOR-PHASE TRANSPORT SYNTHESIS**

C. Bueno-Avenidaño<sup>1</sup>, T. Díaz<sup>1</sup>, M. Pacio<sup>1</sup>, B. L. Rivera-flores<sup>1</sup>, H. Juárez<sup>1</sup>

<sup>1</sup> CIDS-ICUAP Benemérita Universidad Autónoma de Puebla, México.



■ **S5C-P008 AUTOMATED MORPHOLOGICAL-CHARACTERIZATION OF IRON OXIDE/HYDROXIDE NANOPARTICLES BY SEM IMAGE ANALYSIS**

J. Abundez-Peralta<sup>1</sup>, I. M. Abundez-Barrera<sup>1</sup>, G. Carbajal-Franco<sup>1</sup>

<sup>1</sup>Postgraduate Studies and Research Division. Instituto Tecnológico de Toluca-SEP. México

■ **S5C-P009 ANALYSIS AND EVALUATION OF ZnO NANOWIRES AND Fe-Co-OXIDE NANOPARTICLES HETEROSTRUCTURE BY SEM.**

O. E. Cigarroa Mayorga<sup>1</sup>, E. A. Pólito González<sup>1</sup>, I. I. Santana García<sup>1</sup>, H. A. Calderon Benavides<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, ESFM y UPIITA, México.

■ **S5C-P010 MORPHOLOGICAL COMPARISON OF ZnO AND CuO NANOWIRES BY SEM.**

E. A. Pólito González<sup>1</sup>, O. E. Cigarroa Mayorga<sup>1</sup>, H. A. Calderón Benavides<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, ESFM y UPIITA, Mexico

■ **S5C-P011 EXTRACTIONS AND CHARACTERIZATION OF DIATOMS THREE DIFFERENT LAKES THE STATE OF MICHOACÁN, MÉXICO**

A. Hernández-Palomares<sup>1</sup>, A. Martínez-del Río<sup>2</sup>

<sup>1,2</sup>Universidad de La Ciénege del Estado de Michoacán de Ocampo, México.

■ **S5C-P012 MICROSTRUCTURAL CHARACTERIZATION OF AUSTENITIC STAINLESS STEELS NITRIDED LAYERS BY EBSD**

M. Avalos<sup>1</sup>, S. Bruhl<sup>2</sup>, S. Simion<sup>3</sup>, R. Bolmaro<sup>1</sup>

<sup>1</sup>Instituto de Física Rosario-CONICET-UNR. Argentina. <sup>2</sup>Universidad Tecnológica Nacional (UTN). Argentina. <sup>3</sup>INTEMA-CONICET/Univ. Argentina.

■ **S5C-P013 STUDY OF OPTICAL EFFECTS ON CDS THIN FILMS DEPOSITED BY PULSED LASER DEPOSITION FOR DEVELOPMENT OF OPTOELECTRONIC DEVICES**

S.R. Meza-Noriega<sup>1</sup>, S.R. Ferrá-Gonzalez<sup>1</sup>, D. Berman-Mendoza<sup>2</sup>, A. Ramos-Carrasco<sup>2</sup>, M. Quevedo-Lopez<sup>3</sup>, B.E. Gnade<sup>3</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, México.

<sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, México. <sup>3</sup>Department of Materials Science and Engineering, The University of Texas at Dallas, United States

■ **S5C-P014 HIGH-RESOLUTION ELECTRON MICROSCOPY OF NIFE/PT INTERFACES**

Ley Domínguez<sup>1</sup>, R.J. Sáenz-Hernández<sup>1</sup>, A. Faudoa Arzate<sup>1</sup>, A.I. Arteaga Duran<sup>1</sup>, C.E. Ornelas Gutiérrez<sup>1</sup>, O. Solís Canto<sup>1</sup>, C.R. Santillán-Rodríguez<sup>1</sup>, M.E. Botello-Zubiate<sup>1</sup>, F.J. Rivera-Gómez<sup>1</sup>, A. Azevedo<sup>2</sup>, G. L. da Silva<sup>2</sup>, S. M. Rezende<sup>2</sup> and J. A. Matutes-Aquino<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados, S.C. México. <sup>2</sup>Departamento de Física, Universidade Federal de Pernambuco, Brazil

■ **S5C-P015 ULTRASONIC DISPERSION OF CARBON NANOTUBES BY NONIONIC SURFACTANTS**

J. J. Sánchez-Cuevas<sup>1</sup>, C. Mercado-Zuñiga<sup>2</sup>, G. A. Rosas-Trejo<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Metalurgia y Materiales, UMSNH, México. <sup>2</sup>Tecnológico de Estudios Superiores de Coacalco, México

■ **S5C-P016 STRUCTURAL AND OPTICAL CHARACTERIZATION OF CIGS NANOPARTICLES SYNTHESIZED BY MECHANICAL MILLING**

I. I. Santana-García<sup>1</sup>, C. Kisielowski<sup>2</sup>, H. A. Calderon<sup>1</sup>

<sup>1</sup>Departamento de Física, ESFM-IPN, México, <sup>2</sup>JCAP-NCEM, LBNL, USA

■ **S5C-P017 IN-SITU INVESTIGATION OF MICROSTRUCTURE EVOLUTION PROCESS IN ELECTRODEPOSITED COPPER THIN FILMS USING ELECTRON BACKSCATTER DIFFRACTION TECHNIQUE**

N. Alshwawreh<sup>1</sup>

<sup>1</sup>Department of Industrial Engineering, German-Jordanian University, Amman, Jordan

■ **S5C-P018 STRUCTURAL AND COMPOSITIONAL CHARACTERIZATION OF THE WINGS OF THE SPECIE MORPHO - MENELAUS MENELAUS**

T. Álvarez Alvarado<sup>1</sup>, M.J. Enciso López<sup>1</sup>, I. Sánchez González<sup>1</sup>, M.E. Rodríguez García<sup>1</sup>

<sup>1</sup>Universidad Nacional Autónoma de México

■ **S5C-P019 SYNTHESIS OF HYDROXYAPATITE NANONEEDLES AT ROOM TEMPERATURE IN PRESENCE OF TANNIC ACID**

M. Santana<sup>1</sup>, C. Zorrilla<sup>2</sup>, J. Reyes<sup>2</sup> and R. Herrera<sup>2</sup>

<sup>1</sup>Posgrado en Ciencia e Ingeniería de Materiales, Instituto de Física, UNAM, México. <sup>2</sup>Departamento de Materia Condensada, Instituto de Física UNAM Circuito de la Investigación Científica Ciudad Universitaria, México.

■ **S5C-P020 SYNTHESIS AND CHARACTERIZATION OF NITROGEN-DOPED MULTIWALLED CARBON NANOTUBES FABRICATED BY NEBULIZED CHEMICAL**

**VAPOR DEPOSITION METHOD: A METICULOUS STUDY ACROSS THE REACTOR**

R. Sánchez-Salas<sup>1</sup>, and E. Muñoz-Sandoval<sup>1</sup>

<sup>1</sup>Advanced Materials Department, IPICYT, México.

■ **S5C-P021 A METHODOLOGY FOR NANO PHASE CHARACTERIZATION**

F. Ascencio<sup>1</sup>, L. Bazán<sup>1</sup>, R. Mendoza<sup>1</sup>, A. Gómez<sup>2</sup>, and R. Herrera<sup>2</sup>

<sup>1</sup> Posgrado en Ciencia e Ingeniería de Materiales, Instituto de Física, UNAM. México. <sup>2</sup> Departamento de Materia Condensada / Instituto de Física UNAM. México.

■ **S5C-P022 QUANTITATIVE MICROSTRUCTURAL ANALYSIS OF NITRIDE THIN FILMS IN THE SCANNING ELECTRON MICROSCOPE**

B. Hourahine<sup>1</sup>, G. Naresh-Kumar<sup>1</sup>, N. Allehiani<sup>1</sup>, S. Kraeusel<sup>1</sup>, S. Vespucci<sup>1</sup>, J. Bruckbauer<sup>1</sup>, M. Wallace<sup>1</sup>, P. R. Edwards<sup>1</sup>, R. W. Martin<sup>1</sup>, A. Vilalta-Clemente<sup>2</sup>, A. J. Wilkinson<sup>2</sup>, A. J. Gray<sup>3</sup>, A. P. Day<sup>4</sup>, A. Winkelmann<sup>5</sup>, M. J. Kappers<sup>6</sup>, M. A. Moram<sup>6,7</sup>, R. A. Oliver<sup>6</sup>, C. J. Humphreys<sup>6</sup>, P. J. Parbrook<sup>8</sup>, D. Maneuski<sup>9</sup>, V. O'Shea<sup>9</sup>, K. P. Mingard<sup>10</sup> and C. Trager-Cowan<sup>1</sup>

<sup>1</sup>Department of Physics, SUPA, University of Strathclyde, UK. <sup>2</sup>Department of Materials, University of Oxford, UK.

<sup>3</sup>Department of Mathematics and Statistics, University of Strathclyde, UK. <sup>4</sup>Aunt Daisy Scientific Ltd, Claremont

House, High St, Lydney, Gloucestershire, UK. <sup>5</sup>Max-Planck-Institut für Mikrostrukturphysik, Germany. <sup>6</sup>Department of Materials Science and Metallurgy, University of Cambridge, UK. <sup>7</sup>Department of Materials, Imperial College London, UK. <sup>8</sup>Tyndall National Institute, University College Cork, "Lee Maltings", Cork, Ireland. <sup>9</sup>School of Physics & Astronomy, SUPA, University of Glasgow, UK. <sup>10</sup>National Physical Laboratory, Teddington, Middlesex, UK

■ **S5C-P023 STUDY OF GOLD NANOPYRAMIDS: A DESCRIPTION OF STRUCTURE AND MORPHOLOGY USING TRANSMISSION ELECTRON MICROSCOPY (TEM).**

M. C. Mendoza-Ramírez<sup>1</sup>, H. G. Silva-Pereyra<sup>1</sup>, M. Ávalos-Borja<sup>1</sup>.

<sup>1</sup>División de Materiales Avanzados- IPICYT, San Luis Potosí, S.L.P.; México.

■ **S5C-P024 CHARACTERIZATION OF BI-FUNCTIONAL RGO LAYER FOR HYBRID ORGANIC PEC CELL WITH IMPROVED STABILITY AND EFFICIENCY BY USING SCANNING PROBE MICROSCOPY (SPM)**

Jinhee Heo<sup>1</sup>, Dong Chan Lim<sup>1</sup> and Youngmok Rhyim<sup>1</sup>

<sup>1</sup>Korea Institute of Materials Science (KIMS), Korea

S-5C



## Symposium 6A

# ADVANCED CATALYTIC MATERIALS

Manuel Ramos / MEXICO / Universidad Autónoma de Ciudad Juárez

José Manuel Domínguez Esquivel / MEXICO / Instituto Mexicano del Petróleo

Gilles Berhault / FRANCE / IRCELYON-France

ROOM: TULUM C  
MONDAY, AUGUST 17

- ▶ **09:00 - 09:30 S6A-0001 *Invited Talk* UNDERSTANDING TRANSITION METAL SULPHIDE CATALYTIC MATERIALS**  
Russell R. Chianelli<sup>1</sup>  
<sup>1</sup>University of Texas at El Paso
- **09:30 - 09:45 S6A-0002 BINARY TRANSITION-METAL SULFIDE CATALYSTS: PREPARATION, CHARACTERIZATION AND HYDRODESULFURIZATION PROPERTIES**  
C. Liu<sup>1</sup>, H. Liu<sup>1</sup>, C. Yin<sup>1</sup>  
<sup>1</sup>State Key Laboratory of Heavy Oil Processing and Key Laboratory of Catalysis of CNPC, China University of Petroleum, China
- **09:45 - 10:00 S6A-0003 SYNTHESIS AND CHARACTERIZATION OF COMPOSITES NiMO SULPHIDES SUPPORTED IN CLINOPTILOLITE ION TREATED AND ITS APPLICATION AS CATALYSTS IN HYDRODESULFURIZATION**  
C. Farías<sup>1</sup>, R. Huirache-Acuña<sup>1</sup>, T.A. Zepeda<sup>2</sup>, B. Pawelec<sup>3</sup>, J.L.G. Fierro<sup>3</sup>, M. Ostrooumov<sup>4</sup>  
<sup>1</sup>División de Estudios de Posgrado, Facultad de Ingeniería Química, UMSNH. México. <sup>2</sup>Centro de Nanociencias y Nanotecnología - UNAM, México. <sup>3</sup>Instituto de Catálisis y Petroleoquímica, CSIC, Madrid, España. <sup>4</sup>Instituto de Investigaciones en Ciencias de la Tierra, UMSNH. Ciudad Universitaria, México
- ▶ **10:00 - 10:30 S6A-0004 *Invited Talk* ON THE IMPORTANCE OF ACTIVE NANOPARTICLE MORPHOLOGY ON THE HYD/DDS SELECTIVITY OF HDS CATALYSTS**  
Jorge Ramírez<sup>1</sup>  
<sup>1</sup>UNICAT, Departamento de Ingeniería Química, Facultad de Química, UNAM
- ▶ **10:30 - 11:00 S6A-0005 *Invited Talk* MOLECULAR SCALE INTERPLAY BETWEEN COMPLEXITY AND UNIVERSALITY IN INDUSTRIAL CATALYSTS**  
Pascal Raybaud<sup>1</sup>  
<sup>1</sup>IFP Energies nouvelles, Catalysis and Separation Division, France.
- ☕ **11:00 - 11:30 COFFEE BREAK**
- 📖 **11:30 - 12:30 PLENARY LECTURE**
- **12:30 - 12:45 S6A-0006 PECULIAR PROPERTIES OF MoS<sub>2</sub> CATALYTIC MATERIAL: THEORETICAL INSIGHTS WITH STRONG EXPERIMENTAL EVIDENCE**  
Manuel Ramos<sup>1</sup>, Miguel José-Yacamán<sup>2</sup>  
<sup>1</sup>Department of Physics and Mathematics, IIT-Universidad Autónoma de Cd. Juárez, Mexico. <sup>2</sup>Department of Physics and Astronomy, University of Texas at San Antonio
- ▶ **12:45 - 13:15 S6A-0007 *Invited Talk* FACILE PREPARATION OF BULK NiMoS PARTICLES USING MERCAPTOPROPIONIC ACID SOLUTIONS**  
Carlos E. Scott<sup>1</sup>, María Josefina Perez-Zurita<sup>1</sup>, Gerardo Vitale<sup>1</sup> and Pedro Pereira-Almao<sup>1</sup>

<sup>1</sup>Schulich School of Engineering, University of Calgary, Calgary Alberta, Canada.

■ **13:15 - 13:30 S6A-0008 STUDY OF MEXICAN HEAVY CRUDE OIL UPGRADING USING NiMo, NiW, CoMo and NiCoMoW CATALYSTS**

P. Schacht-Hernández<sup>1</sup>, B. Portales-Martínez<sup>1</sup>, J.M. Domínguez-Esquivel<sup>1</sup>.

<sup>1</sup> Instituto Mexicano del Petróleo, México

► **13:30 - 14:00 S6A-0009 Invited Talk ELECTRON MICROSCOPY ADVANCES IN HYDROTREATING CATALYSIS**

Stig Helveg<sup>1</sup>,

<sup>1</sup>Haldor Topsøe, Denmark.

✂ **14:00- 16:00 LUNCH**

■ **16:00 - 16:15 S6A-0010 IN-SITU CONVERSION OF AGUACATE HEAVY CRUDE OIL USING LIQUID CATALYSTS.**

Leonardo Díaz-García<sup>1</sup>, M.T. Gómez<sup>1</sup>, J.M. Domínguez<sup>1</sup> y G. Zariñán<sup>1</sup>

<sup>1</sup>Instituto Mexicano del Petróleo, Mexico

■ **16:15 - 16:30 S6A-0011 LOWERING SYNTHESIS TEMPERATURE of Ni<sub>2</sub>P/C BY PALLADIUM ADDITION: EFFECT OF PALLADIUM SOURCE**

L. F. Feitosa<sup>1</sup>, G. Berhault<sup>2</sup>, D. Laurenti<sup>2</sup>, T. E. Davies<sup>3</sup>, V. Teixeira da Silva<sup>1</sup>

<sup>1</sup>NUCAT/PEQ/COPPE/Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil. <sup>2</sup>Institut de recherches sur la catalyse et l'environnement de Lyon (IRCELYON), (France).

<sup>3</sup>Stephenson Institute for Renewable Energy, Chemistry Department, University of Liverpool, UK

■ **16:30 - 16:45 S6A-0012 CHARACTERIZATION OF NICKEL/RUTHENIUM SULFIDE CATALYST FOR HYDRODESULFURIZATION OF DIBENZOTHIOPHENE**

C. Ornelas-Gutiérrez<sup>1</sup>, S. Verastegui<sup>2</sup>, A. Aguilar-Elguézabal<sup>1</sup> and L. Alvarez-Contreras<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, México. <sup>2</sup>Faculty of Chemical Sciences, Autonomous University of Chihuahua. México.

► **16:45 - 17:15 S6A-0013 Invited Talk ACTIVE PHASE OF A NICKEL PHOSPHIDE (Ni<sub>2</sub>P) CATALYST SUPPORTED ON KUSY ZEOLITE FOR THE HYDRODESULFURIZATION OF 4,6-DMDBT**

S. Ted Oyama<sup>1,2</sup>, Yong-Kul Lee<sup>3</sup>, Kiyotaka Asakura<sup>4</sup>, Kyoko K. Bando<sup>5</sup>, Yuji Yoshimura<sup>5</sup>

<sup>1</sup>The University of Tokyo, Department of Chemical Systems Engineering, Tokyo, Japan. <sup>2</sup>Department of Chemical Engineering, Virginia Tech, Blacksburg, Virginia <sup>3</sup>Department of Chemical Engineering, Dankook University, Yongin, Korea. <sup>4</sup>Catalysis Research Center, Hokkaido University, Sapporo, Japan. <sup>5</sup>National Institute of Advanced Industrial Science and Technology, AIST, Japan

■ **17:15 - 17:30 S6A-0014 HIGHLY ACTIVE UNSUPPORTED NICKEL-ZINC-MOLYBDENUM CATALYSTS DERIVED FROM ISOSTRUCTURAL REPLACEMENT FOR THE HYDRODESULFURIZATION OF DIBENZOTHIOPHENE**

H. Liu<sup>1</sup>, C. Liu<sup>1</sup>, C. Yin<sup>1</sup>

<sup>1</sup>State Key Laboratory of Heavy Oil Processing and Key Laboratory of Catalysis of CNPC, China University of Petroleum, China

■ **17:30 - 17:45 S6A-0015 STUDY OF TITANIUM AS PROMOTER IN RUTHENIUM SULFIDE UNSUPPORTED CATALYST FOR DEEP HDS.**

G. Mendoza-Gómez<sup>1</sup>, L. Álvarez-Contreras<sup>2</sup>, A. Aguilar-Elguézabal<sup>2</sup> and C. Ornelas-Gutiérrez<sup>1</sup>.

<sup>1</sup>Laboratorio Nacional de Nanotecnología, Centro de Investigación en Materiales Avanzados (CIMAV), México. <sup>2</sup>Departamento de Ingeniería y Química de los Materiales, Centro de Investigación en Materiales Avanzados (CIMAV), México.

■ **17:45 - 18:00 S6A-0016 SULFUR ELIMINATION BY OXIDATIVE DESULFURIZATION WITH TITANIUM-MODIFIED SBA-16**

Lorena P. Rivoira<sup>1</sup>, Verónica A. Vallés<sup>1</sup>, Brenda C. Ledesma<sup>1</sup>, María V. Ponte<sup>1</sup>, María L. Martínez<sup>1</sup>, Oscar A. Anunziata<sup>1</sup> and Andrea R. Beltramone<sup>2</sup>

<sup>1</sup>Centro de Investigación en Nanociencia y Nanotecnología (NANOTEC), Facultad Regional Córdoba, <sup>2</sup>Universidad Tecnológica Nacional, Maestro López y Cruz Roja Argentina, Córdoba, Argentina

■ **18:00 - 18:15 S6A-0017 OXIDATIVE DESULFURIZATION OF ORGANOSULFUR COMPOUNDS IN A MODEL MIXTURE OF SCRAP TIRE PYROLYSIS OIL**

Gómez-Ibáñez<sup>1</sup>, V. Rojas-García<sup>1</sup>

<sup>1</sup>Universidad Industrial de Santander, Facultad de Ingenierías Físicoquímicas, Escuela de Ingeniería Química,



Grupo de Investigación en Química Estructural -GIQUE,  
Colombia.

ROOM: TERRACE  
MONDAY, AUGUST 17

► 18:30 -20:30 POSTER SESSION & COFFEE BREAK

■ **S6A-P001 CHARACTERIZATION OF SURFACE AND TEXTURAL PROPERTIES OF NIMO SUPPORTED ACIDIC CATALYSTS FOR HYDROPROCESSING OF HEAVY CRUDE OILS**

Carolina Leyva<sup>1</sup>, Mohan S. Rana<sup>2</sup>, Jorge Ancheyta<sup>3</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada - IPN Mexico. <sup>2</sup>Kuwait Institute for Scientific Research, PRD, Kuwait <sup>3</sup>Instituto Mexicano del Petróleo, México.

■ **S6A-P002 NIMOS HDS CATALYSTS DERIVED FROM MG-AL HYDROTALCITE**

Pérez<sup>1</sup>, C. Suresh<sup>2</sup>, J. N. Díaz de León<sup>3</sup>, T. A. Zepeda<sup>1</sup>, G. Alonso<sup>1</sup>, V. Segura<sup>3</sup>, P. Mendieta<sup>3</sup>, G. Fetter<sup>3</sup>, R. Portillo<sup>3</sup>, S. Fuentes<sup>1</sup>.

<sup>1</sup>Centro de Nanociencias y Nanotecnología-U.N.A.M. México <sup>2</sup>Central Electrochemical Research Institute, India. <sup>3</sup>Facultad de Ciencias Químicas, Benemérita Universidad Autónoma de Puebla, México

■ **S6A-P003 "SYNTHESIS AND CHARACTERIZATION Ni-Mo/MCM-Al<sub>2</sub>O<sub>3</sub> CATALYSTS: EFFECT OF THE SOLVENT ON THE DISPERSION OF THE ACTIVE PHASES"**

Diana Isela Sánchez-Alvarado<sup>1</sup>, Rebeca Silva-Rodrigo<sup>1</sup>, Alfredo Guevara-Lara<sup>2</sup>, José Aarón Melo Banda<sup>1</sup>, Adriana Isabel Reyes-de la Torre<sup>1</sup>, Fabián Morteo Flores<sup>1</sup>, Alfredo Castillo-Mares<sup>1</sup>.

<sup>1</sup>Instituto Tecnológico de Ciudad Madero, División de Estudios de Posgrado e Investigación, México. <sup>2</sup>Universidad Autónoma del Estado de Hidalgo, Área Académica de Química. México

■ **S6A-P004 DEVELOPMENT OF NEW NIMO HYDRODESULFURIZATION CATALYSTS SUPPORTED ON Al<sub>2</sub>O<sub>3</sub>-TiO<sub>2</sub> MATERIALS**

J.C. Morales-Ortuño<sup>1</sup>, J.E. Romero-Hernández<sup>1</sup> and T.E. Klimova<sup>1</sup>

<sup>1</sup>Laboratorio de Nanocatálisis, Departamento de Ingeniería Química, Facultad de Química, Universidad Nacional Autónoma de México (UNAM), México.

■ **S6A-P005 HYDROGEN ACTIVATION ENERGIES OF MoS<sub>2</sub> CATALYST UNDER STRESS AND STRAIN CONDITIONS: A COMPUTATIONAL MODELING STUDY**

G. A. Gonzalez<sup>1,3</sup>, M. A. Ramos<sup>2</sup>, G. Berhault<sup>4</sup>, and R. R. Chianelli<sup>3</sup>

<sup>1</sup>Departamento de Ciencias Químico Biológicas. Instituto de Ciencias Biológicas-UACJ. <sup>2</sup>Departamento de Física y Matemáticas, Instituto de Ingeniería y Tecnología-UACJ. <sup>3</sup>Materials Research and Technology Institute. University of Texas at El Paso, El Paso, U.S.A <sup>4</sup>Institut de Recherches sur la Catalyse et l'Environnement de Lyon (IRCELYON), CNRS, France.

■ **S6A-P006 ELECTRONIC STRUCTURE OF ORGANIC COMPOUNDS ADSORBED ON HYDROTREATING CATALYST FUNCTIONAL THEORY**

Isidoro García Cruz<sup>1</sup> Montserrat Landa Pérez<sup>1</sup> Victor Manuel Medel Juarez<sup>1</sup>, Diego Valencia<sup>1</sup>

<sup>1</sup>Gerencia de Refinación de la Dirección de Investigación en Transformación de Hidrocarburos, Instituto Mexicano del Petróleo, México,

■ **S6A-P007 HYDROGENATION SITES IN FULLERENE MoS<sub>2</sub> CATALYTIC PARTICLES: A DFT STUDY**

Victor A. Duran-Estrada<sup>1</sup>, Jorge Reyna-Alvarado<sup>1</sup>, Alfredo Carranco-Rodriguez<sup>1</sup> Gabriel Gonzalez<sup>2</sup>, Russell R. Chianelli<sup>1</sup> and Manuel Ramos<sup>1,2</sup>

<sup>1</sup> Department of Physics and Mathematics, IIT-Universidad Autonoma de Cd. Juarez, Mexico. <sup>2</sup> Materials Research and Technology Institute, University of Texas at El Paso

■ **S6A-P008 MOIRE PATTERNS ON 2D LAYERED TRANSITION METAL SULFIDES**

Jesus Alfredo Carranco-Rodriguez<sup>1</sup>, Victor A. Duran-Estrada<sup>1</sup>, Russell R. Chianelli<sup>1</sup>, and Manuel Ramos<sup>1,2</sup>

<sup>1</sup> Department of Physics and Mathematics, IIT-Universidad Autonoma de Cd. Juarez, Mexico. <sup>2</sup> Materials Research and Technology Institute, University of Texas at El Paso

■ **S6A-P009 STUDY ON THE SURFACE (001)-Ni<sub>2</sub>P BY MEANS DENSITY FUNCTIONAL THEORY**

S. Flores-López<sup>1</sup>, J. M. Domínguez Esquivel<sup>1</sup>, J. A. Melo Banda<sup>1</sup>, V. M. Medel<sup>1</sup>, I. García-Cruz<sup>2</sup>

<sup>1</sup> Gerencia de Ingeniería y Recuperación Adicional de la Dirección de Investigación en Exploración y Producción, Instituto Mexicano del Petróleo, México, <sup>2</sup> Gerencia de Refinación de la Dirección de Investigación en Transformación de Hidrocarburos, Instituto Mexicano del Petróleo, México.

■ **S6A-P010 APPLICATION OF Ni-Mo LIQUID CATALYST IN HEAVY OIL HYDROPROCESSING**

P. Schacht-Hernández<sup>1</sup>, B. Portales-Martínez<sup>1</sup>, J.M. Domínguez-Esquivel<sup>1</sup>.

<sup>1</sup>Instituto Mexicano del Petróleo, México

■ **S6A-P011 PREPARATION AND CHARACTERIZATION OF TRIMETALLIC CATALYSTS NICOMO FOR HYDRODESULFURIZATION OF DIBENZOTHIOPHENE**

G. Torres-Otáñez<sup>1</sup>, J. N. Díaz de León<sup>1</sup>, T. A. Zepeda<sup>1</sup>, S. Fuentes<sup>1</sup>

<sup>1</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, B. C., México.

■ **S6A-P012 EFFECT OF GOLD NANOPARTICLES IN MIXED OXIDE SUPPORTED CATALYSTS FOR HYDRODESULFURIZATION OF DIBENZOTHIOPHENE**

J. Cortez<sup>1</sup>, J. Cuauhtémoc-López<sup>1</sup>

<sup>1</sup> Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Básicas (UJAT-DACB) México.

■ **S6A-P013 INHIBITION BY NITROGEN COMPOUNDS IN THE SIMULTANEOUS HYDROGENATION OF POLYAROMATIC COMPOUNDS OVER Pt-Pd-F/Al<sub>2</sub>O<sub>3</sub> CATALYST**

Gerardo Balangero Bottazzi<sup>1</sup>, Horacio Falcon<sup>1</sup> and Andrea R. Beltramone<sup>1</sup>

<sup>1</sup>NANOTEC (Centro de Investigación en Nanociencia y Nanotecnología) Facultad Regional Córdoba- Universidad Tecnológica Nacional, Córdoba, Argentina.

■ **S6A-P014 HYDRODENITROGENATION OF INDOLE OVER Ir SUPPORTED Ti-SBA-15 MODIFIED WITH F AND Al**

Brenda C. Ledesma<sup>1</sup>, Verónica A. Vallés<sup>1</sup>, Lorena P. Rivoira<sup>1</sup>, Gerardo Balangero Bottazzi<sup>1</sup>, Oscar A. Anunziata<sup>1</sup> and Andrea R. Beltramone<sup>1</sup>

<sup>1</sup>NANOTEC (Centro de Investigación en Nanociencia y Nanotecnología) Facultad Regional Córdoba- Universidad Tecnológica Nacional, Córdoba, Argentina.

■ **S6A-P015 HETEROCYCLIC SULFUR COMPOUNDS OXIDATION WITH VO<sub>x</sub>/Ti-MCM-41 CATALYSTS IN A MODEL DESIEL**

Lifang Chen<sup>1</sup>, Jin An Wang<sup>1</sup>, J. M. Domínguez<sup>2</sup>

<sup>1</sup>ESIQIE, Instituto Politécnico Nacional, Mexico. <sup>2</sup>Dirección de Investigación, Instituto Mexicano del Petróleo, Mexico

■ **S6A-P016 EFFECT OF OXIDANT TYPE IN OXIDATION/ELIMINATION DBTS WITH V/MCM-41 MODIFIED BY TI**

U. Arellano<sup>1</sup>, J. A. Wang<sup>1</sup>, L.F. Chen<sup>1</sup>, M. Asomoza<sup>2</sup>, S. Cipagauta<sup>2</sup>, A. Estrella<sup>2</sup>, S. Solís<sup>2</sup>

<sup>1</sup>ESIQIE, Instituto Politécnico Nacional, <sup>2</sup>Departamento de Química, Universidad Autónoma Metropolitana-Iztapalapa, Mexico.

ROOM: TULUM C  
TUESDAY, AUGUST 18

▶ **09:00 - 09:30 S6A-0018 Invited Talk TAILORING CATALYTIC REACTIVITY VIA CONSTRAINTS OF NANOPORES**

Johannes Lercher<sup>1</sup>

<sup>1</sup>TU München, Department of Chemistry, Germany  
Pacific Northwest National Laboratory, Institute for Integrated Catalysis, Richland, WA, USA

■ **09:30 - 09:45 S6A-0019 HYDROCRACKING OF A HEAVY FEEDSTOCK WITH PHOSPHOROUS MODIFIED BETA ZEOLITE-BASED CATALYSTS**

C. Manrique<sup>1</sup>, A. Guzmán<sup>2</sup>, A. Echavarría<sup>1</sup>

<sup>1</sup>Grupo Catalizadores y Adsorbentes/Instituto de Química, Universidad de Antioquia, Medellín, Colombia. <sup>2</sup>Ecopetrol S.A. Instituto Colombiano del Petróleo ICP. Piedecuesta Santander. Colombia

■ **09:45 - 10:00 S6A-0020 MECHANISTIC PATHWAYS FOR THE DEOXYGENATION OF ALDEHYDES ON SOLID BRØNSTED ACID CATALYSTS**

Fan Lin, Yifei Yang<sup>1</sup>, and Ya-Huei (Cathy) Chin<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering and Applied Chemistry, University of Toronto, Toronto, Canada

■ **10:00 - 10:15 S6A-0021 ISOMERIZATION OF (±)-CITRONELLAL TO ISOPULEGOL OVER ZIRCONIA CATALYSTS MODIFIED BY THE ADDITION OF PHOSPHATE AND SULFATE ANIONS**

J. C. Piña Victoria<sup>1</sup>, T. Viveros García<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Iztapalapa. Departamento de Procesos e Hidráulica. México

■ **10:15 - 10:30 S6A-0022 Fe-CONTAINING OXIDE MATRICES AS PRECURSORS OF CATALYTIC MATERIALS FOR EFFICIENT CONVERSION OF H<sub>2</sub>/CO<sub>2</sub> TO SYN-CRUD FOR TRANSPORTATION FUELS**

M.V.Landau<sup>1</sup>, N.Utis<sup>1</sup>, R.Vidruk-Nehemiya<sup>1</sup>, M.Herskowitz<sup>1</sup>



<sup>1</sup>Blechner Center for Applied Catalysis and Process Development, Chemical Engineering Department, Ben-Gurion University of the Negev, Beer-Sheva, Israel

■ **10:30 - 10:45 S6A-0023 HYDROGENATION OF 1,3-BUTADIENE OVER AU AND PT/SIO<sub>2</sub>-N CATALYSTS AT LOW TEMPERATURE**

Kang Yang<sup>1</sup>, Chenguang Liu<sup>1</sup>, Yuan Pan<sup>1</sup>, Jinchong Zhao<sup>1</sup>

<sup>1</sup>State Key Laboratory of Heavy Oil Processing, Key Laboratory of Catalysis, CNPC, College of Chemical Engineering, China University of Petroleum West Changjiang Road, Huangdao, Qingdao China.

■ **10:45 - 11:00 S6A-0024 CATALYTIC REQUIREMENTS FOR AQUEOUS PHASE TRANSFER HYDROGENATION OF ACETIC ACID ON GROUP VIII METAL CLUSTERS**

Junnan Shangguan<sup>1</sup> and Ya-Huei (Cathy) Chin<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering and Applied Chemistry, University of Toronto, Canada.

☐ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

▶ **12:30 - 13:00 S6A-0025 *Invited Talk* FE-BASED CATALYSTS FOR FISCHER-TROPSCH PROCESS: PROGRESS ON THEORETICAL STUDY**

Xiaodong Wen<sup>1,2</sup>, Yong Yang<sup>1,2</sup>, Yongwang Li<sup>1,2</sup>, Jianguo Wang<sup>1</sup>, Haijun Jiao<sup>1</sup>

<sup>1</sup>Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan, China. <sup>2</sup>Synfuels China, Beijing, China.

■ **13:00 - 13:15 S6A-0026 SYNTHESIS OF MODEL COBALT CATALYSTS FOR FISCHER TROPSCH SYNTHESIS**

Justine Harmel<sup>1,2</sup>, Katerina Soulantika<sup>1</sup>, Philippe Serp<sup>2</sup>, Bruno Chaudret<sup>1</sup>, Adrien Berliet<sup>3</sup>, Antoine Fécant<sup>3</sup>, Sylvie Maury<sup>3</sup>

<sup>1</sup>LPCNO, INSA Toulouse, Toulouse, France. <sup>2</sup>LCC, ENSIACET, Université de Toulouse, Toulouse, France. <sup>3</sup>IFPEN Energies Nouvelles, Solaize, France

■ **13:15 - 13:30 S6A-0027 PREPARATION AND CHARACTERIZATION OF Fe-CONTAINING CARBON APPLIED TO FISCHERTROPSCH SYNTHESIS**

G. A. Cruz<sup>1,2</sup>, A. C. Oliveira<sup>1</sup>, F. A. N. Fernandes<sup>2</sup>, J. M. Filho<sup>3</sup>, S. S. Ferreira<sup>3</sup>

<sup>1</sup>Universidade Federal do Ceará, Brazil. <sup>2</sup>Universidade Federal do Ceará, Brazil. <sup>3</sup>Universidade Federal do Ceará, Brazil.

■ **13:30 - 13:45 S6A-0028 EFFECT OF SUPPORT AND PROMOTERS IN FISCHER-TROPSCH SYNTHESIS USING SUPPORTED FE CATALYSTS**

L.A. Cano<sup>1</sup>, A.A. Garcia Blanco<sup>2</sup>, G. Lener<sup>2</sup>, D. Barrera<sup>2</sup>, S.G. Marchetti<sup>1</sup>, K. Sapag<sup>2</sup>.

<sup>1</sup>Facultad de Ciencias Exactas, UNLP, Argentina. <sup>2</sup>Instituto de Fisica Aplicada, UNSL, San Luis, Argentina.

✕ **14:00- 16:00 LUNCH**

▶ **16:00 - 16:30 S6A-0029 *Invited Talk* REFORMING OF METHANE USING SUBSTITUTED PYROCHLORES**

James J. Spivey<sup>1</sup>, D. Pakhare<sup>2</sup>, D. Shekhawat<sup>3</sup>, D.A. Berry<sup>3</sup>, D. Haynes<sup>3</sup>, M. Smith<sup>4</sup>

<sup>1</sup>Louisiana State University, Baton Rouge, LA USA, <sup>2</sup>Pyrochem, Inc., Morgantown, WV USA, <sup>3</sup>US Dept. Energy, NETL, Morgantown, WV USA. <sup>4</sup>AECOM M. Smith, Morgantown, WV USA

■ **16:30 - 16:45 S6A-0030 HYDROGEN PRODUCTION VIA CO<sub>2</sub> REFORMING OF METHANE OVER Ni-Co/ZSM5 CATALYSTS AGING AND CARBON DEPOSITION STUDY**

S. Aouad<sup>1</sup>, J. Estephane<sup>2</sup>, B. El Khoury<sup>1</sup>, C. Gennequin<sup>3,4</sup>, J. El Nakat<sup>1</sup>, A. Aboukais<sup>3,4</sup>, E. Abi Aad<sup>3,4</sup>

<sup>1</sup>Department of Chemistry, University of Balamand, Lebanon. <sup>2</sup>Department of Chemical Engineering, University of Balamand, Lebanon. <sup>3</sup>Univ Lille Nord de France, France. <sup>4</sup>ULCO, Equipe de Catalyse-UCEIV, France

■ **16:45 - 17:00 S6A-0031 HYDROGEN PRODUCTION FROM CATALYTIC PARTIAL OXIDATION OF METHANOL OVER COPPER SUPPORTED ON CERIA NANOSTRUCTURES**

Daniel G. Araiza<sup>1</sup>, Antonio Gómez-Cortés<sup>1</sup>, Gabriela Díaz<sup>1</sup>

<sup>1</sup>Instituto de Fisica-UNAM, México

▶ **17:00 - 17:30 S6A-0032 *Invited Talk* SYNERGY BETWEEN Ni-DOPING AND 1D MORPHOLOGY IN Ni<sub>x</sub>Ce<sub>1-x</sub>O<sub>2</sub>-δ NANORODS: ENHANCED OSC AND CATALYTIC PROPERTIES**

Araceli Romero-Núñez<sup>1</sup> and Gabriela Díaz<sup>1</sup>

<sup>1</sup>Instituto de Fisica-UNAM, México

■ **17:30 - 17:45 S6A-0033 ACTIVE GOLD ON ACTIVE OXIDES**

H. Häkkinen<sup>1</sup>

<sup>1</sup>Nanosience Center, University of Jyväskylä, Finland



■ **17:45 - 18:00 S6A-0034 CATALYTIC PERFORMANCE OF GOLD NANOPARTICLES SUPPORTED ON TITANIA NANOTUBES IN CO OXIDATION**

A. Sandoval<sup>1</sup>, R. Zanella<sup>2</sup> and T. Klimova<sup>3</sup>

<sup>1</sup>Laboratorio de Nanocatálisis, Departamento de Ingeniería Química, Facultad de Química, Universidad Nacional Autónoma de México (UNAM), México. <sup>2</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico (CCADET), Universidad Nacional Autónoma de México (UNAM), México.

■ **18:00 - 18:15 S6A-0035 STUDY OF THE EFFECT OF THE MORPHOLOGY OF HYBRID NANOPARTICLES HETEROGENEOUS IN CO OXIDATION REACTION**

L. Souza da Costa<sup>1</sup>, Daniela Zanchet<sup>1</sup>

<sup>1</sup>Institute of chemistry, State University of Campinas- Unicamp, Brazil

■ **18:15 - 18:30 S6A-0036 SYNTHESIS OF COLLOIDAL Au<sub>1-x</sub>Cux NANOCRYSTALS APPLIED ON CO OXIDATION**

Priscila Destro<sup>1,2</sup>, Massimo Colombo<sup>2</sup>, Liberato Manna<sup>2</sup>, Daniela Zanchet<sup>1</sup>

<sup>1</sup>University of Campinas, Department of Inorganic Chemistry, Brazil, <sup>2</sup>Italian Institute of Technology, Department of Nanochemistry, Italy

ROOM: TERRACE  
TUESDAY, AUGUST 18

► **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S6A-P017 HYDROCRACKING REACTION WITH A MODEL MOLECULE (TETRADECANE)**

M.G. Zariñán-Jiménez<sup>1</sup>, J.M. Domínguez-Esquivel<sup>2</sup>

<sup>1</sup>Universidad Autónoma Metropolitana México D.F. <sup>2</sup> Instituto Mexicano del Petróleo (IMP), Distrito Federal.

■ **S6A-P018 EFFECT OF PREPARATION METHOD ON THE CATALYTIC BEHAVIORS OF Pt/H<sub>3</sub>PW<sub>12</sub>O<sub>40</sub>/Zr-MCM-41 IN THE n-HEPTANE HYDROISOMERIZATION**

Dante Esaí González Anotá<sup>1</sup>, Lifang Chen<sup>1</sup>, Jin An Wang<sup>1</sup>, J. L. Contreras<sup>2</sup>

<sup>1</sup>Instituto Politécnico Nacional.

■ **S6A-P019 EFFECT OF STIRRING SPEED ON THE SBA-15 MORPHOLOGY AND ITS INFLUENCE ON THE CATALYTIC ACTIVITY OF NICKEL CATALYST FOR NAPHTHALENE HYDROGENATION REACTION**

Rogelio Cuevas García<sup>1</sup>, José Roberto Contreras Bárbara<sup>2</sup>, Sugey Segovia Maldonado<sup>2</sup>, Diana Suárez Contador<sup>2</sup>, Iván Puente Lee<sup>3</sup>

<sup>1</sup>Unidad de Investigación en Catálisis, Facultad de Química, Universidad Nacional Autónoma de México, México. <sup>2</sup>Instituto Tecnológico de Atitalaquia, México. <sup>3</sup>Unidad de Servicios de Apoyo a la Investigación, Facultad de Química, Universidad Nacional Autónoma de México,

■ **S6A-P020 UV-VIS SPECTROSCOPY APPLIED TO THE REDUCTION OF SUPPORTED Pt/Al<sub>2</sub>O<sub>3</sub> CATALYSTS**

J.L. Contreras<sup>1</sup>, G.A. Fuentes<sup>2</sup> and N.N. González<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana México D.F. <sup>2</sup>Universidad Autónoma Metropolitana Iztapalapa.

■ **S6A-P021 DETERMINATION OF INTEGRATED MOLAR EXTINCTION COEFFICIENT FOR INFRARED ABSORPTION BANDS OF CO ADSORBED ON Rh/TiO<sub>2</sub> CATALYST**

A. Cervantes-Urbe<sup>1</sup>, M. A. Lunagómez-Rocha<sup>1,2</sup>, I. Rangel-Vazquez<sup>1</sup>, G. del Ángel<sup>1</sup>, H. Pérez-Vidal<sup>2</sup> and G. Torres-Torres<sup>2</sup>

<sup>1</sup> Universidad Autónoma Metropolitana-Iztapalapa, Catalysis lab, Chemistry department, CBI, México. <sup>2</sup> Universidad Juárez Autónoma de Tabasco, Heterogeneous Catalysis lab, Area of Chemistry, DACB, México.

■ **S6A-P022 EFFECT OF THE BALANCE BETWEEN ACIDIC OR BASIC SITES OF THE SUPPORT, AND THE METALLIC LOAD ON THE PERFORMANCE OF Pt CATALYSTS IN THE HYDROGENATION OF CITRAL**

V. Tamayo<sup>1</sup>, S. Santiago<sup>1</sup>, T. Viveros<sup>1</sup>

<sup>1</sup>Area de Ingeniería Química, Departamento de Ingeniería de Procesos e Hidráulica, Universidad Autónoma Metropolitana-Iztapalapa, Mexico

■ **S6A-P023 CHARACTERIZATION OF IRON-BASED CARBIDES CATALYSTS FOR FISCHER-TROPSCH REACTION**

G. A. da Cruz<sup>1,2</sup>, F. A. N. Fernandes<sup>1</sup>, A. C. Oliveira<sup>2</sup>, J. M. Filho<sup>3</sup>, S. S. Ferreira<sup>1,3</sup>

<sup>1</sup>Universidade Federal do Ceará, Departamento de Engenharia Química, Fortaleza, Ceara, Brazil. <sup>2</sup>Universidade Federal do Ceará, DAFQ, Fortaleza, Ceara, Brazil. <sup>3</sup>Universidade Federal do Ceará, DF, Fortaleza, Ceará, Brazil

■ **S6A-P024 DRY REFORMING OF METHANE OVER Ni/CeO<sub>2</sub> CATALYSTS: EFFECT OF NICKEL CONTENT**

Á. López<sup>1,2</sup>, A. Gutiérrez-Martínez<sup>1</sup> and R. Pérez-Hernández<sup>1</sup>



<sup>1</sup>Instituto Nacional de Investigaciones Nucleares, México,  
<sup>2</sup>Tecnológico de Estudios Superiores San Felipe del Progreso

■ **S6A-P025 DRY REFORMING OF METHANE ONTO TITANATE NANOTUBES DECORATED WITH Ni, Co and Pt NANOPARTICLES**

D.C. de Carvalho<sup>1</sup>, A. C. Oliveira<sup>1</sup>, O. P. Ferreira<sup>2</sup>, J. M. Filho<sup>2</sup>, A. F. Lucrédio<sup>3</sup>, E.M.Assaf<sup>3</sup>.

<sup>1</sup>Universidade Federal do Ceará, DAFQ, Fortaleza, Ceara, Brazil. <sup>2</sup> Universidade Federal do Ceará, DF, Fortaleza, Ceará, Brazil. <sup>3</sup> Universidade de São Paulo, Instituto de Química de São Carlos, São Carlos, São Paulo, Brazil.

■ **S6A-P026 HYDROGEN PRODUCTION FROM CATALYTIC THERMAL DECOMPOSITION OF METHANE OVER RHODIUM SUPPORTED ON  $\gamma$ -ALUMINA-NEODYMIUM**

G.A. Del Angel<sup>1</sup>, M. Caballero<sup>1</sup>, M. Salgado, I<sup>1</sup>. Cuauhtémoc, A. Vázquez-Zavala<sup>1</sup>, A. Arrieta<sup>1</sup>, I. Rangel<sup>1</sup>, D. Monroy<sup>1</sup>.

<sup>1</sup>Universidad Autónoma Metropolitana-Iztapalapa, Departamento de Química, Área de Catálisis, Laboratorio R-220, División de Ciencias Básicas e Ingeniería, México D.F.

■ **S6A-P027 Structural and textural properties of Fe<sub>2</sub>O<sub>3</sub>/□-Al<sub>2</sub>O<sub>3</sub> catalysts and their importance in the catalytic reforming of CH<sub>4</sub> with H<sub>2</sub>S for hydrogen production**

Félix Galindo-Hernández,<sup>1</sup> J. M. Domínguez,<sup>1</sup> Benjamín Portales<sup>1</sup>

<sup>1</sup>Instituto Mexicano del Petróleo (IMP).

■ **S6A-P028 H<sub>2</sub> PRODUCTION ON BIMETALIC Pt-Ni / CEO 2 CATALYSTS BY ASRM REACTION**

Sarmiento Fernández Isabel<sup>1</sup> Gutiérrez Martínez Albina<sup>2</sup> Pérez Hernández Raúl<sup>2</sup>

<sup>1</sup>Tecnológico de Estudios Superiores de San Felipe del Progreso, México. <sup>2</sup> Instituto Nacional de Investigaciones Nucleares, México

■ **S6A-P029 PHYSICOCHEMICAL PROPERTIES OF Ce-Pr MIXED OXIDES. A THEORETICAL STUDY**

Brian Milberg<sup>1</sup>, Vanesa Tello<sup>1</sup>, Alfredo Juan<sup>2</sup>, Beatriz Irigoyen<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Química, ITES, Facultad de Ingeniería, Universidad de Buenos Aires, Argentina.

<sup>2</sup>Departamento de Física, IFISUR, Universidad Nacional del Sur.

■ **S6A-P030 STUDY OF THE REDUCTION OF NO USING A CATALYTIC CONVERTER OF Ag-Pt/Al<sub>2</sub>O<sub>3</sub>-WO<sub>x</sub>**

N. N. González<sup>1</sup>, M. Pinto<sup>1</sup>, M. E. Hernández<sup>2</sup>, J. L. Contreras<sup>1</sup>, G. A. Fuentes<sup>2</sup>, B. Zeifert<sup>3</sup>, T. Vázquez<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana México

<sup>2</sup>Universidad Autónoma Metropolitana-Iztapalapa, México

<sup>3</sup>Instituto Politécnico Nacional, ESQUIE, México

■ **S6A-P031 SYNTHESIS OF VALUABLE PRODUCTS FROM NATURAL GASES**

S.A. Tungatarova<sup>1</sup>, G. Xanthopoulou<sup>2</sup>, T.S. Baizhumanova<sup>1</sup>, M.A. Sadenova<sup>3</sup>, S.A. Abdulina<sup>4</sup>

<sup>1</sup>D.V. Sokolsky Institute of Organic Catalysis and Electrochemistry, Kazakhstan; <sup>2</sup>Institute of Material Science, NCSR Demokritos, Greece; <sup>3</sup>Amanzholov East Kazakhstan State University, Kazakhstan; <sup>4</sup>D. Serikbayev East Kazakhstan State Technical University, Kazakhstan

■ **S6A-P032 CATALYTIC ACTIVITY OF Pt/ZnO FOR LOW TEMPERATURE DIESEL PARTICULATE MATTER OXIDATION IN PRESENCE OF NO AND SO<sub>2</sub>**

<sup>1</sup>G. Corro, <sup>1</sup>S.Cebada, <sup>1</sup>F. Bañuelos, <sup>2</sup>E. Vidal, <sup>2</sup>E. Ayala

<sup>1</sup>Instituto de Ciencias, <sup>2</sup>Facultad de Ingeniería Química, Benemerita Universidad Autónoma de Puebla, México.

■ **S6A-P033 STUDY OF THE CATALYTIC ACTIVITY OF BIMETALLIC CATALYSTS (Pt-Ag) ON DIESEL SOOT OXIDATION**

E. Ayala<sup>1</sup>, E. Vidal<sup>1</sup>, A. Calderón<sup>1</sup>, A. Conde<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, México.

■ **S6A-P034 CATALYTIC PROPERTIES OF IRON-BASED OXIDES CONTAINING METAL CATIONS IN THE SELECTIVE OXIDATION OF STYRENE**

B. S. Neto<sup>1</sup>, L. G. Pinheiro<sup>1</sup>, A. C. Oliveira<sup>1</sup>, J. M. Filho<sup>2</sup>

<sup>1</sup>Universidade Federal do Ceará, DAFQ, Fortaleza, Ceara, Brazil. <sup>2</sup>Universidade Federal do Ceará, Departamento de Física, Fortaleza, Ceará, Brazil.

■ **S6A-P035 CATALYTIC NANOMATERIALS FOR LIQUID PHASE CYCLOHEXENE OXIDATION. EFFECT OF THE METAL NATURE ON THE REACTION MECHANISM**

S. Bedrane<sup>1</sup>, Z. Fandi<sup>1</sup>, W. Bendeddouche<sup>1</sup>, S. El Korso<sup>1</sup>, A. Choukchou-Braham<sup>1</sup>, R. Bachir<sup>1</sup>

<sup>1</sup>Laboratory of Catalysis and Synthesis in Organic Chemistry, University of Tlemcen, Algeria

■ **S6A-P036 ULTRASONIC ASSISTED SYNTHESIS OF NICKEL NANOPARTICLES AND THEIR EVALUATION FOR CO<sub>2</sub> METHANATION**

E. Vargas<sup>1,2</sup>, J.C. Denardin<sup>2,3</sup>, M. Romero-Sáez<sup>4</sup>, F. Gracia<sup>4,5</sup>

<sup>1</sup> Departamento de Ciencia de Materiales. Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile. <sup>2</sup> Center for the Development of Nanoscience and Nanotechnology (CEDENNA). Santiago, Chile. <sup>3</sup> Departamento de Física. Facultad de Ciencias, Universidad de Santiago de Chile. <sup>4</sup> Departamento de Ingeniería Química y Biotecnología. Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile. <sup>5</sup> Nucleus Millennium Chemical Processes and Catalysis (CPC).

■ **S6A-P037 SOLID ACID CATALYSTS BASED ON HETEROPOLYACIDS: ACID AND CATALYTIC PROPERTIES AT A GAS-SOLID INTERFACE**

J.G. Hernández-Cortez<sup>1</sup>, M.E. Manríquez-Ramírez<sup>2</sup>, A. Zuñiga<sup>2</sup>, J. Navarrete<sup>1</sup>, A. Vazquez<sup>1</sup>

<sup>1</sup> Gerencia Desarrollo de Materiales y Productos Químicos. Instituto Mexicano del Petróleo, México, D.F. México. <sup>2</sup> ESIQIE, Instituto Politécnico Nacional, México.

■ **S6A-P038 CATALYSTS ON THE BASE OF NATURAL ZEOLITES FOR CLEANING OF WASTER GASES**

M.A. Sadenova<sup>1</sup>, S.A. Abdulina<sup>2</sup>, S.A. Tungatarova<sup>3</sup>

<sup>1</sup>S. Amanzholov East Kazakhstan State University, Kazakhstan; <sup>2</sup>D. Serikbayev East Kazakhstan State Technical University, Kazakhstan; <sup>3</sup>D.V. Sokolsky Institute of Organic Catalysis and Electrochemistry, Kazakhstan

ROOM: TULUM C  
WEDNESDAY, AUGUST 19

■ **09:00 - 09:15 S6A-0037 MECHANISTIC INVOLVEMENTS OF REACTIVE OXYGEN SPECIES FOR ALKENE EPOXIDATION ON DISPERSED SILVER CLUSTERS**

Petar Lachkov<sup>1</sup> and Ya-Huei (Cathy) Chin<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering and Applied Chemistry, University of Toronto, Toronto, Canada

■ **09:15 - 09:30 S6A-0038 EFFECT OF THE ELECTRONIC STATE OF SUPPORTED Cu, Ag, AND Au FOR DIESEL PARTICULATE MATTER OXIDATION. EFFECT OF ZnO USED AS SUPPORT**

G. Corro<sup>1</sup>, S.Cebada<sup>1</sup>, F. Bañuelos<sup>1</sup>, U. Pal<sup>2</sup>, E. Vidal<sup>3</sup>

<sup>1</sup>Instituto de Ciencias, <sup>2</sup>Instituto de Física, <sup>3</sup>Facultad de Ingeniería Química, Benemerita Universidad Autónoma de Puebla, México.

■ **09:30 - 09:45 S6A-0039 CATALYSTS TO GLYCEROL VALORIZATION**

Raúl A. Comelli

<sup>1</sup>Instituto de Investigaciones en Catálisis y Petroquímica - INCAPE (FIQ-UNL, CONICET), Argentina.

■ **09:45 - 10:00 S6A-0040 MICROWAVE ASSISTED SYNTHESIS OF SULPHUR-DOPED ANATASE FOR PHOTOCATALYTIC DEGRADATION OF ORGANIC COMPOUNDS**

M.J. Martín-Martínez<sup>1</sup>, A. Cortéz-Lorenzo<sup>1</sup>, K. Esquivel-Escalante<sup>1</sup>, L. Escamilla-Perea<sup>1</sup> and R. Velázquez-Castillo<sup>1</sup>

<sup>1</sup>División de investigación y Posgrado, Facultad de Ingeniería, Universidad Autónoma de Querétaro. México

■ **10:00 - 10:15 S6A-0041 ENHANCED PHOTO-DEGRADATION OF PARAOXON BY THE CO-CATALYTIC EFFECT OF CO AND RH ON TiO<sub>2</sub>**

K. P. D. Savio<sup>1</sup>, J. Fletcher<sup>1</sup>, K. Smith<sup>2</sup>, R. Iyer<sup>2</sup>, J. Bao<sup>3</sup>, F. C. Robles Hernández<sup>1</sup>

<sup>1</sup>University of Houston, Department of Mechanical Engineering Technology, College of Technology. <sup>2</sup>Center for Life Sciences Technology, <sup>3</sup>Department of Electrical and Computer Engineering, University of Houston, USA

■ **10:15 - 10:30 S6A-0042 INFLUENCE OF THE CALCINATION TEMPERATURE IN THE g-AL<sub>2</sub>O<sub>3</sub>-TiO<sub>2</sub> CATALYST FOR THE PHOTOCATALYTIC DEGRADATION OF PHENOL**

Claudia M. Gómez<sup>1</sup>, Manuel Sánchez C.<sup>2</sup>, E. Ramos R.<sup>1</sup>, F. Tzompantzi<sup>3</sup>, A. Mantilla<sup>4</sup>

<sup>1</sup>Universidad de Guanajuato. <sup>2</sup>Benemérita Universidad Autónoma de Puebla. <sup>3</sup>Universidad Autónoma Metropolitana Iztapalapa. <sup>4</sup>Instituto Politécnico Nacional.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

■ **12:30 - 12:45 S6A-0043 NICKEL PHOSPHIDE-BASED NANOMATERIALS AS ADVANCED CATALYSTS FOR HYDROGEN EVOLUTION**

Y. Pan<sup>1</sup>, Y. Q. Liu<sup>1</sup>, C. G. Liu<sup>1</sup>

<sup>1</sup>State Key Laboratory of Heavy Oil Processing, Key Laboratory of Catalysis, China University of Petroleum, China



■ **12:45 - 13:00 S6A-0044 CARBON NANOTUBE SPONGE CATALYSTS FOR HIGH OXYGEN REDUCTION REACTION WITHOUT PRECIOUS METALS**

Gang Yang<sup>1</sup>, Choongho Yu<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering and Materials Science and Engineering, Texas A&M University, College station, USA

■ **13:00 - 13:15 S6A-0045 SIMPLE WET-CHEMICAL SYNTHESIS AND ATOMIC-RESOLUTION CHARACTERIZATION OF Pt/Co/Au ALLOY NANOPARTICLES**

F. Bravo,<sup>1</sup> S. Prabhudev,<sup>2</sup> L. E. Chinchilla<sup>2,3</sup> and G. Botton<sup>2,3</sup>

<sup>1</sup>Sección Química, Departamento de Ciencias, Facultad de Ciencias e Ingeniería, Pontificia Universidad Católica del Perú, Perú. <sup>2</sup>Department of Materials Science and Engineering, McMaster University, Hamilton, Canada. <sup>3</sup>Canadian Center for Electron Microscopy, Hamilton, Canada.



**14:00- 16:00 LUNCH**

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S6A-P039 HIGHLY ORDERED HIERARCHICALLY MATERIALS FOR ACETYLATION OF GLYCEROL WITH ACETIC ACID**

N.A. Ferreira<sup>1</sup>, J.M. Filho<sup>2</sup>, A. C. Oliveira<sup>1</sup>

<sup>1</sup>Universidade Federal do Ceará, DAFQ, Fortaleza, Ceara, Brazil. <sup>2</sup> Universidade Federal do Ceará, DF, Fortaleza, Ceara, Brazil.

■ **S6A-P040 CATALYTIC PROPERTIES OF Fe/C PREPARED BY HYDROTHERMAL CARBONIZATION FOR ESTERIFICATION OF GLYCEROL WITH ACETIC ACID**

H. S. Vieira<sup>1</sup>, N.A. Ferreira<sup>1</sup>, J.M. Filho<sup>2</sup>, O. P. Ferreira<sup>2</sup>, A. C. Oliveira<sup>1</sup>

<sup>1</sup>Universidade Federal do Ceará, DAFQ, Fortaleza, Ceara, Brazil. <sup>2</sup> Universidade Federal do Ceará, DF, Fortaleza, Ceara, Brazil.

■ **S6A-P041 PREPARATION, CHARACTERIZATION AND EVALUATION OF MODIFIED  $\beta$  ZEOLITE CATALYSTS FOR CONVERSION OF GLYCEROL**

P. Castillo<sup>1</sup>, R. Sotelo<sup>1</sup>, M.J. Macias<sup>1</sup>

<sup>1</sup>Escuela Superior de Ingeniería Química E Industrias Extractivas, Instituto Politécnico Nacional, México.

■ **S6A-P042 SYNTHESIS AND CHARACTERIZATION OF Au NANOPARTICLES IN BETA ZEOLITE FOR GLYCEROL OXIDATION**

M. Gutiérrez-Arzaluz<sup>1</sup>, J. Velázquez<sup>2</sup>, M. Torres-Rodríguez<sup>1</sup>, J. Aguilar-Pliego<sup>1</sup>, M. José-Yacaman<sup>2</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Azcapotzalco, México. <sup>2</sup>University of Texas at San Antonio, San Antonio, USA.

■ **S6A-P043 INFLUENCE OF THE PRECURSOR IN THE PREPARATION OF Ga/SBA-16**

Hermicenda Pérez Vidal<sup>1</sup>, Ariana Fernández Nájera<sup>2</sup>, J. Guadalupe Pacheco S<sup>3</sup>, M. A. Luna-Gómez Rocha<sup>4</sup>, J. Gilberto Torres Torres<sup>5</sup>.

<sup>1,5</sup>Universidad Juárez Autónoma de Tabasco. Méx.

■ **S6A-P044 CATALYTIC ACTIVITY OF CNT/PD FOR DEGRADATION OF METHYL ORANGE DYE**

O. Arciniega<sup>1</sup>, C. Rodríguez<sup>1</sup>, C. Martínez<sup>1</sup>, J. Hernández<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Ciudad Juárez

■ **S6A-P045 MODIFIED TiO<sub>2</sub> DISPERSED IN A SiO<sub>2</sub> MATRIX: PHOTOCATALYTIC ACTIVITY IN THE CONGO RED ORGANIC DYE DEGRADATION**

Alberto Estrella González<sup>1</sup>, Maximiliano Asomoza Palacios<sup>1</sup>, Silvia Solís Mendiola<sup>1</sup>, Ulises Arellano Sánchez<sup>2</sup>.

<sup>1</sup>Universidad Autónoma Metropolitana, Departamento de Química, México D.F. <sup>2</sup>Instituto Politécnico Nacional, México D. F.

■ **S6A-P046 Au/TiO<sub>2</sub> SYNTHESIS FOR PHOTO-DEGRADATION OF ACID 2, 4- DICHLORO-PHENOXY- ACETIC**

E. Romero-Torres<sup>1,3</sup>, M. Gutiérrez-Arzaluz<sup>1</sup>, L. González<sup>1</sup>, M. Torres-Rodríguez<sup>1</sup>, F. Tzompantzi-Morales<sup>2</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Azcapotzalco, México. <sup>2</sup>Universidad Autónoma Metropolitana-Iztapalapa, México. <sup>3</sup>Universidad del Valle de México, campus Lago de Guadalupe, México.

■ **S6A-P047 PHOTOCATALYSTS SYNTHESIS OF AU/ TiO<sub>2</sub> PREPARED BY SOL-GEL AND DEPOSITION-PRECIPIATION WITH UREA: CHARACTERIZATION AND PHOTOCATALYTIC ACTIVITY WITH SUNLIGHT INTO METHYL PARATHION.**

N. Reyes<sup>1</sup>, J. G. Torres Torres<sup>1</sup>.

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Básicas (UJAT-DACB) México.

■ **S6A-P048 EFFECT OF Cu LOADING ON Cu/TiO<sub>2</sub> PHOTOCATALYTIC ACTIVITY UNDER SOLAR RADIATION**

<sup>1</sup>G. Corro, <sup>1</sup>F. Bañuelos, <sup>2</sup>U. Pal, <sup>3</sup>M. Rosas-Morales

<sup>1</sup>Instituto de Ciencias, <sup>2</sup>Instituto de Física, Benemerita Universidad Autónoma de Puebla, Mexico, <sup>3</sup>Instituto Politécnico Nacional,

■ **S6A-P049 ASSEMBLY AND CHARACTERIZATION OF NANOSTRUCTURED PHOTOSENSITIZERS FOR PHOTOCATALYTIC HYDROGEN PRODUCTION**

M. C. Vebber<sup>1</sup>, G. Fetter<sup>2</sup>, J. S. Crespo<sup>1</sup>, M. Giovanela<sup>1</sup>, A. C. R. Faria<sup>1</sup>, N. Dal'Acqua<sup>1</sup>

<sup>1</sup>Universidade de Caxias do Sul, Centro de Ciências Exatas e da Tecnologia, Brazil. <sup>2</sup>Universidad Autónoma de Puebla, Facultad de Ciencias Químicas, Mexico

■ **S6A-P050 ASSESSMENT ANTIBACTERIAL BEHAVIOR TiO<sub>2</sub>-Ag COMPOSITE USING STAPHYLOCOCCUS AUREUS AND ESCHERICHIA COLI**

María Edith Navarro Segura<sup>1</sup>, Luis Alberto Bretado Aragón<sup>1</sup>.

<sup>1</sup>Ingeniería en Nanotecnología, Universidad de La Ciénega del Estado de Michoacán de Ocampo.

■ **S6A-P051 PREPARATION AND EVALUATION PHOTOCATALYTIC OF THE OXIDES NiTiO<sub>3</sub>/TiO<sub>2</sub> UNDER VISIBLE LIGHT**

E. Zarazua<sup>1</sup>, L. M. Torres-Martínez<sup>1</sup>, D. Sánchez-Martínez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, UANL, Facultad de Ingeniería Civil, Departamento de Ecomateriales y Energía,

■ **S6A-P052 PHOTOCATALYTIC ACTIVITY OF ZnTiO<sub>3</sub>-CdS THIN FILMS PREPARED BY SPUTTERING PROCESS**

Y.J. Acosta-Silva<sup>1</sup>, A. Méndez-López<sup>2</sup>, O. Zelaya Ángel<sup>1</sup>

<sup>1</sup>Depto. de Física, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Mexico.

<sup>2</sup>Sección de Electrónica del Estado Sólido (SEES), Depto. de Ingeniería Eléctrica, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Mexico

■ **S6A-P053 PHOTOCATALYTIC DEGRADATION OF ANTIBIOTICS BY Bi<sub>2</sub>O<sub>3</sub> POWDERS UNDER SIMULATED SUNLIGHT**

Daniel Sánchez Martínez<sup>1</sup>, Julio C. Vallejo Marquez<sup>2</sup>, Leticia M. Torres Martínez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil-Departamento de Ecomateriales y Energía, México. <sup>2</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Físico Matemáticas, México.

■ **S6A-P054 PHOTOCATALYTIC PROPERTIES OF NaBiO<sub>3</sub> FOR THE DEGRADATION OF INDIGO CARMINE AND CIPROFLOXACIN**

Julio C. Vallejo Marquez<sup>1</sup>, Daniel Sánchez Martínez<sup>2</sup>, Leticia M. Torres Martínez<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Físico Matemáticas, México. <sup>2</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil-Departamento de Ecomateriales y Energía, México.

■ **S6A-P055 PREPARATION AND PHOTOCATALYTIC PROPERTIES OF KBiO<sub>3</sub>**

Teresa Montalvo Herrera<sup>1</sup>, Daniel Sánchez Martínez<sup>1</sup>, Leticia M. Torres Martínez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil-Departamento de Ecomateriales y Energía, México.

■ **S6A-P056 [Bi<sub>2</sub>MoO<sub>6</sub> AND Bi<sub>2</sub>WO<sub>6</sub>]-MWCNT COMPOSITES AS EFFICIENT PHOTOCATALYSTS**

Rangel<sup>1</sup>, J. Lara<sup>1</sup>, D. Kirkconnell<sup>2</sup>, J. J. Alvarado-Gil<sup>2</sup>, G. Oskam<sup>2</sup>, P. Bartolo-Pérez<sup>2</sup>, E. Pérez-Tijerina<sup>3</sup>

<sup>1</sup>División de Estudios de Posgrado, Facultad de Ingeniería Química, Universidad Michoacana de S. N. H., Morelia, Michoacán. <sup>2</sup>Departamento de Física Aplicada, CINVESTAV-IPN, Mérida, Yuc. <sup>3</sup>Facultad de Física, Universidad Autónoma de Nuevo León, NL, México.

■ **S6A-P057 PHOTODEGRADATION OF 2-CHLOROPHENOL AND 4-CHLOROPHENOL USING Bi<sub>2</sub>WO<sub>6</sub>, Bi<sub>2</sub>MoO<sub>6</sub> and CeO<sub>2</sub> COMPOUNDS**

Rangel<sup>1</sup>, V. Cedeño<sup>1</sup>, J. Espino<sup>1</sup>, R. Guerra-González<sup>2</sup>, P. Quintana<sup>3</sup>, M. García-Méndez<sup>4</sup>

<sup>1</sup>División de Estudios de Posgrado, Facultad de Ingeniería Química, Universidad Michoacana de S.N.H., Morelia, Michoacán. <sup>2</sup>Facultad de Ingeniería Química, Universidad Michoacana de S.N.H., Morelia, Michoacán. <sup>3</sup>Departamento de Física Aplicada, CINVESTAV-IPN, Unidad Mérida, <sup>4</sup>Facultad de Ciencias Fisicomatemáticas, Universidad Autónoma de Nuevo León

■ **S6A-P058 SYNTHESIS AND CHARACTERIZATION OF CaBiVMoO<sub>8</sub> AS A NOVEL VISIBLE-LIGHT-DRIVEN PHOTOCATALYST**





**L.M. Cisneros-Cortes<sup>1</sup>, D.B. Hernandez-Uresti<sup>1</sup>, S. Mejia-Rosales<sup>1</sup>**

<sup>1</sup>Facultad de C. Físico-Matemáticas, Universidad Autónoma de Nuevo León, Ciudad Universitaria, México.

■ **S6A-P059 SPECIFIC AND MASS ACTIVITY EVALUATION OF CARBON SUPPORTED BiPt NANOCATALYST FOR THE OXYGEN REDUCTION REACTION IN ACID MEDIA**

**C.V. Tinoco-Muñoz<sup>2</sup>, J.L. Reyes-Rodríguez<sup>1</sup>, D. Uribe-Bahena<sup>3</sup>, J.G. Cabañas-Moreno<sup>2</sup>, O. Solorza-Feria<sup>1</sup>**

Dept. Química<sup>1</sup>, Dept. Nanociencias y Nanotecnología<sup>2</sup>, L.A.N.E.<sup>3</sup>, Centro de Investigación y Estudios Avanzados del IPN, México.

■ **S6A-P060 PLATINUM NANOPARTICLES ELECTROCATALYSTS PREPARED FROM ORGANOMETALLIC PRECURSORS FOR METHANOL ELECTRO-OXIDATION REACTION**

**L.P.A. Guerrero-Ortega<sup>1</sup>, A. MussaliBissu<sup>2</sup>, A. Manzo-Robledo<sup>1</sup>, E. Ramírez-Meneses<sup>2</sup>, H. Rosales-Dorantes<sup>3</sup>**

<sup>1</sup>Escuela Superior de Ingeniería Química e Industrias Extractivas-IPN, Laboratorio de Electroquímica y Corrosión. México D.F. <sup>2</sup>Departamento de Ingeniería y Ciencias Químicas, Universidad Iberoamericana, México.

<sup>3</sup>Departamento de Metalurgia. Escuela Superior de Ingeniería Química e Industrias Extractivas-IPN. México D.F.

■ **S6A-P061 NANOELECTROCATALYSTS PTSNNI: STUDY OF METAL DISSOLUTION ON DIFFERENT CARBONACEOUS SUPPORTS.**

**Luanna S. Parreira<sup>1</sup>, Nejc Hodnik<sup>2</sup>, Karl J. J. Mayrhofer<sup>2</sup>, Mauro C. dos Santos<sup>1</sup>.**

<sup>1</sup>Laboratório de Eletroquímica e Materiais Nanoestruturados – Centro de Ciências Naturais e Humanas, Universidade Federal do ABC, Brazil.

<sup>2</sup>Department of Interface Chemistry and Surface Engineering, Max-Planck-Institut für Eisenforschung, Germany.

## Symposium 6B

# ADVANCED STRUCTURAL MATERIALS

Jorge López-Cuevas / MEXICO / CINVESTAV-Salttilo

Francisco C. Robles-Hernandez / USA / University of Houston

Antonieta García-Murillo / MEXICO / Center for Research and Technological Innovation - IPN

ROOM: PALENQUE  
MONDAY, AUGUST 17

 Session Chair: **JORGE LÓPEZ-CUEVAS**  
CINVESTAV-IPN UNIDAD SALTILLO, MÉXICO

▶ **08:30 - 09:00 S6B-0001 Invited Talk TRIBOLOGY OF MULTI-LAYERED GRAPHENE AND DIAMOND LIKE CARBON COATINGS FOR LIGHTWEIGHT ALLOY MANUFACTURING APPLICATIONS**

S. Bhowmick<sup>1</sup>, A. Banerji<sup>1</sup> and A.T. Alpas<sup>1</sup>

<sup>1</sup>Department of Mechanical, Automotive and Materials Engineering, University of Windsor,

■ **09:00 - 09:15 S6B-0002 MAX PHASES APROCHE IN UNDERSTANDING OF EROSION, CORROSION AND OXIDATION RESISTANT PROPERTIES OF TiAlSiCN AND TiCrSiCN COMPOSITIONS**

A Manulyk<sup>1</sup>

<sup>1</sup>Kyiv Polytechnic University, Oshawa,

■ **09:15 - 09:30 S6B-0003 CRACK NUCLEATION AND SELF-AFFINE FRACTURE SURFACES STUDIES ON TWO HIGH-STRENGTH STEELS.**

Fernando Guzmán<sup>1</sup>, Moisés Hinojosa<sup>1</sup>, Octavio Covarrubias<sup>1</sup>, Jorge Aldaco<sup>1</sup>, Elisa Schaeffer<sup>1</sup>.

<sup>1</sup>Universidad Autónoma de Nuevo León Facultad de Ingeniería Mecánica y Eléctrica, México.

■ **09:30 - 09:45 S6B-0004 PRODUCTION OF AMORPHOUSE ALLOYS BY SPECIAL ELECTROMETALLURGY METHODS**  
Shapovalov V.A<sup>1</sup>, Nikitenko Yu.A<sup>1</sup>, Manulyk A.<sup>1</sup>, Kalashnyk D.A<sup>1</sup>.

<sup>1</sup>The E.O. Paton Electric Welding Institute of the NAS of Ukraine, Ukraine. Woodbine Place, Oshawa, Canada

■ **09:45 - 10:00 S6B-0005 EVALUATION OF MECHANICAL PROPERTIES AND ANALYSIS OF RAPIDLY HEAT TREATED M-42 HIGH SPEED STEEL**  
R Sarvesh<sup>1</sup>, R N Karthik Babu<sup>2</sup>, A Rajendra Prasad<sup>3</sup>, G Swaminathan<sup>4</sup>

<sup>1,2</sup>Department of Mechanical Engineering, Sri Sairam Engineering College, India. <sup>3</sup>Dean R&D, Department of Mechanical Engineering, Sri Sairam Engineering College, Sai leo nagar, India. <sup>4</sup>Professor, Department of Mechanical Engineering, Sri Sairam Engineering College, Sai leo nagar, India.

■ **10:00 - 10:15 S6B-0006 INFLUENCE OF HEAT TREATMENT ON THE WEAR BEHAVIOUR OF THE HAYNES 282® SUPERALLOY**

Javier H. Ramírez-Ramírez<sup>1</sup>, Ignacio Álvarez-Elcoro<sup>1</sup>, Francisco A. Pérez-González<sup>1</sup>, Rafael Colás<sup>1</sup>, Nelson F. Garza-Montes-de-Oca<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, México.

■ **10:15 - 10:30 S6B-0007 LARGE REFRACTORY METALS SINGLE CRYSTALS GROWN BY PLASMA-INDUCTION ZONE MELTING**



Ykusha V.A.<sup>1</sup>, Shapovalov V.A.<sup>1</sup> **Alexander Manulyk<sup>1</sup>**  
<sup>1</sup>E.O. Paton Electric Welding Institute Ukraine Manulyk A.F.  
Oshawa, Canada

■ **10:30 - 10:45 S6B-0008 EFFECT OF MICROSTRUCTURE ON THE QUASIBIDIMENSIONAL FRACTURE OF HETEROGENOUS MATERIALS**

M. S. Ontiveros, M. Hinojosa, F. Y. Guzmán, E. Reyes and J. Aldaco

Universidad Autónoma de Nuevo León Facultad de Ingeniería Mecánica y Eléctrica

■ **10:45 - 11:00 S6B-0009 EFFECT OF DIFFERENT THERMAL PROCESSING ON THE MICROSTRUCTURAL EVOLUTION OF AN IN718 SUPERALLOY**

P. Páramo<sup>1</sup>, M.P. Guerrero-Mata<sup>1</sup>, M. de la Garza<sup>1</sup>, A. Salas<sup>1</sup>, V. Páramo<sup>2</sup>, J.M. Cabrera<sup>3</sup>

<sup>1</sup> Universidad Autónoma de Nuevo León, Mexico. <sup>2</sup> Frisa Forjados, SA de CV, Mexico. <sup>3</sup> Departamento de Ciencia de los Materiales e Ingeniería Metalúrgica, ETSEIB – Universidad Politécnica de Cataluña, España.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: FRANCISCO C. ROBLES-HERNÁNDEZ, UNIVERSIDAD DE HOUSTON, EE.UU.**

■ **12:30 - 12:45 S6B-0010 SIMULATION OF HEATING CYCLES FOR LARGE STEEL INGOTS**

L.F. Romano Acosta<sup>1</sup>, O. Zapata<sup>1</sup>, I. Álvarez<sup>1</sup>, R. Cerda<sup>2</sup> and L. Leduc Lezama<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, México. <sup>2</sup>Frisa S.A. de C.V. México

■ **12:45 - 13:00 S6B-0011 TOOL LIFE STATISTICAL PREDICTION MODEL IN SUPER ALLOY MACHINING PROCESSES**

Carlos Dorbecker-Valdes<sup>1</sup>, Indira Escamilla-Salazar<sup>1</sup>, Bernardo Gonzalez-Ortiz<sup>1</sup>,

<sup>1</sup>Universidad Autonoma de Nuevo León - FIME, Mexico

■ **13:00 - 13:15 S6B-0012 MATHEMATICAL AND PHYSICAL MODELING OF THREE-PHASE GAS-STIRRED LADLES**

A. López - Gutierrez<sup>1</sup>, M.A. Ramírez-Argáez<sup>2</sup>, A. M. Amaro Villeda<sup>2</sup>

<sup>1</sup> Professor at Facultad de Química, UNAM, México. <sup>2</sup> Graduate Student at Facultad de Química, UNAM, México.

■ **13:15 - 13:30 S6B-0013 DEVELOPMENT OF HIGH SPECIFIC STRENGTH ALLOYS FOR AUTOMOTIVE APPLICATIONS**

Nack J. Kim<sup>1</sup>

<sup>1</sup>Center for Advanced Aerospace Materials, Pohang University of Science and Technology (POSTECH), Korea

■ **13:30 - 13:45 S6B-0014 AB INITIO STUDY OF WELDABILITY OF A HIGH-MANGANESE AUSTENITIC TWINNING-INDUCED PLASTICITY (TWIP) STEEL MICROLLOYED WITH BORON**

H. Hernández-Belmontes<sup>1</sup>, I. Mejía<sup>1</sup>, C. Maldonado<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo. México.

■ **13:45 - 14:00 S6B-0015 APPLICATION OF DILATOMETRIC ANALYSIS TO STUDY THE RECRYSTALLIZATION KINETICS AND PHASE TRANSFORMATIONS OF COLD-ROLLED HSLA STEELS**

G. Altamirano<sup>1</sup>, E.J. Gutiérrez<sup>1</sup>, O. García<sup>2</sup>, A. Salinas<sup>1</sup>

<sup>1</sup> Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional Unidad Saltillo, México. <sup>2</sup>Ternium México, S.A. de C.V.

☒ **14:00- 16:00 LUNCH**

👤 **Session Chair: JOSÉ M. HERRERA RAMÍREZ CIMAV, MÉXICO**

▶ **16:00 - 16:30 S6B-0016 Invited Talk PROCESSING OF ULTRA HIGH TEMPERATURE CERAMIC COMPOSITES USING SPARK PLASMA SINTERING**

E.L. Corral<sup>1</sup>

<sup>1</sup>The University of Arizona, Materials Science and Engineering Department, Arizona Materials Laboratory,

■ **16:30 - 16:45 S6B-0017 EFFECTS OF PROCESSING CONDITIONS ON THE FINAL MICROSTRUCTURE AND MAGNETIC PROPERTIES IN NON-ORIENTED ELECTRICAL STEELS**

J. Salinas<sup>1</sup>, A. Salinas<sup>1</sup>

<sup>1</sup> Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional Unidad Saltillo,

■ **16:45 - 17:00 S6B-0018 DETERMINATION OF CRITICAL STRESS FOR DYNAMIC RECRYSTALLIZATION (DRX) OF A HIGH-Mn AUSTENITIC TWIP STEEL MICROALLOYED WITH VANADIUM**

E. García-Mora<sup>1</sup>, I. Mejía<sup>1</sup>, F. Reyes-Calderón<sup>1,2</sup>, J.M. Cabrera<sup>3,4</sup>

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo. México. <sup>2</sup>Departamento de Metalmeccánica, Instituto Tecnológico de Morelia. México. <sup>3</sup>Departament de Ciència dels Materials i Enginyeria Metallúrgica, ETSEIB-Universitat Politècnica de Catalunya. Spain. <sup>4</sup>Fundació CTM Centre Tecnològic, Spain.

■ **17:00 - 17:15 S6B-0019 STUDY OF CASTING PROCESS IN PERMANENT MOLD TO OBTAIN COMPLEX PIECES OF A356 ALLOY.**

M.A. Zempoaltecatl P.<sup>1</sup>, A. Flores V.<sup>1</sup>, J. Torres T.<sup>1</sup>, V. Berlanga F.<sup>2</sup>, I. Flores M.<sup>2</sup>, J. M. Dávila T.<sup>2</sup>, A Flores S.<sup>2</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional Unidad Saltillo, México. <sup>2</sup>Aluminio y Bronces de Saltillo S.A. de C.V. (ALBRONSA), México

■ **17:15 - 17:30 S6B-0020 METALLOGRAPHIC CHARACTERIZATION OF A Ti-CONTAINING LOW-DENSITY Fe-Mn-Al-C STEEL IN AS-CAST CONDITION**

G.Y. Díaz-Martínez<sup>1</sup>, I. Mejía<sup>1</sup>, A. Bedolla-Jacuinde<sup>1</sup>

<sup>1</sup> Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo. México.

■ **17:30 - 17:45 S6B-0021 CORRELATION BETWEEN THE IN-FLIGHT PARTICLE STATE WITH BASIC MECHANICAL PROPERTIES OF HVOF CR2C3-25NICR COATINGS**

I. López-Báez<sup>1</sup>, C.A. Poblano-Salas<sup>2</sup>, M.G. Navarro-Rojero<sup>2</sup>, J. Muñoz-Saldaña<sup>3</sup>

<sup>1</sup> Universidad de Guanajuato, Departamento de Minas, Metalurgia y Geología. <sup>2</sup>CIATEQ A.C. <sup>3</sup>CINVESTAV Querétaro.

■ **17:45 - 18:00 S6B-0022 PARAMETER OPTIMIZATION OF APS PROCESS OF TITANIUM OXIDE AND CHROMIUM OXIDE COATINGS ON AISI 410 STAINLESS STEEL SUBSTRATE FOR TURBOMACHINERY APPLICATIONS BY USING STATISTICAL DESIGN OF EXPERIMENTS**

E. A. Bautista P.<sup>1</sup>, C. E. Cruz G.<sup>2</sup>, J. A. Toscano G.<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Querétaro, <sup>2</sup>Centro de Ingeniería y Desarrollo Industrial.

■ **18:00 - 18:15 S6B-0023 DESIGN AND CHARACTERIZATION OF A MAGNETORHEOLOGICAL**

**DAMPER FOR VIBRATION MITIGATION DURING MILLING OF THIN COMPONENTS**

S. Puma-Araujo<sup>1</sup>, D. Olvera-Trejo<sup>2</sup>, A. Elías-Zuñiga<sup>2</sup>, O. Martínez-Romero<sup>2</sup>, C.A. Rodríguez<sup>2</sup>

<sup>1</sup>Department of Mechanical Engineering, Tecnológico de Monterrey, ITESM, México. <sup>2</sup>School of Engineering and Science, Tecnológico de Monterrey, ITESM, México

ROOM: PALENQUE  
TUESDAY, AUGUST 18

■ Session Chair: **JORGE LÓPEZ-CUEVAS**  
CINVESTAV-IPN UNIDAD SALTILLO

■ **08:30 - 09:00 S6B-0024 Invited Talk BEYOND NICKELBASE SUPERALLOYS: REFRACTORY METAL SILICIDE ALLOYS FOR ULTRAHIGH TEMPERATURE STRUCTURAL APPLICATIONS**

Martin Heilmair<sup>1</sup>, Florian Gang<sup>1</sup>, Christoph Seemülle<sup>1</sup>, Daniel Schliephake<sup>1</sup>

<sup>1</sup>Karlsruhe Institute of Technology, Institute for Applied Materials Germany

■ **09:00 - 09:15 S6B-0025 RESIDUAL TENSILE STRENGTH BY FLEXION IN CONCRETE BEAMS REINFORCED WITH STEEL FIBERS**

José Antonio Rodríguez Rodríguez<sup>1</sup>, César A. Juárez Alvarado<sup>2</sup>, Alejandro Durán Herrera<sup>2</sup>, Generoso Páez Garza<sup>3</sup>, Rafael Gómez Silva<sup>3</sup>, Pedro A. Ramírez Garza<sup>3</sup>

<sup>1</sup>PhD Student in Engineering of Materials Construction and structures the Universidad Autónoma de Nuevo León-México, <sup>2</sup>Researchers Professors UANL-México, <sup>3</sup>Technical Area DEACERO- México, <sup>3</sup>Technical Area DEACERO- México

■ **09:15 - 09:30 S6B-0026 EFFECT OF MORPHOLOGY OF PUMICE AND PERLITE LIGHTWEIGHT AGGREGATES (LWA), IN MECHANICAL PROPERTIES OF CONCRETES**

P. Vargas<sup>1</sup>, J. I. Tobón<sup>2</sup>

<sup>1,2</sup> Departamento de Materiales y Minerales, Grupo del cemento y materiales de Construcción, Universidad Nacional de Colombia, Colombia.

■ **09:30 - 09:45 S6B-0027 BINDER MICROSTRUCTURES DEVELOPED DURING THE HYDRATION PROCESS IN THE SYSTEM PORTLAND CEMENT - CALCIUM ALUMINATE CEMENT - CALCIUM SULFATE**

S-6B



**Mihaela-Andreea Moncea<sup>1</sup>, Ana-Maria Panait<sup>1</sup>, György Deák<sup>1</sup>, George Poteraş<sup>1</sup>**

<sup>1</sup> National Institute for Research and Development in Environmental Protection, România

■ **09:45 - 10:00 S6B-0028 RAPID INDUCTION PRESSURE-LESS SINTERING OF GRAPHITIC NANOSTRUCTURES WITH CROSS-LINK SP2 BONDING**

**I. Estrada-Guel<sup>1,2</sup>, A. Okonkwo<sup>1</sup>, E. Obiri<sup>1</sup>, A. Guloy<sup>3</sup>, F.C. Robles-Hernandez<sup>1</sup>**

<sup>1</sup>Department of Mechanical Engineering Technology, University of Houston, Houston, USA. <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, Mexico. <sup>3</sup>Department of Chemistry, University of Houston, Houston, USA.

■ **10:00 - 10:15 S6B-0029 POROUS SILICON NANOSTRUCTURED MATERIALS FOR SENSING APPLICATIONS: MOLECULAR ASSEMBLING AND ELECTROCHEMICAL OR OPTICAL EVALUATION**

**Palestino<sup>1</sup>, L.F. Cházaro<sup>2</sup>, L. Zimanyi<sup>3</sup>, C. Gergely<sup>4</sup>**

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autónoma de San Luis Potosí, Mexico. <sup>2</sup>Environmental Sciences Division, Instituto Potosino de Investigación Científica y Tecnológica A.C., México. <sup>3</sup>Biophysics Institute, Biological Research Center of the Hungarian Academy of Sciences, Szeged, Hungary, <sup>4</sup>Université Montpellier II, France.

■ **10:15 - 10:30 S6B-0030 WOLLASTONITE - TRICALCIUM PHOSPHATE GLASS-CERAMIC MATERIALS OF EUTECTIC COMPOSITION SYNTHESIZED BY THE GLASS-CRYSTALLIZATION METHOD**

**J. López-Cuevas<sup>1</sup>, M.I. Pech-Canul<sup>1</sup>, J.C. Rendón-Angeles<sup>1</sup>, J.L. Rodríguez-Galicia<sup>1</sup> and C.A. Gutiérrez-Chavarría<sup>1</sup>.**

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional (CINVESTAV-IPN), México.

■ **10:30 - 10:45 S6B-0031 EFFECT OF MECHANICAL ACTIVATION ON THE SYNTHESIS OF Ba-CELSIAN and Sr-CELSIAN USING PRECURSOR MIXTURES CONTAINING COAL FLY ASH**

**C.M. Lopez-Badillo<sup>1</sup>, J. López-Cuevas<sup>2</sup>, C.A. Gutiérrez-Chavarría<sup>2</sup>, J.L. Rodríguez-Galicia<sup>2</sup>, E.M. Múzquiz-Ramos<sup>1</sup>.**

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Coahuila, México. <sup>2</sup> CINVESTAV-IPN, Unidad Saltillo, México.

■ **10:45 - 11:00 S6B-0032 FAILURE MODES IDENTIFICATION ON GLASS FIBER EPOXY COMPOSITE BY ACOUSTICAL EMISSION**

**Arturo Valencia Díaz Arturo<sup>1</sup>, Orlando Susarrey Huerta<sup>1</sup>, Hilario Hernández Moreno<sup>2</sup>**

<sup>1</sup> Instituto Politécnico Nacional, SEPI-ESIME Zacatenco, México D.F. <sup>2</sup> Instituto Politécnico Nacional, ESIME Ticomán, México D.F.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: FRANCISCO C. ROBLES-HERNÁNDEZ, LA UNIVERSIDAD DE HOUSTON, EE.UU.**

■ **13:30 - 13:45 S6B-0033 SYNTHESIS OF BIODEGRADABLE COPOLYMER OF POLY(ISOBUTYL VINYL ETHER)-CO-POLY(ε-CAPROLACTONE) USING HALF-SANDWICH METALLOCENE CATALYST AND THEIR APPLICATION AS PLASTICIZER FOR POLY(VINYL CHLORIDE)**

**V. E. Comparán-Padilla<sup>1</sup>, O. Pérez-Camacho<sup>1</sup>, M. Flores-Guerrero<sup>1</sup>, M. Pérez-Alvarez<sup>1</sup>, G. Cadenas-Pliego<sup>1</sup>**

<sup>1</sup>Centro de Investigación en Química Aplicada, México.

✕ **14:00- 16:00 LUNCH**

ROOM: TERRACE  
TUESDAY, AUGUST 18

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S6B-P001 THE EFFECT OF COPPER ADDITION IN THE TRANSFORMATION TEMPERATURES IN RAPID SOLIDIFIED Ni-Ti-Cu ALLOYS**

**George Carlos S Anselmo<sup>1</sup>, Walman Benicio de Castro<sup>2</sup>, Carlos José de Araújo<sup>3</sup>**

<sup>1</sup>UFCEG, Campina Grande-PB, Brazil, <sup>2</sup>UFCEG, Campina Grande-PB, Brazil, <sup>3</sup>UFCEG, Campina Grande-PB, Brazil.

■ **S6B-P002 NUMERICAL SIMULATION OF ROTARY FORGING INCONEL 718 SUPERALLOY APPLIED TO AERONAUTICAL COMPONENTS**

**G.M. Hernández-Muñoz<sup>1</sup>, L.A. Reyes-Osorio<sup>1</sup>, A. Loyda<sup>1</sup>, P. Zambrano<sup>1</sup>, F. Montemayor-Ibarra<sup>1</sup>**



<sup>1</sup>Universidad Autónoma de Nuevo León. Facultad de Ingeniería Mecánica y Eléctrica. Centro de Investigación e Innovación en Ingeniería Aeronáutica,

■ **S6B-P003 SIMULATION OF RING ROLLING PROCESS TO PREDICT MECHANICAL BEHAVIOR OF Ni-Cr ALLOYS APPLIED TO AERONAUTICAL COMPONENTS**

L.A. Reyes-Osorio<sup>1</sup>, G.M. Hernández-Muñoz<sup>1</sup>, P. Zambrano<sup>1</sup>, J. M. Cisneros<sup>1</sup>, F. Quiroz<sup>1</sup>, F. Montemayor-Ibarra<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León

■ **S6B-P004 3D FEM SIMULATION OF SHAPE ROLLING FROM RECYCLED EUTECTOID STEEL RAILS**

B.I. Rodríguez-Espinoza, F.A. García-Pastor  
Cinvestav Unidad Saltillo.

■ **S6B-P005 SYNTHESIS OF ZnO: Ag ANTIBACTERIAL COATINGS STRUCTURED BY INFRARED ENERGY**

B. González-Penguelly<sup>1</sup>, A. Morales-Ramírez<sup>1</sup>, M. Rodríguez-Rosales<sup>2</sup>, M. García-Hernández<sup>3</sup>, A. Acero-Gutiérrez<sup>1</sup>, E. Capetillo Espinoza<sup>1</sup>

<sup>1</sup>Centro de Investigación e Innovación Tecnológica- IPN, México D.F. <sup>2</sup>Escuela Nacional de Ciencias Biológicas-IPN, México D.F. <sup>3</sup> Universidad Autónoma de México Cuajimalpa, México D.F.

■ **S6B-P006 STRESS REDUCTION OF AMORPHOUS SILICON DEPOSITED BY PECVD**

C. Bartolo-Pérez<sup>1</sup>, C. Reyes-Betanzo<sup>1</sup>

<sup>1</sup>Electronics Department, National Institute of Astrophysics, Optics and Electronics, Puebla, Pue.

■ **S6B-P007 CHARACTERIZATION OF RESIDUAL STRESS IN  $\alpha$ -SiC: H DEPOSITED BY RF-PECVD FOR MANUFACTURE OF MEMBRANES FOR CELL CULTURE**

O. Gelvez Lizarazo<sup>1</sup>, C. Reyes Betanzo<sup>1</sup>

<sup>1</sup>National Institute of Astrophysics, Optics and Electronics (INAOE), Electronics Department, Puebla, Pue.

■ **S6B-P008 EFFECTS OF HEAT TREATMENT IN THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF NI - HARD WHITE CAST IRON**

A. Altamirano Torres<sup>1</sup>, G. Pérez Mejía<sup>2</sup> and F. Flores Méndez<sup>3</sup>.

<sup>1,2,3</sup>Departamento de Materiales, Universidad Autónoma Metropolitana-Azcapotzalco, México, D. F.

■ **S6B-P009 EXTRACTION AND CHARACTERIZATION OF CHITOSAN FOR USE AS REINFORCED MATERIAL IN A PLA/CHITOSAN COMPOSITE**

Y.G. Torres Hernández<sup>1</sup>, H. Balmori Ramirez<sup>1</sup>, L. Téllez Jurado<sup>1</sup>, A. Altamirano Torres<sup>2</sup>

<sup>1</sup>Departamento de Ing. en Metalurgia y Materiales, Escuela Superior de Ingeniería Química e Industrias Extractivas, IPN, UPALM, México D. F. <sup>2</sup>Departamento de Materiales, Universidad Autónoma Metropolitana-Azcapotzalco, México D. F.

■ **S6B-P010 NANOCOMPOSITES OF Ti/TiB<sub>2</sub> BY THE SYNTHESIS OF Ti, B AND TiO<sub>2</sub> BY MECHANICAL ALLOYING**

Ana Lilia De Jesús Lázaro<sup>1</sup>, Jorge Morales Hernández<sup>1</sup>, J. Manuel Juárez<sup>2</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S. C., <sup>2</sup> Centro Nacional de Metrología, México

■ **S6B-P011 A SUSTAINABLE REFRACTORY CONCRETE CONTAINING PORCELAIN SCRAP**

Álberto E. Montes M<sup>1</sup>, Edén A. Rodríguez<sup>1</sup>, J.A. Aguilar-Martínez<sup>1,2</sup>, L. García Ortiz<sup>1</sup>, Yadira González<sup>1</sup>, José E. Contreras<sup>3</sup>, J.J. Ruiz Valdés<sup>4</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León (UANL), Facultad de Ingeniería Mecánica y Eléctrica (FIME), Programa Doctoral en Ingeniería de Materiales; Nuevo León, México, <sup>2</sup>Universidad Autónoma de Nuevo León (UANL), Facultad de Ingeniería Mecánica y Eléctrica (FIME), Centro de Investigación e Innovación en Ingeniería Aeronáutica (CIIA); Nuevo León, México <sup>3</sup>PROLEC GE, <sup>4</sup>Universidad Autónoma de Nuevo León (UANL), Facultad de Ciencias Químicas (FCQ), Nuevo León, México,

■ **S6B-P012 PARASITIC GATE CAPACITANCE MODEL IMPROVE FOR TRIPLE-GATE FinFETS**

Antoine Martínez<sup>1</sup>, Joaquin Alvarado<sup>1</sup>, Antonio Cerdeira<sup>2</sup>, Salvador Alcantara<sup>1</sup>, Julio C. Tinoco<sup>3</sup>, Martin Moso<sup>1</sup>, Jean-Pierre Raskin<sup>4</sup>

<sup>1</sup> Benemérita Universidad Autónoma de Puebla (BUAP), Ciudad Universitaria, México <sup>2</sup> Centro de Investigación y de Estudios Avanzados (CINVESTAV), Sección de electrónica del estado sólido. <sup>3</sup> Centro de Investigación en Micro y Nanotecnología (MICRONA). <sup>4</sup> Université Catholique de Louvain (UCL), (Belgium)

■ **S6B-P013 MODULUS OF RUPTURE IN CONCRETE BEAMS REINFORCED WITH WOLLASTONITE MICRO-FIBER**

K. Aguilar-Martínez<sup>1</sup>, C. Juárez-Alvarado<sup>2</sup>, J. Rodríguez-Rodríguez<sup>3</sup>.

S-6B



<sup>1</sup>Undergraduate in Civil Engineering at Universidad Autónoma de Nuevo León, México, <sup>2</sup>Research Professor UANL, México, <sup>3</sup>PhD Student in Engineering of Materials Construction and Structures at Universidad Autónoma de Nuevo León, México

■ **S6B-P014 CONTROL OF IN SITU CARBON NANODOMAINS FORMATION AND EX SITU FUNCTIONALIZATION USING A CD-DVD PLATFORM**

M.J. González<sup>1</sup>, L. Cabriales<sup>1</sup>, M. Hautefeuille<sup>1</sup>

<sup>1</sup>Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México,

■ **S6B-P015 THERMAL PROPERTIES OF COMPOSITE MATERIALS WITH COMPLEX STRUCTURE**

B. Bonilla-Capilla<sup>1</sup>, J.J. Reyes-Salgado<sup>1</sup>, V. Dossetti<sup>1</sup>, and J. L. Carrillo<sup>1</sup>

<sup>1</sup>Instituto de Física de la Benemérita Universidad Autónoma de Puebla

■ **S6B-P016 STUDY OF A RAPID PROTOTYPING TECHNIQUE FOR 3D LASER-INDUCED FORWARD TRANSFER USING A CD-ROM PLATFORM**

A. Cruz-Ramírez<sup>1</sup>, M. Hautefeuille<sup>1</sup>

<sup>1</sup>Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México.

■ **S6B-P017 FORMULATIONS FOR REFRACTORY CERAMIC FIBERS WITH HIGH SOLUBILITY**

L. A. Escobedo-Navarro<sup>1</sup>, G. Vargas-Gutiérrez<sup>1</sup>, J. L. Rodríguez-Galicia<sup>1</sup>, G. I. Vázquez-Carbajal<sup>1</sup>.

<sup>1</sup>CINVESTAV Unidad Saltillo,

■ **S6B-P018 ANALYSIS OF THE SYSTEM OF HOMOGENIZING OF ORANGE JUICE**

Cerillo Moreno E. A<sup>1</sup>, M. A. Doñu Ruiz<sup>1,2</sup>, J. A. Ortega Herrera<sup>2</sup>, N. López Perrusquia<sup>1,2</sup>, C. R. Torres san Miguel<sup>2</sup>, J. Noriega Zenteno<sup>2</sup>, C. Heredia Hernandez<sup>2</sup>

<sup>1</sup>Universidad Politécnica del Valle de México UPVM.Grupo Ciencia e Ingeniería de Materiales México. <sup>2</sup>Instituto Politécnico Nacional, SEPI-ESIME, Grupo Mecánica Computacional. México.

■ **S6B-P019 EFFECT OF Tl MICROADDITION ON CAVITATION BEHAVIOR DURING UNIAXIAL HOT-TENSILE OF AN AUSTENITIC Fe-22Mn-1.5Al-1.3Si-0.5C TWINNING INDUCED PLASTICITY (TWIP) STEEL**

A.E. Salas-Reyes<sup>1,2</sup>, I. Mejía<sup>1</sup> and J.M. Cabrera<sup>3,4</sup>

<sup>1</sup>Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Mich,

México. <sup>2</sup>Universidad Politécnica de Juventino Rosas, México. <sup>3</sup>Departament de Ciència dels Materials i Enginyeria Metallúrgica, ETSEIB – Universitat Politècnica de Catalunya, Spain. <sup>4</sup>Fundació CTM Centre Tecnològic, Spain.

■ **S6B-P020 DINUCLEAR ORGANOTIN COMPOUNDS AS PRECURSORS FOR ORGANIC-INORGANIC HYBRID MATERIALS**

Eva C. Vargas-Olvera, I. Rojas-León, María G. Hernández-Cruz, H. Höpfl

Instituto de Investigación en Ciencias Básicas y Aplicadas, Centro de Investigaciones Químicas, Universidad Autónoma del Estado de Morelos, México.

■ **S6B-P021 EFFECT OF UV LIGHT IN HIGH PERFORMANCE FIBERS**

A. Tejeda-Ochoa<sup>a</sup>, M.S. Dorado-García<sup>a,b</sup>, J.E. Ledezma-Sillas<sup>a</sup>, F.J. Baldenebro-Lopez<sup>a</sup>, J.M. Herrera-Ramirez<sup>a</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, México. <sup>2</sup>Instituto Tecnológico de Chihuahua (ITCH), México.

■ **S6B-P022 ALUMINUM-FULLERENE SOOT COMPOSITES PRODUCED BY MECHANICAL MILLING**

O.A. Herrera-Sanchez<sup>1,2</sup>, F.C. Robles-Hernandez<sup>2</sup>, J.E. Ledezma-Sillas<sup>1</sup>, A. Tejeda-Ochoa<sup>1</sup>, J.M. Herrera-Ramirez<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, Mexico.

<sup>2</sup>Department of Mechanical Engineering, University of Houston, USA.

■ **S6B-P023 INFLUENCE OF SODIUM SILICATE SYNTHESIZED BY SILICA SAND IN THE MECHANICAL PROPERTIES OF GEOPOLYMER**

A. Tejeda-Ochoa<sup>a,b</sup>, F.J. Baldenebro-Lopez<sup>a</sup>, F.C. Robles-Hernandez<sup>b</sup>, J.M. Herrera-Ramirez<sup>a</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología.

México. <sup>2</sup>Department of Mechanical Engineering Technology, University of Houston, Houston, TX USA.

■ **S6B-P024 SYNTHESIS OF CALCIUM SULPHOALUMINATE CEMENT FOR ITS USE IN IMMOBILIZATION OF CHROMIUM AND LEAD**

A.J. Rojas-Valdes<sup>1</sup>, M. Gallardo-Heredia<sup>1</sup>, R.X. Magallanes-Rivera<sup>1</sup>, J.M. Almanza-Robles<sup>2</sup>, S. Luna-Alvarez<sup>1</sup>, F. Zapata-Gómez.<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Coahuila. Facultad de Ingeniería Civil. México. <sup>2</sup>Cinvestav-Unidad Saltillo. México

■ **S6B-P025 CHARACTERIZATION OF ROD-LIKE NANOSTRUCTURES SYNTHESIZED BY E-BEAM IN NATURAL PRODUCTS**

Jennifer Nguyen,<sup>1</sup> Jack Neal,<sup>2</sup> T. Randall Lee<sup>3</sup> Francisco C. Robles Hernández,<sup>1</sup>

<sup>1</sup>Department of Engineering Technology, Mechanical Engineering Technology, University of Houston, Houston, USA, <sup>2</sup>Conrad N. Hilton College of Hotel and Restaurant Management, University of Houston, Houston, USA,

<sup>3</sup>Departments of Chemistry and Chemical Engineering and the Texas Center for Superconductivity, University of Houston, Houston,

■ **S6B-P026 EXPERIMENTAL DETERMINATION OF CONTINUOUS COOLING TRANSFORMATION DIAGRAMS OF HOT-ROLLED HEAT TREATABLE STEEL PLATES USING QUENCHING DILATOMETRY.**

G. Altamirano<sup>1</sup>, E.J. Gutiérrez<sup>1</sup>, O. Garcia<sup>2</sup>, A. Salinas<sup>1</sup>.

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional Unidad Saltillo, Coahuila, México. <sup>2</sup>Ternium México, S.A. de C.V. México.

## Symposium 6C

# EFFECT OF SCM AND SMART ADDITIVES ON THE PROPERTIES OF CONCRETE STRUCTURES

**Luis Emilio Rendon Díaz Mirón** / MEXICO / Instituto Mexicano de Tecnología del Agua  
**D. A. (Dessi) Koleva** / NETHERLANDS / TU Delft / Materials & Environment  
**J. Iván Escalante García** / MEXICO / Cinvestav Unidad Saltillo

ROOM: COZUMEL  
WEDNESDAY, AUGUST 19

 Session Chair: **J. IVÁN ESCALANTE GARCÍA**

► **08:30 - 09:00 S6C-0001 *Invited Talk* C-(N)-S-H AND N-A-S-H Gels: COMPOSITIONS AND SOLUBILITY DATA AT 25°C AND 50°C**

**Lauren Gomez-Zamorano**<sup>1,2</sup>, **Magdalena Balonis**<sup>3,4</sup>, **Bartu Erdemli**<sup>5</sup>, **Narayanan Neithalath**<sup>6</sup> and **Gaurav Sant**<sup>7,8</sup>

<sup>1</sup>Laboratory for the Chemistry of Construction Materials(LC<sup>2</sup>), Department of Civil and Environmental Engineering, University of California, USA. <sup>2</sup>Programa Doctoral en Ingeniería de Materiales, Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, México. <sup>3</sup>Department of Materials Science and Engineering, University of California, USA. <sup>4</sup>Technology Analyst, Institute for Technology Advancement, University of California, USA. <sup>5</sup>Laboratory for the Chemistry of Construction Materials(LC<sup>2</sup>), Department of Civil and Environmental Engineering, University of California, USA. <sup>6</sup>School of Sustainable Engineering and the Built Environment, Arizona State University, Tempe, AZ, USA. <sup>7</sup>Assistant Professor and Rice Endowed Chair in Materials Science, Laboratory for the Chemistry of Construction Materials(LC<sup>2</sup>), Department of Civil and Environmental Engineering, University of California, USA. <sup>8</sup>Faculty Member, California Nanosystems Institute (CNSI), University of California, USA.

■ **09:00 - 09:15 S6C-0002 THE INFLUENCE OF CHLORIDE IONS ON CEMENT-BASED MICROSTRUCTURAL PROPERTIES AND ACCURACY OF FREE CHLORIDE ANALYSIS TECHNIQUES**

**Farhad Pargar**<sup>1</sup>, **D.A. Koleva**<sup>1,2</sup>, **K. van Breugel**<sup>1</sup>

<sup>1</sup>Delft University of Technology, Faculty of Civil Engineering and Geosciences, Department Materials & Environment, The Netherlands. <sup>2</sup>Curtin University of Technology, Faculty of Science and Engineering, Department of Chemical & Petroleum Engineering, Australia

■ **09:15 - 09:30 S6C-0003 PROPERTIES OF THE STEEL-MORTAR INTERFACE DERIVED BY IMPEDANCE SPECTROSCOPY IN DIFFERENT ENVIRONMENT AND CURING CONDITIONS**

**Z.Chen**<sup>1</sup>, **D.A. Koleva**<sup>1,2</sup>, **K. van Breugel**<sup>1</sup>

<sup>1</sup> Faculty of Civil Engineering and Geosciences, Department Materials and Environment, Delft University of Technology, Delft, The Netherlands. <sup>2</sup>Curtin University of Technology, Faculty of Science and Engineering, Department of Chemical & Petroleum Engineering, Perth, WA, Australia.

■ **09:30 - 09:45 S6C-0004 THE INFLUENCE OF CRACKS ON CHLORIDE-INDUCED STEEL CORROSION IN REINFORCED CONCRETE**

**A. Blagojević**<sup>1</sup>, **D.A. Koleva**<sup>2,3</sup>, **J.C. Walraven**<sup>1</sup>

<sup>1</sup>Faculty of Civil Engineering and Geosciences, Delft University of Technology, Department of Structural Engineering, The Netherlands. <sup>2</sup>Faculty of Civil Engineering and Geosciences, Delft University of Technology, Department of Materials & Environment, The

Netherlands. <sup>3</sup>Curtin University of Technology, Faculty of Science and Engineering, Department of Chemical & Petroleum Engineering, Australia

■ **09:45 - 10:00 S6C-0005 DIGITAL IMAGE PROCESSING OF CEMENT-BASED MATERIALS FOR QUALI-AND QUANTIFICATION OF MICROSTRUCTURAL DEVELOPMENT**

Jiangping Hu<sup>1,2</sup>, A. Susanto<sup>1</sup>, D.A. Koleva<sup>1,3</sup>

<sup>1</sup>Faculty of Civil Engineering and Geosciences, Delft University of Technology, Section of Materials and Environment, The Netherlands. <sup>2</sup>School of Mechanical Engineering, Wuhan Polytechnic University, Wuhan, China. <sup>3</sup>Curtin University of Technology, Faculty of Science and Engineering, Department of Chemical & Petroleum Engineering, Australia.

■ **10:00 - 10:15 S6C-0006 CALCIUM SULFATE BINDERS WITH CPC AND PUMICE ADDITIONS, STRENGTH AND MICROSTRUCTURES**

K. Cabrera-Luna<sup>1</sup>, E.E. Maldonado-Bandala<sup>1</sup>, J. I. Escalante García<sup>2</sup>

<sup>1</sup>Facultad de Mecánica, Universidad Veracruzana campus Xalapa, México. <sup>2</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Saltillo, México

■ **10:15 - 10:30 S6C-0007 CONDUCTIVE MORTAR INCORPORATING AGAR-LOADED POROUS LIGHTWEIGHT AGGREGATES FOR ANODE MATERIAL WITHIN CATHODIC PROTECTION**

Wen-hao Guo<sup>1</sup>, Su-hong Yin<sup>1,2</sup>, Jie Hu<sup>1,2</sup>, Dessi Koleva<sup>3</sup>

<sup>1</sup>School of Materials Science and Engineering, South China University of Technology, China. <sup>2</sup>Guangdong Low Carbon Technologies Engineering Center for Building Materials, China. <sup>3</sup>Faculty of Civil Engineering and Geosciences, Department Materials and Environment, Delft University of Technology, The Netherlands

■ **10:30 - 10:45 S6C-0008 THE INFLUENCE OF STRAY CURRENT FLOW ON THE LEVEL OF MATURITY OF CEMENT-BASED MATERIALS**

A. Susanto<sup>1</sup>, D.A. Koleva<sup>1,3</sup>, E.A.B. Koenders<sup>2</sup>, K. van Breugel<sup>1</sup>

<sup>1</sup>Faculty of Civil Engineering and Geosciences, Delft University of Technology, Section of Materials and Environment, The Netherlands. <sup>2</sup>Construction Materials Group, Technische Universität Darmstadt, Germany. <sup>3</sup>Curtin University of Technology, Faculty of Science and Engineering, Department of Chemical & Petroleum Engineering, Australia

■ **10:45 - 11:00 S6C-0009 THE EFFECT OF N-doped MCSs ON THE ELECTROCHEMICAL BEHAVIOR OF CARBON STEEL IN SIMULATED PORE SOLUTION AT DIFFERENT pH**

H. Mahmoud<sup>1</sup>, J.Tang<sup>2</sup>, J. Liu<sup>3</sup>, D. A. Koleva<sup>1,3</sup>, M.Tade<sup>2</sup>

<sup>1</sup>Delft University of Technology, Faculty of Civil Engineering and Geosciences, Department Materials & Environment, The Netherlands. <sup>2</sup>Waseda University, Faculty of Science and Engineering, Japan. <sup>3</sup>Curtin University of Technology, Faculty of Science and Engineering, Department of Chemical & Petroleum Engineering, Australia.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **J. IVÁN ESCALANTE GARCÍA**

■ **12:30 - 12:45 S6C-0010 CNT-BASED FUNCTIONALIZATION OF 9-A TOBERMORITE TO OPTIMIZE CONCRETE FLEXURAL STRENGTH**

Carlos Vela-Gonzalez<sup>1</sup>, Karla Serrano<sup>1</sup>, Mauricio Garza-Castañón<sup>1</sup>

<sup>1</sup>Physics and mathematics Department, Engineering and Technologies Division, Universidad de Monterrey, Mexico

■ **12:45 - 13:00 S6C-0011 BIOPOLYMERS FOR SELF-SEALING AND SELF-HEALING OF MORTAR**

A. Mignon<sup>1,2)</sup>, D. Snoeck<sup>1,2)</sup>, L. Balcaen<sup>3)</sup>, F. Van Haecke<sup>3)</sup>, P. Dubruel<sup>2)</sup>, S. Van Vlierberghe<sup>2)</sup> and N. De Belie<sup>1)</sup>

<sup>1</sup>Magnel Laboratory for Concrete Research, Belgium, <sup>2</sup>Department of Macromolecular and Organic Chemistry, Belgium, <sup>3</sup>Department of Analytical Chemistry, Belgium

■ **13:00 - 13:15 S6C-0012 CHEMICALLY BONDED BINDERS BASED ON ALKALI ACTIVATED SILICOALUMINATES OF LOW WATER CONTENTS**

J. D. Martínez-Vásquez<sup>1</sup>, D. E. Ortega-Zavala<sup>1</sup>, A. F. Fuentes<sup>1</sup>, G. Vargas-Gutiérrez<sup>1</sup>, J. I. Escalante-García<sup>1</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN Unidad Saltillo, México.

■ **13:15 - 13:30 S6C-0013 LOW EMISSION BINDERS BASED ON WASTE GLASS AND LIME**

L. Menchaca-Ballinas, J. Escalante-García

Cinvestav, México

■ **13:30 - 13:45 S6C-0014 UTILIZATION OF COLLOIDAL NANO-SiO<sub>2</sub> AS SURFACE TREATMENT IN CEMENT MORTAR**

S-6C





I. Díaz-Peña<sup>1</sup>, A.M. Guzmán-Hernández<sup>1</sup>, J.R. González-López<sup>2</sup>, M. Sanchez<sup>3</sup>, M.C. Alonso<sup>3</sup>, A.A. Zaldivar-Cadena<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, México. <sup>2</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil, México. <sup>3</sup>Instituto Eduardo Torroja de las Ciencias de la Construcción (IETCC-CSIC), España.

■ **13:45 - 14:00 S6C-0015 USE OF FLY ASH AND Cu-SLAG FROM MEXICO TO MAKE ALKALI CEMENTS AND HYBRID CEMENTS**

M. Rondón Belmonte<sup>1</sup>, A. Palomo Sánchez<sup>2</sup>, A. Fernández Jiménez<sup>2</sup>, M. Martínez Madrid<sup>1</sup>, A. Torres Acosta<sup>1</sup>

<sup>1</sup>Instituto Mexicano del Transporte. México. <sup>2</sup>Instituto de Ciencias de la Construcción Eduardo Torroja. Madrid

■ **14:00 - 14:15 S6C-0016 REHABILITATION OF ULTIMATE SHEAR STRENGTH IN REINFORCED CONCRETE BEAMS DETERIORATED BY TRANSVERSE REINFORCEMENT CORROSION USING USUAL STRENGTHENING TECHNIQUES**

R. I. Soto<sup>1</sup>, C.A. Juárez<sup>1</sup>, G. Fajardo<sup>1</sup>, P. Castro<sup>2</sup>

<sup>1</sup> Universidad Autónoma de Nuevo León, UANL, FIC, México. <sup>2</sup>CINVESTAV-IPN Unidad Mérida, México.



**14:00- 16:00 LUNCH**



Session Chair: **LUIS EMILIO RENDON DÍAZ MIRÓN**

■ **16:00 - 16:15 S6C-0017 MICRO STRUCTURE BEHAVIOR OF FRESH CEMENT BY OPTIC MEANS FOR STUDYING THE SETTING**

H.A. De Leon-Martínez<sup>1</sup>, J.J. Soto-Bernal<sup>1</sup>, M.R. Gonzalez-Mota<sup>1</sup>

<sup>1</sup>Instituto Tecnológico de Aguascalientes, Mexico

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S6C-P001 SOLUBLE SILICATES AS ADDITIVES FOR SELF-SEALING AND SELF-HEALING CONCRETE**

L. E. Rendon Diaz Miron<sup>1</sup>, M. E. Lara Magaña<sup>2</sup>

<sup>1</sup> Mexican Institute of Water Technology, Mexico, <sup>2</sup> Marudecori Consultants, Mexico

■ **S6C-P002 PARTICLE ADDITIONS OF RUBBER SCRAP TIRES TO MODIFY THE MECHANICAL PROPERTIES OF CONCRETE**

J. Hernandez-Morelos<sup>1</sup>, J. Colín<sup>1</sup>, A. Juantorena<sup>1</sup>, S. Serna<sup>2</sup>, A. Molina<sup>2</sup>, M. Montiel<sup>1</sup>.

<sup>1</sup>Facultad de Ciencias Químicas e Ingeniería - Programa Académico de Ingeniería Mecánica, México. <sup>2</sup>Centro de Investigación en Ingeniería y Ciencia Aplicada – UAEM, México

■ **S6C-P003 STUDY OF INNOVATIVE COMPOSITE-CONCRETE BEHAVIOR WITH STEEL EMBEDDED**

T. Pérez López<sup>1</sup>, L. Vásquez Zacarías<sup>2</sup>, M. Poiset<sup>2</sup>

<sup>1</sup>Centro de Investigación en Corrosión, Universidad Autónoma de Campeche. San Francisco de Campeche, Campeche. <sup>2</sup>División de estudios de posgrado de Universidad del Papaloapan, Tuxtpec, Oaxaca. <sup>3</sup>Instituto de Química Aplicada, Universidad del Papaloapan, Tuxtpec, Oaxaca.

■ **S6C-P004 MECHANICAL PROPERTIES AND CHEMICAL ATTACK RESISTANCE OF ALKALI-ACTIVATED Pb-Zn SLAG MORTARS**

R.X. Magallanes-Rivera<sup>1</sup>, J.R. González-López<sup>2</sup>, G. Millán<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Coahuila – UAdeC, Facultad de Ingeniería, México. <sup>2</sup>Universidad Autónoma de Nuevo León – UANL, Facultad de Ingeniería Civil, México.

■ **S6C-P005 ANALYSIS OF CEMENT-CONDUCTIVE PASTE OF COKE-GRAPHITE IN DIFFERENTS SIZES OF PARTICLE**

Garcés-Velázquez<sup>1</sup>, D. Nieves-Mendoza<sup>1</sup>, P. Sánchez Hernández, C.P.Barrios-Durstewitz<sup>2</sup>, R. E. Núñez Jaquez<sup>2</sup>, E.E. Maldonado-Bandala<sup>1</sup>

<sup>1</sup> Facultad de Ingeniería, Campus Xalapa, Universidad Veracruzana, México. <sup>2</sup>Facultad de Ingeniería Mochis, Universidad Autónoma de Sinaloa, México.

■ **S6C-P006 SULFATE ATTACK IN PORTLAND CEMENT MORTARS WITH METAKAOLIN SUBSTITUTIONS**

M. Arreola-Sánchez<sup>1</sup>, W. Martínez-Molina<sup>2</sup>, E. M. Alonso-Guzmán<sup>2</sup>, C. Lara-Gómez<sup>2</sup>, J. I. Escalante-García<sup>3</sup>, C. Bernabé Reyes<sup>1</sup>, J.A. Velázquez Pérez<sup>1</sup>, R. Ruiz Ruiz<sup>1</sup>, H. L. Chávez García<sup>2</sup>, S. C. Arguello-Hernández<sup>1</sup>, M. F. González Valdez<sup>2</sup>

<sup>1</sup>Laboratorio de materiales “Ing. Luis Silva Ruelas”, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México. <sup>2</sup>Cuerpo Académico Consolidado Laboratorio de Materiales “Ing. Luis Silva Ruelas”, Facultad de Ingeniería Civil, Universidad

Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México<sup>3</sup>Cinvestav, I.P.N., Unidad Saltillo.

■ **S6C-P007 DESTRUCTIVE AND NON-DESTRUCTIVE TECHNIQUES PERFORMED TO PORTLAND CEMENT MORTARS WITH MINERAL AND ORGANIC ADDITIONS**

S. C. Arguello-Hernández<sup>1</sup>, W. Martínez-Molina<sup>2</sup>, E. M. Alonso-Guzmán<sup>2</sup>, C. Lara-Gómez<sup>2</sup>, J. I. Escalante-García<sup>3</sup>, H. L. Chávez-García<sup>2</sup>, M. Arreola-Sánchez<sup>1</sup>, C. Bernabé-Reyes<sup>1</sup>, J.A. Velázquez-Pérez<sup>1</sup>, R. Ruíz-Ruiz<sup>1</sup>, M. F. González-Valdez<sup>2</sup>, J. A. Bedolla-Arroyo<sup>4</sup>.

<sup>1</sup>Laboratorio de Materiales “Ing. Luis Silva Ruelas”, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México, <sup>2</sup>Cuerpo Académico Consolidado Laboratorio de Materiales “Ing. Luis Silva Ruelas”, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México, <sup>3</sup>Cinvestav, I.P.N., Unidad Saltillo, Carretera Saltillo-Monterrey, <sup>4</sup>Facultad de Arquitectura, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México,

■ **S6C-P008 ULTRASONIC PULSE VELOCITY TEST IN PRESTRESSED BEAMS ADDITIONAED WITH 1% POLYSTYRENE EMULSION**

Figueroa Carranza R.A<sup>1</sup>, Martínez Molina W<sup>2</sup>, Alonso Guzmán E.M. <sup>2</sup>, Chávez García H.L. <sup>2</sup>, Lara Gómez C<sup>2</sup>, Zalapa Damián A.<sup>1</sup>, Contreras Marín E.<sup>1</sup>, Arredondo Sánchez R. M. <sup>3</sup>, García Chiquito C. <sup>4</sup>, J. T. Pérez Quiroz<sup>5</sup>

<sup>1</sup>Maestría en Infraestructura del Transporte en la Rama de las Vías Terrestres, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México, <sup>2</sup> Cuerpo Académico Consolidado-147, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México, <sup>3</sup> Facultad de Ingeniería Química, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México, <sup>4</sup> Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México, <sup>5</sup> Instituto Mexicano del Transporte, Secretaría de Comunicaciones y Transportes, Sanfandila, Pedro Escobedo, Querétaro, México,

■ **S6C-P009 DETERMINATION OF PORTLAND CEMENT CONTENT IN SAMPLES COARSE AGGREGATES**

E. Contreras Marín<sup>1</sup>, W. Martínez Molina<sup>2</sup>, A. Jaramillo Morilla<sup>3</sup>, E. M. Alonso Guzmán<sup>2</sup>, C. Lara Gómez<sup>2</sup>, H.L. Chávez García<sup>2</sup>, R.A. Figueroa Carranza<sup>1</sup>, A. Zalapa Damián<sup>1</sup>

<sup>1</sup>Posgrado de la Maestría en Infraestructura del Transporte en la Rama de las Vías Terrestres, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo,

México. <sup>2</sup> Cuerpo Académico Consolidado-147, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>3</sup>Ingeniería del Terreno, Universidad de Sevilla, Sevilla, España,

■ **S6C-P010 USE OF SUGAR CANE BAGASSE ASH, METAKAOLIN AND BLAST FURNACE SLAG AS SUBSTITUTES OF CEMENT IN MORTARS OF REHABILITATION**

C. Bernabé Reyes<sup>1</sup>, W. Martínez Molina<sup>2</sup>, J. T. Pérez Quiroz<sup>3</sup>, E. M. Alonso Guzmán<sup>2</sup>, C. Lara Gómez<sup>2</sup>, H. L. Chávez García<sup>2</sup>, M. Arreola Sánchez<sup>1</sup>, S. C. Arguello Hernández<sup>1</sup>

<sup>1</sup>Posgrado de la Maestría en Infraestructura del Transporte en la Rama de las Vías Terrestres, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, México, <sup>2</sup>Cuerpo Académico Consolidado-147, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, México, <sup>3</sup>División de Laboratorios de Desempeño Vehicular y Materiales del IMT, Sanfandila, Querétaro, México

■ **S6C-P011 NONDESTRUCTIVE TESTING AND MULTIPLE LINEAR REGRESSION TO PREDICT THE COMPRESSIVE STRENGTH OF MORTAR WITH METAKAOLIN AND POLYSTYRENE**

L. Chávez-García<sup>1</sup>, E.M. Alonso-Guzmán<sup>1,2</sup>, W. Martínez-Molina<sup>1,2</sup>, C. Lara-Gómez<sup>1,2</sup>, M. A. Navarrete-Seras<sup>1</sup>, N. Díaz González<sup>1</sup>, M. A. Mondragón Ornelas<sup>1</sup>, M. F. González Valdez<sup>1</sup>, A. Díaz Pichardo<sup>1</sup>

<sup>1</sup> Departamento de Materiales, Edif. F, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México, <sup>2</sup> Cuerpo Académico Consolidado, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México,

■ **S6C-P012 POLYMER CONCRETE TO IMPROVE PERFORMANCE UNDER BENDING LOADS**

José Alberto Guzmán Torres<sup>1</sup>, Elia Mercedes Alonso Guzmán<sup>2</sup>, Wilfrido Martínez Molina<sup>2</sup>, Andrés Torres Acosta<sup>3</sup>, Angélica de Lourdes del Valle Moreno<sup>3</sup>, Arturo Zalapa Damián<sup>1</sup>, José Trinidad Pérez Quiroz<sup>3</sup>

<sup>1</sup>Faculty of Civil Engineering, Universidad Michoacana de San Nicolás de Hidalgo, México, <sup>2</sup>Consolidated Academic Body-147, School of Civil Engineering, Universidad Michoacana de San Nicolás de Hidalgo, México, <sup>3</sup>Mexican Institute of Transport of the Ministry of Communications and Works, Mexico.

S-6C



■ **S6C-P013 ELECTRICAL RESISTIVITY IN BEAMS OF CONCRETE ADDITIONADED WITH AN EMULSION BASED ON POLYSTYRENE**

A. Zalapa Damián<sup>1</sup>, W. Martínez Molina<sup>2</sup>, E. M. Alonso Guzmán<sup>2</sup>, C. Lara Gómez<sup>2</sup>, H. L. Chávez García<sup>2</sup>, R. A. Figueroa Carranza<sup>1</sup>, E. Contreras Marín<sup>1</sup>, J. A. Guzmán Torres<sup>1</sup>, R. M. Arredondo Sánchez<sup>3</sup>, M. C. García Chiquito<sup>1</sup>.

<sup>1</sup>Civil Engineering School, Universidad Michoacana de San Nicolás de Hidalgo, México, <sup>2</sup>Consolidated Academic Group-147, School of Civil Engineering, Universidad Michoacana de San Nicolás de Hidalgo, México. <sup>3</sup>Chemical Engineering School, Universidad Michoacana de San Nicolás de Hidalgo, México

■ **S6C-P014 STUDY ON EFFECTIVE POROSITY IN MORTARS ADDED WITH SUGAR CANE BAGASSE ASH**

R. Ruíz Ruíz<sup>1</sup>, W. Martínez Molina<sup>1</sup>, E.M. Alonso Guzmán<sup>1,2</sup>, H.L. Chávez García<sup>1</sup>, C. Lara Gómez<sup>1</sup>, J.A. Bedolla Arroyo<sup>2</sup>, A. A. Torres Acosta<sup>3</sup>, M. Arreola Sánchez<sup>1</sup>, C. Bernabé Reyes<sup>1</sup>, S. C. Arguello Hernández<sup>1</sup>, J. A. Velázquez Pérez<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo, México <sup>2</sup> Facultad de Arquitectura, Universidad Michoacana de San Nicolás de Hidalgo, México, <sup>3</sup>Instituto Mexicano del Transporte, México,

■ **S6C-P015 EFFECT OF SODIUM SILICATE PROPERTIES IN ALKALI-ACTIVATION OF MEXICAN BLAST FURNACE SLAG**

O. F. Cortés-Salmerón<sup>1</sup>, M. L. García-Chávez<sup>1</sup>, T. A. García-Mejía<sup>1</sup>

<sup>1</sup>Facultad de Química, Universidad Nacional Autónoma de México, México

■ **S6C-P016 INFLUENCE OF THE MORPHOLOGY OF THE GRAVEL IN THE FLEXURAL STRENGTH IN CONCRETE BEAMS**

Noel Díaz González<sup>1</sup>, Wilfrido Martínez Molina<sup>2</sup>, Elia Mercedes Alonso Guzmán<sup>2</sup>, Hugo Luis Chávez García<sup>2</sup>, Cindy Lara Gómez<sup>2</sup>, Andrés Torres Acosta<sup>3</sup>, José Alberto Guzmán Torres<sup>1</sup>, Marco Antonio Mondragón Ornelas<sup>1</sup>, Angélica de Lourdes del Valle Moreno<sup>3</sup>, José Trinidad Pérez Quiroz<sup>3</sup>, Marco Antonio Navarrete Seras<sup>1</sup>, Alfonso Díaz Pichardo<sup>1</sup>

<sup>1</sup>Faculty of Civil Engineering, Universidad Michoacana de San Nicolás de Hidalgo, México, <sup>2</sup>Consolidated Academic Body-147, School of Civil Engineering, Universidad Michoacana de San Nicolás de Hidalgo, México, <sup>3</sup>Mexican

Institute of Transport of the Ministry of Communications and Works, Mexico.

■ **S6C-P017 ANALYSIS OF CARBONATION ON SAMPLES OF MORTAR ELABORATED USING COMPOUNDS PROPOSED AS CEMENT SUBSTITUTES**

M. Alonso-Guzmán<sup>1</sup>, W. Martínez-Molina<sup>1</sup>, J. T. Pérez-Quiroz<sup>2</sup>, T. Pérez-López<sup>3</sup>, J. V. Tamayo Zapata<sup>3</sup>.

<sup>1</sup>Departamento de Materiales, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México. <sup>2</sup>Instituto Mexicano del Transporte, México. <sup>3</sup>Centro de Investigación en Corrosión, Universidad Autónoma de Campeche, México.

■ **S6C-P018 RESPONSE OF PORTLAND CEMENT MORTARS WITH ORGANIC ADDITIONS UNDER CARBONATION**

Tezozomoc Pérez López<sup>1</sup>, Wilfrido Martínez-Molina<sup>2</sup>, Elia Mercedes Alonso Guzmán<sup>2</sup>, José Trinidad Pérez-Quiroz<sup>2</sup>, Jairo Valentín Tamayo Zapata<sup>1</sup>, Hugo Luis Chávez García<sup>2</sup>, Mauricio Arreola Sánchez<sup>2</sup>, Cipriano Bernabé Reyes<sup>2</sup>, Alfonso Díaz Pichardo<sup>2</sup>

<sup>1</sup>Centro de Investigación en Corrosión, Universidad Autónoma de Campeche, México, <sup>2</sup>Departamento de Materiales, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacan, Mexico. <sup>3</sup>Instituto Mexicano del Transporte.

■ **S6C-P019 GEOPOLYMERS BASED ON METAKAOLINITE: APPLICATION OF A DESIGN OF EXPERIMENTS**

T. A. García-Mejía<sup>1</sup> and M. L. Chávez-García<sup>1</sup>

<sup>1</sup>Facultad de Química, México.

■ **S6C-P020 EFFECT OF STIRRING SPEED IN HOT MIXING PROCESS OF MODIFIED ASPHALT WITH SBS COPOLYMER ON POLYMERIC DISTRIBUTION AND ITS RHEOLOGICAL PROPERTIES**

Esteban Alberto González García<sup>1</sup>, Rafael Herrera Nájera<sup>2</sup>

<sup>1,2</sup> Facultad de Química, Departamento de Ingeniería Química, Universidad Nacional Autónoma de México (UNAM), México.

## Symposium 6D

# INNOVATIVE PRODUCTION AND APPLICATION OF STRUCTURAL AND FUNCTIONAL CERAMIC- AND METAL-MATRIX COMPOSITES

**Martin I. Pech-Canul** / MEXICO / Cinvestav IPN -Saltillo

**Dmitry G. Eskin** / U.K. / Brunel University

**Rajiv Asthana** / USA / University of Wisconsin-Stout

**Nikhil Gupta** / USA / New York University, School of Engineering

ROOM: CHICHEN ITZA II  
WEDNESDAY, AUGUST 19

 Session Chair: **MARTIN I. PECH-CANUL, CINVESTAV IPN SALTILLO**

▶ **08:30 - 09:00 S6D-0001 Invited Talk IN SITU SHS-PSEUDO-HIP AS AN EFFECTIVE METHOD TO DEVELOP NEUTRON SHIELDING CERAMIC MATRIX COMPOSITES FROM TERNARY Ti-B-Cr-C SYSTEM**

Marta Ziemnicka-Sylwester<sup>1</sup>, Przemyslaw Litwa<sup>2</sup>, Tomasz Czujko<sup>2</sup>, Takeshi Toyama<sup>3</sup>

<sup>1</sup>Hokkaido University, Faculty of Engineering, Japan, <sup>2</sup>WAT Military University of Technology, Department of Advanced Materials and Technologies, Poland, <sup>3</sup>The Oarai Center, Institute for Materials Research, Tohoku University, Japan

■ **09:00 - 09:15 S6D-0002 STRUCTURAL - PHASE TRANSFORMATIONS IN THE SURFACE LAYER OF YAG-YAP CERAMICS VIA LASER PROCESSING**

M. Vlasova<sup>1</sup>, P. A. Márquez Aguilar<sup>1</sup>, M. Kakazey<sup>1</sup>, A. Bykov<sup>2</sup>, V. Stetsenko<sup>2</sup>, A. Escobar Martínez<sup>1</sup>, A. Castro Hernandez<sup>1</sup>

<sup>1</sup>Center of Investigation in Engineering and Applied Sciences of the Autonomous University of the State of Morelos (CIICAp-UAEMor), Mexico. <sup>2</sup>Institute for Problems of Materials Science, National Academy of Sciences of Ukraine, Ukraine.

■ **09:15 - 09:30 S6D-0003 THERMAL PROPERTIES OF COMPOSITE LAYERED SYSTEMS WITH FIBRILLAR INCLUSION STRUCTURES**

V. Dossetti<sup>1</sup>, J.J. Reyes-Salgado<sup>2</sup>, B. Bonilla-Capilla<sup>3</sup>, and J.L. Carrillo<sup>3</sup>

<sup>1</sup>CIDS-Instituto de Ciencias, Benemérita Universidad Autónoma de Puebla, Mexico, <sup>2</sup>Departamento de Ingenierías, Universidad Popular Autónoma del Estado de Puebla, Mexico, <sup>3</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, Mexico

■ **09:30 - 09:45 S6D-0004 EFFECT OF CURRENT DENSITY ON THE MICROSTRUCTURE, ADHESION AND CORROSION BEHAVIOR OF Ni-Co/Al<sub>2</sub>O<sub>3</sub> COMPOSITE COATINGS**

D. Alejo Guerra<sup>1</sup>, C.A. León Patiño<sup>1</sup>, E.A. Aguilar Reyes<sup>1</sup>, J.E. Bedolla Becerril<sup>1</sup>

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo, México.

■ **09:45 - 10:00 S6D-0005 BEHAVIOR TO DRY SLIDING WEAR OF TiC/Ni (60 % VOL. TiC) COMPOSITE FABRICATED BY LIQUID INFILTRATION**

C.A. León Patiño<sup>1</sup>, M. Braulio Sánchez<sup>2</sup>, E.A. Aguilar Reyes<sup>1</sup>

Instituto de Investigaciones Metalúrgicas, Universidad Michoacana de San Nicolás de Hidalgo, México.

■ **10:00 - 10:15 S6D-0006 FEASIBILITY OF FABRICATION OF Ni-Fe-Ga-SMA/SiC COMPOSITES BY PRESSURELESS INFILTRATION**

M. Montoya Davila<sup>1</sup>, F. Alvarado Hernández<sup>1</sup>, V. H Baltazar Hernandez<sup>1</sup>, Y. Vega Muñoz<sup>2</sup>, C. A. Olmos Viramontes<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Zacatecas, México, <sup>2</sup>Instituto Tecnológico de Zacatecas, México



■ **10:15 - 10:30 S6D-0007 MECHANICAL PROPERTIES OF GYPSUM PASTES FROM WASTE ANHIDRITE SYNTHESIZED AT HIGH TEMPERATURE ACTIVATED BY CHEMICAL ADDITIVES**

M.A. Guerra-Cossío<sup>1</sup>, J. R. González-López<sup>1</sup>, R. X. Magallanes-Rivera<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil, México. <sup>2</sup>Universidad Autónoma de Coahuila, Facultad de Ingeniería Civil, México.

■ **10:30 - 10:45 S6D-0008 INCREASED REACTIVITY SILICON NANOPARTICLES FOR IMPROVE THE BARRIER EFFECT ON HARDENED PORTLAND CEMENT-BASED MATERIALS**

J.R. Madrigales Ubaldo<sup>1</sup>, A. Cruz López<sup>1</sup>, G. Fajardo<sup>1</sup>, P. Valdez<sup>1</sup>, R. Zanella<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil, México. <sup>2</sup>Centro de Ciencias Aplicadas y Desarrollo de Tecnología, UNAM, México

▶ **10:45 - 11:15 S6D-0009 *Invited Talk* THE EFFECT OF THE PROCESSING ROUTE FOR ALUMINUM MATRIX COMPOSITES ON THE INTEGRITY OF DISPERSED CARBON NANOTUBES**

D.N. Travessa<sup>1</sup>, K. R. Cardoso<sup>1</sup>, M. Lieblich<sup>2</sup>

<sup>1</sup>Instituto de Ciência e Tecnologia – Universidade Federal de São Paulo, ICT-UNIFESP, Brazil. <sup>2</sup> Centro Nacional de Investigaciones Metalúrgicas – Consejo Superior de Investigaciones Científicas, CENIM-CSIC., Spain.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **CARLOS LEÓN-PATIÑO, UNIVERSIDAD MICHOACANA DE SAN NICOLÁS DE HIDALGO (UMSNH)**

▶ **12:30 - 13:00 S6D-0010 *Invited Talk* SYNTHESIS AND CHARACTERIZATION OF NICKEL AND COPPER BASED COMPOSITES**

C-A. León Patiño<sup>1</sup>, D. Cabrera de la Cruz<sup>1</sup>, M. Braulio Sánchez<sup>1</sup>

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo, México.

■ **12:45 - 13:00 S6D-0011 MICROSTRUCTURE AND PROPERTIES OF BILAYER-GRADED AL-MATRIX**

**COMPOSITES BY ONE-STEP PRESSURELESS INFILTRATION OF B4C/RICE-HUSK ASH PREFORMS**

Amin Bahrami<sup>1</sup>, Martin I. Pech-Canul<sup>1</sup>, Carlos A. Gutierrez<sup>1</sup>, Niloofar Soltani<sup>1</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN Unidad Saltillo, México,



**14:00- 16:00 LUNCH**

**ROOM: TERRACE  
WEDNESDAY, AUGUST 19**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S6D-P001 THEORETICAL MODEL OF ULTRASONIC INTRODUCTION OF NANOPARTICLES INTO THE METAL MELT**

O. B. Kudryashova<sup>1,2</sup>, S. A. Vorozhtsov<sup>1</sup>

<sup>1</sup>Tomsk State University, Russia. <sup>2</sup>Institute for Problems of Chemical & Energetic Technologies of the Siberian Branch of the Russian Academy of Sciences, Biysk, Russia

■ **S6D-P002 CHARACTERIZATION RAMAN AND IR OF SILICON NITRIDE OVER SILICON WAFER**

E.B. Acosta-Enriquez<sup>1</sup>, M.C. Acosta-Enriquez<sup>2</sup>, M.I. Pech-Canul<sup>3</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, Hermosillo, Sonora, México. <sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Sonora, México. <sup>3</sup>Departamento de Ingeniería Cerámica, Cinvestav-Saltillo, Ramos Arizpe, Coahuila, México

■ **S6D-P003 PRODUCTION OF MA956 ALLOY REINFORCED ALUMINUM MATRIX COMPOSITES BY MECHANICAL ALLOYING**

Luiz Antonio Carlos Moutinho Gomes<sup>1</sup>, Kátia Regina Cardoso<sup>1</sup>, Dilermando Nagle Travessa<sup>1</sup>, Alberto Moreira Jorge Jr.<sup>2</sup>, Bruno Bellini Medeiros<sup>3</sup>

<sup>1</sup>Science and Technology Institute, Federal University of São Paulo, Brazil. <sup>2</sup>Department of Materials Engineering, Federal University of São Carlos, São Carlos-SP, Brazil. <sup>3</sup> Universidade Tecnológica Federal do Paraná, Campus Pato Branco. Brasil

■ **S6D-P004 FREQUENCY RESPONSE OF KNN SENSOR THIN FILMS BY PULSED LASER PHOTOACOUSTIC**

S.J. Pérez Ruiz<sup>1</sup>, R Castañeda Guzmán<sup>1</sup>, R. López Juárez<sup>2</sup>



<sup>1</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, UNAM, México. <sup>2</sup>Unidad Morelia del Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México

■ **S6D-P005 THERMAL PROPERTIES OF COMPOSITE TWO-LAYER SYSTEMS WITH A FRACTAL INCLUSION STRUCTURE**

J.J. Reyes-Salgado<sup>1</sup>, V. Dossetti<sup>2,3</sup>, B. Bonilla-Capilla<sup>3</sup>, and J.L. Carrillo<sup>3</sup>

<sup>1</sup>Departamento de Ingenierías, Universidad Popular Autónoma del Estado de Puebla, Mexico, <sup>2</sup>CIDS-Instituto de Ciencias, Benemérita Universidad Autónoma de Puebla, Mexico, <sup>3</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, Mexico

■ **S6D-P006 INFLUENCE OF CHEMICAL AND PHASE COMPOSITION OF HEAT-TREATED CLAY ON THEIR POZZOLANIC ACTIVITY IN MORTARS**

Jacobo Martínez-Reyes<sup>1</sup>, L.Bucio<sup>1</sup> Pedro Montes-García<sup>2</sup>

<sup>1</sup> CIIDIR-IPN Unidad Oaxaca, México, <sup>2</sup> Instituto de Física, Universidad Nacional Autónoma de México. México. Instituto de Física, UNAM,

■ **S6D-P007 CHARACTERIZATION AND MECHANICAL STRENGTH OF GEOPOLYMERIC MORTARS BASED ON A FOUNDRY SLAG WITH CONCENTRATES PB-ZN**

G. Millán<sup>1</sup>, R.X. Magallanes-Rivera<sup>2</sup>, R. González López<sup>1</sup> C.A. Juárez-Alvarado<sup>1</sup> P.L. Valdez-Tamez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León-UANL, Facultad de Ingeniería Civil, Grupo Académico en Tecnología del Concreto, México. <sup>2</sup>Universidad Autónoma de Coahuila – UAdeC, Facultad de Ingeniería, México.

■ **S6D-P008 SYNTHESIS AND THERMOPHYSICAL CHARACTERIZATION OF TiB<sub>2</sub>/Al-Cu COMPOSITES**

F. González Fernández<sup>1</sup>, C.A. Lewón Patiño<sup>1</sup>, E.A. Aguilar Reyes<sup>1</sup>, E. Bedolla Becerril<sup>1</sup>

<sup>1</sup> Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo, México.

## Symposium 6E

# LUMINESCENT MATERIALS: BASIC PHENOMENA AND APPLICATIONS (IN CELEBRATION OF THE INTERNATIONAL YEAR OF LIGHT)

Ciro Falcony / MEXICO / CINVESTAV

Adolfo Speghini / ITALY / Università Di Verona

Elder de la Rosa / MEXICO / Centro de Investigaciones en Óptica

ROOM: MEXICO  
WEDNESDAY, AUGUST 19

 14:00- 16:00 LUNCH

 Session Chair: **GIANCARLO C. RIGHINI, DIRECTOR OF THE RESEARCH, ENRICO FERMI CENTRE, ROME, ITALY.**

 **16:00 - 16:30 S6E-0001 *Invited Talk* MULTI-MODAL NEAR-INFRARED EXCITED LANTHANIDE-DOPED NANOPARTICLES: HARNESSING LIGHT FOR DIVERSE APPLICATIONS**

F. Vetrone

Institut National de la Recherche Scientifique - Énergie, Matériaux et Télécommunications (INRS - EMT), Université du Québec, (Canada)

■ **16:30 - 16:45 S6E-0002 BIO-CONJUGATION METHOD OF LUMINESCENT NANOPARTICLES TO DETECT Ki-67 OVEREXPRESSED PROTEINS IN HeLa CELLS**

Tzarara López-Luke<sup>1</sup>, Andrea Ceja-Fdez<sup>1</sup>, Elder de la Rosa<sup>1</sup>, Juan Vivero-Escoto<sup>2</sup>, Ruben A. Rodriguez Rojas<sup>3</sup> and Ana Lilia Gonzalez-Yebra<sup>4</sup>

<sup>1</sup>Centro de Investigaciones en Óptica, León Guanajuato, México. <sup>2</sup>University of North Carolina at Charlotte, Department of Chemistry, United States. <sup>3</sup>Universidad de Guadalajara, Centro Universitario de los Lagos, México. <sup>4</sup>Departamento de Medicina y Nutrición. División Ciencias de la Salud, Campus León, Universidad de Guanajuato,

■ **16:45 - 17:00 S6E-0003 OSL RESPONSE OF Al<sub>2</sub>O<sub>3</sub>:C TO ELECTRON BEAM RADIATION**

T. Rivera-Montalvo<sup>1</sup>, J.G. Gutiérrez-Márquez<sup>1,2</sup>, O.A. Madrid-González<sup>2</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada-Legaria del IPN, México D.F. <sup>2</sup>Centro Médico Nacional Siglo XXI, México, D.F.

 **17:00 - 17:30 S6E-0004 *Invited Talk* QUANTUM EMITTERS IN WIDE BAND GAP SEMICONDUCTORS**  
A/Prof Igor Aharonovich<sup>1</sup>

<sup>1</sup>School of Physics and Advanced Materials, University of Technology, Sydney

■ **17:30 - 17:45 S6E-0005 RARE EARTH DOPED GdVO<sub>4</sub>: FROM BULK TO NANO**

D.J. Jovanović, T. Gavrilović and M.D. Dramićanin

University of Belgrade, Vinča Institute of Nuclear Sciences, Serbia

 **17:45 - 18:15 S6E-0006 *Invited Talk* SUNLIGHT AND LUMINESCENCE APPLICATIONS FOR LONG PERSISTENCE PHOSPHORS**

Luis Armando Diaz-Torres

Grupo de Espectroscopia de Materiales Avanzados y Nanoestructurados (GEMANA), Centro de Investigaciones en Óptica, México

■ **18:15 - 18:30 S6E-0007 THREE LEVEL SYSTEM AS A MODEL TO DESCRIBE PHOTOLUMINESCENCE QUANTUM YIELD AND ITS TEMPERATURE DEPENDENCE IN SEMICONDUCTOR QUANTUM DOTS**  
R. Quintero-Torres

Centro de Física Aplicada y Tecnología Avanzada,  
Universidad Nacional Autónoma de México, México.

► **18:30 - 19:00 S6E-0008 Invited Talk FLUORESCENT AND MAGNETO/LUMINESCENT NANOMATERIALS: SYNTHESIS AND APPLICATIONS**

Norma L. Michel<sup>1</sup>, Dora L. Flores<sup>2</sup> and Gustavo A. Hirata<sup>1</sup>

<sup>1</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México. <sup>2</sup>FIAD, Universidad Autónoma de Baja California, Ensenada, Baja California,

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

► **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S6E-P001 BLUE PHOTOLUMINESCENCE OF CU-DOPED ZNO FILMS PREPARED BY CU-INK IMPREGNATION**

Bunyod Allabergenov<sup>1</sup>, Hyunseok Shim<sup>2</sup>, Sungjin Kim<sup>1</sup> and Byeongdae Choi<sup>2</sup>

<sup>1</sup>School of Advanced Materials & System Engineering, Kumoh National Institute of Technology, South Korea, <sup>2</sup>Division of Nano & Energy Research, Daegu Gyeongbuk Institute of Science and Technology (DGIST), South Korea

■ **S6E-P002 MORPHOLOGY CONTROL AND OPTIMIZATION OF LUMINESCENT PROPERTY OF Lu<sub>3</sub>Al<sub>5</sub>O<sub>12</sub>:Ce PHOSPHOR ON FLUXING AGENTS**

Ha-Kyun Jung, Mihye Wu, Sungho Choi

Advanced Materials Division, Korea Research Institute of Chemical Technology, Republic of Korea

■ **S6E-P003 PROPERTIES LUMINESCENT OF Al<sub>2</sub>O<sub>3</sub>:Eu<sup>3+</sup> POLYCRYSTALLINE POWDERS SYNTHESIZED BY A SIMPLE EVAPORATION METHOD**

L. Mariscal-Becerra<sup>1</sup>, S. Carmona-Téllez<sup>2</sup>, C. Falcony-Guajardo<sup>1</sup>, and H. Murrieta-Sánchez<sup>2</sup>

<sup>1</sup>Av. Instituto Politécnico Nacional México, D.F. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México, México, D.F.

■ **S6E-P004 LUMINESCENT PROPERTIES OF A SiO<sub>2</sub>-PMMA HYBRID MATRIX DYED WITH ORGANIC MOLECULES**

J. De la Cruz Quiroga<sup>1</sup>, R. Palomino Merino<sup>1</sup>, M. L. Arroyo Carrasco<sup>1</sup>

<sup>1</sup>Facultad de Ciencias Físico Matemáticas, Benemerita Universidad Autonoma de Puebla. México.

■ **S6E-P005 ENHANCEMENT OF LUMINESCENT EMISSION IN ZrO<sub>2</sub>:Er NANOCRYSTALS WITH Ag NANOPARTICLES**

Susana Vargas Rodríguez<sup>1</sup>, Octavio Meza<sup>2</sup>, N. Rutilo Silva González<sup>2</sup>, María Luisa Ojeda Martínez<sup>1</sup>, Celso Velásquez Ordóñez<sup>1</sup>

<sup>1</sup>CuValles Nanociencia and Nanotechnology Investigation Center Universidad de Guadalajara <sup>2</sup>Instituto de Física - "Ing. Luis Rivera Terrazas" México

■ **S6E-P006 WATER-DISPERSIBLE ZnO QUANTUM DOTS: PROMISING NANOPROBES FOR BIOLOGICAL IN VITRO IMAGING**

I. X. Canatarelli<sup>1</sup>, M. Pedroni<sup>1</sup>, P. Cortelletti<sup>1</sup>, P. Canton<sup>2</sup>, A. Speghini<sup>1</sup>

<sup>1</sup>Department of Biotechnology, Università degli studi di Verona, Italy, <sup>2</sup>Department of Molecular Sciences and Nanosystems, Italy.

■ **S6E-P007 EFFECT ON THE STRUCTURAL AND LUMINESCENT PROPERTIES DUE TO THE CONCENTRATION OF Ln<sup>3+</sup>, IN HfO<sub>2</sub>**

E. Montes<sup>1</sup>, J. Guzman<sup>1</sup>, IR Martín<sup>2</sup>, E. Garfias-García<sup>3</sup>, J.G. Torres-Morales<sup>4</sup>, C. Falcony<sup>5</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada IPN <sup>2</sup>Dep. de Física Fundamental y Experimental, Electrónica y Sistemas, Univ. de la Laguna, Spain. <sup>3</sup>Universidad Autónoma Metropolitana, México D.F. <sup>4</sup>Escuela Superior de Ingeniería Mecánica y Eléctrica Culhuacan IPN, México D.F. <sup>5</sup>Departamento de Física, CINVESTAV IPN, México D.F.

■ **S6E-P008 SYNTHESIS AND LUMINESCENT CHARACTERIZATION OF Li<sub>2</sub>B<sub>4</sub>O<sub>7</sub> DOPED WITH IONS OF MANGANESE AND EUROPIUM**

Pablo M. Trejo-García<sup>1</sup>, Rodolfo Palomino-Merino<sup>1</sup>, E. Espinosa<sup>1</sup>, Raúl Aceves Torres<sup>2</sup>, Oscar Portillo Moreno<sup>3</sup>.

<sup>1</sup> Facultad de ciencias Físico Matemáticas, Benemerita Universidad Autónoma de Puebla, México. <sup>2</sup> Departamento de Investigación en Física, Universidad de Sonora, México. <sup>3</sup> Facultad de Ciencias Químicas, Benemerita Universidad Autónoma de Puebla, México.

■ **S6E-P009 ENERGY TRANSFER AND ENHANCED GREEN EMISSION OF BaZrO<sub>3</sub>:Eu<sup>3+</sup>, Tb<sup>3+</sup>, Tm<sup>3+</sup>, PHOSPHOR POWDERS**

V. H. Romero<sup>1</sup>, E. De la Rosa<sup>2</sup>, T. Lopez-Luke<sup>2</sup>, P. Salas<sup>3</sup>

<sup>1</sup> Centro universitario de Tonalá de la Universidad de Guadalajara, División de Ciencias, Tonalá Jal. México. <sup>2</sup> Centro de Investigaciones en Optica, México. <sup>3</sup> Centro



de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México

■ **S6E-P010 SYNTHESIS OF LUMINESCENT  $Y_2O_3:Er^{3+}$  PHOSPHORS CO-DOPED WITH  $Li^+$  SYNTHETIZED BY THE SOLVENT EVAPORATION TECHNIQUE**

E.F. Huerta<sup>1</sup>, A.N. Meza-Rocha<sup>2</sup>, S. Carmona-Téllez<sup>3</sup> and C. Falcony<sup>4</sup>

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, CINVESTAV IPN, Mexico. <sup>2</sup>Departamento de Física, Universidad Autónoma Metropolitana-Iztapalapa, México. <sup>3</sup>Instituto de Física, UNAM, Mexico. <sup>4</sup>Departamento de Física, CINVEST Mexico.

■ **S6E-P011 STUDY OF OPTOELECTRONIC EFFECTS IN POROUS SILICON ACTIVE MULTILAYER STRUCTURES**

S. Escobar<sup>1</sup>, R. Nava<sup>1</sup>, J.A. del Río<sup>1</sup>, Yuri G. Rubo<sup>1</sup>, J. Tagüenia-Martínez<sup>1</sup>, J.A. Reyes-Esqueda<sup>2</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México.

■ **S6E-P012 OPTICAL AND STRUCTURAL CHARACTERIZATION OF POLYCRYSTALLINE ZINC-SELENIDE THIN FILMS GROWN BY PULSED LASER DEPOSITION**

P. Maldonado-Altamirano<sup>1</sup>, L.A. Martínez-Ara<sup>1</sup>, R. Peña-Pichardo<sup>1</sup>, M.A. Hernández-Pérez<sup>2</sup>, J. Aguilar-Hernández<sup>1</sup>, G.S. Contreras-Puente<sup>1</sup>, F. de L. Castillo-Alvarado<sup>1</sup>

<sup>1</sup>Escuela Superior de Física y Matemáticas - Instituto Politécnico Nacional, México D. F. <sup>2</sup>Escuela Superior de Ingeniería Química e Industrias Extractivas - Instituto Politécnico Nacional, México D. F.

■ **S6E-P013 LUMINESCENT PROPERTIES OF  $Bi_2Ti_2O_7:Eu^{3+}$  THIN FILMS OBTAINED BY THE ULTRASONIC SPRAY PYROLYSIS TECHNIQUE**

C.D. Hernández-Pérez<sup>1</sup>, E. Barrera-Calva<sup>1</sup>, R. Rosas<sup>1</sup>, F. González<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería de Procesos e Hidráulica, Universidad Autónoma Metropolitana-Iztapalapa, México.

■ **S6E-P014 WHITE-EMMITTING  $Ce^{3+}$  DOPED STRONTIUM ALUMINATE PHOSPHOR FOR SOLID STATE LIGHTING APPLICATIONS**

D. Chávez<sup>1,2</sup>, C.R. García<sup>1</sup>, J. Oliva<sup>2</sup>, M. T. Romero<sup>1</sup>, L.A. Díaz-Torres<sup>2</sup>

<sup>1</sup>Facultad de Ciencias Físico Matemáticas, Universidad Autónoma de Coahuila, México. <sup>2</sup>Grupo de Espectroscopia

de Materiales Avanzados y Nanoestructurados (GEMANA), Centro de Investigaciones en Óptica, México

■ **S6E-P015 OPTIMIZED METHODOLOGY IN TRIVALENT SAMARIUM ION DOPED BENZOATE-YTTRIA SYNTHESIS APPLYING MICROWAVES**

R.I. Sánchez-Alarcón<sup>1</sup>, S. Carmona-Téllez<sup>3</sup>, G. Alarcón-Flores<sup>1</sup>, M.A. Aguilar-Frutos<sup>1</sup>, C. Falcony-Guajardo<sup>2</sup>, J.P. Martínez Pastor<sup>4</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del IPN Unidad Legaria. <sup>2</sup>Departamento de Física, Centro de Investigación y Estudios Avanzados del IPN, México. <sup>3</sup>Instituto de Física - UNAM, Ciudad Universitaria, México, D.F., México <sup>4</sup>ICMUV - Universidad de Valencia, España,

■ **S6E-P016 LUMINESCENT PROPERTIES OF  $Al_2O_3:Tb^{3+}$  POWDERS EMBEDDED IN POLYETHYLENE TEREPHTHALATE FILMS**

L. Mariscal-Becerra<sup>1</sup>, S. Carmona-Téllez<sup>2</sup>, H. Murrieta-Sánchez<sup>2</sup>, C. Falcony-Guajardo<sup>1</sup> and Z. Rivera<sup>1</sup>

<sup>1</sup>Cinvestav, Gustavo A. Madero, México. <sup>2</sup>IF-UNAM, México.

■ **S6E-P017 THERMOLUMINESCENT CHARACTERISTICS OF  $LiF:Mg,Cu,P$  TO X-RAY BEAMS**

S. Del Sol-Fernandez<sup>1</sup>, G. Ramírez-Rodríguez<sup>2</sup>, E. Gaona<sup>3</sup>, R. García-Salcedo<sup>1</sup>, T. Rivera-Montalvo<sup>1</sup>

<sup>1</sup>CICATA-Legaria, Instituto Politécnico Nacional, México D.F. <sup>2</sup>Hospital Juárez de México, México D. F. <sup>3</sup>Universidad Autónoma Metropolitana-Xochimilco, México, D. F.

■ **S6E-P018 THERMOLUMINESCENT CHARACTERISTICS OF  $LiF:Mg,Cu,P$  TO X-RAY BEAMS**

S. Del Sol-Fernandez<sup>1</sup>, G. Ramírez-Rodríguez<sup>2</sup>, E. Gaona<sup>3</sup>, R. García-Salcedo<sup>1</sup>, T. Rivera-Montalvo<sup>1</sup>

<sup>1</sup>CICATA-Legaria, Instituto Politécnico Nacional México D.F. <sup>2</sup>Hospital Juárez de México, México D. F. <sup>3</sup>Universidad Autónoma Metropolitana-Xochimilco, México, D. F.

■ **S6E-P019 PHOTO & CATHODE-LUMINESCENT PROPERTIES OF  $BaHfO_3$  DOPED WITH  $Eu^{+3}$  AND  $Tb^{+3}$**

J.C. Guzman<sup>1</sup>, J. Guzmán<sup>1</sup>, M. García<sup>2</sup>, C. Falcony<sup>3</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada IPN, México, D.F. <sup>2</sup>Departamento de Física, CINVESTAV IPN, México D.F.

■ **S6E-P020 FLUORESCENT ORGANOTIN COMPOUNDS DERIVED OF SCHIFF BASES: SYNTHESIS, PHOTPHYSICAL CHARACTERIZATION, AND FLUORESCENT BIOIMAGING**

**Blanca M. Muñoz-Flores,<sup>a</sup> Concepción García,<sup>a</sup> Víctor M. Jiménez-Pérez,<sup>a</sup> Rodrigo Chan-Navarro,<sup>a</sup> Arturo Chaves-Reyes,<sup>b</sup> Rosa Santillan,<sup>c</sup> Ivana Moggio,<sup>d</sup> Eduardo Arias,<sup>d</sup>**

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, Ciudad Universitaria, México. <sup>2</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Monterrey, PIIT, México. <sup>3</sup>Departamento de Química, Centro de Investigación y de Estudios Avanzados del IPN, México. <sup>4</sup>Centro de Investigación en Química Aplicada, México.

■ **S6E-PO21 STRONG DOWNCONVERSION EMISION IN Tb<sup>3+</sup> DOPED GLASS CERAMICS**

**Haggeo Desirena, Jorge Molina, Roberto Palacios, Andrea Tiscareño, Elder De la Rosa**

Centro de Investigaciones en Óptica, Leon Gto, México,

■ **S6E-PO22 SYNTHESIS OF TM<sup>3+</sup>:Y<sub>2</sub>O<sub>3</sub> PHOSPHOR USING TMCL<sub>3</sub> AND TM (NO<sub>3</sub>)<sub>3</sub> AS DOPANTS**

**A. Luna-Guzmán<sup>1</sup>, G. Alarcón-Flores<sup>1</sup>, M. A. Aguilar-Frutis<sup>1</sup>, M.P Campos-Arias<sup>1</sup>, S. Carmona-Téllez<sup>2</sup>, M. García-Hipólito<sup>3</sup>, C. Falcony<sup>4</sup>.**

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional, México DF. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México, México DF. <sup>3</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México DF. <sup>4</sup>Departamento de Física, CINVESTAV, México DF

■ **S6E-PO23 SYNTHESIS OF TB<sup>3+</sup>:BENZOATE-Y<sub>2</sub>O<sub>3</sub> AND EU<sup>3+</sup>:BENZOATE-Y<sub>2</sub>O<sub>3</sub> HYBRID NANOPHOSPHORS USING BENZYL ALCOHOL ROUTE**

**A. Luna-Guzmán<sup>1</sup>, R.I. Sanchez-Alarcón<sup>1</sup>, G. Alarcón Flores<sup>1</sup>, M. A. Aguilar-Frutis<sup>1</sup>, M.P Campos-Arias<sup>1</sup>, S. Carmona-Téllez<sup>2</sup>, M. García-Hipólito<sup>3</sup>, C Falcony<sup>4</sup>.**

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional, México DF. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México, México DF. <sup>3</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México DF. <sup>4</sup>Departamento de Física, CINVESTAV, México DF

■ **S6E-PO24 THE PHOTOLUMINESCENCE PROPERTIES OF AL<sub>2</sub>O<sub>3</sub>: EU<sup>3+</sup> POWDERS SYNTHESIZED BY THE SOLVOTHERMAL TECHNIQUE ASSISTED BY MICROWAVES**

**I. Padilla<sup>1</sup>, A. Soto<sup>2</sup>, M. Aguilar<sup>3</sup>, G. Alarcón<sup>3</sup>, J.G. Cabañas<sup>1</sup>, C. Falcony<sup>2</sup>**

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, Cinvestav-IPN, México D.F. <sup>2</sup>Centro de Investigación y de Estudios Avanzados del IPN.

Departamento de Física, México D.F. <sup>3</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, IPN, México D.F.

■ **S6E-PO25 BLUE-GREEN QUANTUM DOT LIGHT EMITING DIODE**

**Carlos Basilio<sup>1</sup>, Jorge Oliva<sup>1</sup>, Tzarara López<sup>1</sup>, Elder de la Rosa<sup>1</sup>**

<sup>1</sup>Centro de Investigaciones en Óptica, Guanajuato

■ **S6E-PO26 SYNTHESIS AND OPTICAL CHARACTERIZATION OF EUROPIUM BENZENE-1-4-DICARBOXYLIC ACID**

**C. Medina-Díaz<sup>1</sup>, S. Carmona-Téllez<sup>2</sup>, S. Loera-Serna<sup>1</sup>, E. Ortiz-Romero<sup>1</sup>, D. Y. Medina-Velázquez<sup>1</sup>, and C. Falcony<sup>3</sup>**

<sup>1</sup>Universidad Autónoma Metropolitana-Azcapotzalco México. <sup>2</sup>Instituto de Física de la Universidad Nacional Autónoma de México, México. <sup>3</sup>Departamento de Física, Centro de Investigación y Estudios Avanzados, México.

■ **S6E-PO27 THERMOLUMINESCENT RESPONSE EVALUATION OF KMgF<sub>3</sub> NANOCRYSTALS SYNTHESIZED IN A MICROWAVE REACTOR**

**R. Herrero<sup>1</sup>, M. Villicaña<sup>1</sup>, M. S. L. García<sup>1</sup>, P. R. González<sup>2</sup>, M. G. Garnica<sup>3</sup>**

<sup>1</sup>Facultad de Ingeniería Química, UMSNH, México, <sup>2</sup>Instituto Nacional de Investigaciones Nucleares (ININ), México, <sup>3</sup>Facultad de Ingeniería Civil, UMSNH, México

■ **S6E-PO28 OPTICAL CHARACTERISTICS OF ZIRCONIUM OXIDE DOPED WITH EARTH RARES**

**G.T.Jasso<sup>1</sup>, E. Montes<sup>1</sup>, P. Haro-Gonzalez<sup>2</sup>, J. Guzman<sup>1</sup>, M. Garcia-Hipolito<sup>3</sup>, D. Sánchez<sup>1</sup> C.Falcony<sup>4</sup>**

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, IPN, Unidad Legaria, México D.F. <sup>2</sup>Dep. Física de Materiales, C-IV, Universidad Autónoma de Madrid Spain. <sup>3</sup>Instituto de Investigaciones en Materiales, UNAM, México <sup>4</sup>Departamento de Física, CINVESTAV IPN, México D.F.

■ **S6E-PO29 SYNTHESIS AND PHOTOLUMINESCENCES PROPERTIES OF Nd<sub>2</sub>O<sub>3</sub> GROWN BY CHEMICAL BATH**

**Pablo M. Trejo-García<sup>1</sup>, Rodolfo Palomino-Merino<sup>1</sup>, E. Espinosa<sup>1</sup>, O. Portillo-Moreno<sup>2</sup>, L.A. Chaltel Lima<sup>2</sup>, M. Zamora Tototzintle<sup>2</sup>, K. Barrios Hernández<sup>2</sup>, R. Aceves<sup>3</sup>**

<sup>1</sup> Facultad de ciencias Físico Matemáticas, BUAP, México. <sup>2</sup> Facultad de Ciencias Químicas BUAP México. <sup>3</sup> Departamento de Investigación en Física, Universidad de Sonora, México.





■ **S6E-P030 INFLUENCE OF THIOUREA AND LIOH ON LUMINESCENCE PROPERTIES IN THE  $Y_2O_3:Er^{3+},Yb^{3+}$  PHOSPHORS**

E. Resendiz-Lopez<sup>1</sup>, L. A. Diaz-Torres<sup>2</sup>, O. Meza<sup>3</sup>, C. Rodriguez-Gonzalez<sup>1</sup>, C. Angeles-Chavez<sup>4</sup>, P. Salas<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México.

México. <sup>2</sup>Grupo de Espectroscopia de Materiales Avanzados y Nanoestructurados (GEMANA), Centro de Investigaciones en Óptica. México. <sup>3</sup>Instituto de Física, Benemerita Universidad Autonoma de Puebla, Mexico. <sup>4</sup>Instituto Mexicano del Petroleo,

■ **S6E-P031 LUMINESCENT PROPERTIES OF  $ZrO_2:Dy^{3+}$  and  $ZrO_2:Dy^{3+} + Li$  FILMS SYNTHESIZED BY ULTRASONIC SPRAY PYROLYSIS TECHNIQUE**

A. Baéz-Rodríguez<sup>a</sup>, O. Alvarez-Fragoso<sup>b</sup>, M. García-Hipólito<sup>b</sup>, J. Guzmán-Mendoza<sup>c</sup> and C. Falcony<sup>d</sup>

<sup>a</sup>Postgrado en Ciencia e Ingeniería de Materiales, UNAM.

México, D. F. <sup>b</sup>Departamento de Materiales Metálicos y Cerámicos, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. <sup>c</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional, Unidad Legaria, México, D.F. <sup>d</sup>Departamento de Física, CINVESTAV-IPN, México, D. F.

■ **S6E-P032 SYNTHESIS, CHARACTERIZATION AND LUMINESCENCE STUDIES IN  $ZrO_2:Dy^{3+}$  AND  $ZrO_2:Dy^{3+}, Gd^{3+}$  FILMS DEPOSITED BY THE PYROSOL METHOD**

C. Martínez-Olmos<sup>a</sup>, J. Guzmán-Mendoza<sup>a</sup>, A. Báez-Rodríguez<sup>b</sup>, O. Álvarez-Fragoso<sup>b</sup>, M. García-Hipólito<sup>b</sup> and C. Falcony<sup>c</sup>.

<sup>a</sup>Centro de Investigación de Ciencia Aplicada y Tecnología Avanzada, IPN, Unidad Legaria, México D. F. <sup>b</sup>Instituto de Investigaciones en Materiales, UNAM, México, D. F. <sup>c</sup>Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional, México.

■ **S6E-P033 TUNABLE PHOTOLUMINESCENT EMISSION IN  $HfO_2:Eu + Tb$  THIN FILMS**

I. Martínez-Merlín<sup>1</sup>, J. Guzmán-Mendoza<sup>1</sup>, M. García-Hipólito<sup>2</sup>, L. Lartundo-Rojas<sup>3</sup>, V. Sánchez-Resendiz<sup>4</sup>, R. Fragozo<sup>5</sup>, C. Falcony-Guajardo<sup>5</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, IPN, México D.F. <sup>2</sup>Departamento de Materiales Metálicos y Cerámicos, Instituto de Investigaciones en Materiales, UNAM, AMéxico, D.F. <sup>3</sup>Centro de Nanociencias y Micro y Nanotecnología, IPN, México D.F. <sup>4</sup>Departamento de Ingeniería Eléctrica, CINVESTAV-IPN, México D.F. <sup>5</sup>Departamento de Física, CINVESTAV-IPN, México D.F.

■ **S6E-P034 SYNTHESIS AND CHARACTERIZATION OF MICRO-DOSIMETRY SYSTEMS AND MICRO-NANO GRANULATE OF  $(KCl:Eu)_x(KBr:Eu)_{1-x}$**

Osmara Mungaray<sup>1</sup>, Thomas Piters<sup>2</sup>, Ana Lilia Leal-Cruz<sup>2</sup>, Margarita Atondo Encinas<sup>2</sup>

<sup>1</sup>Departamento de Investigación en Polímeros y Materiales,

<sup>2</sup>Departamento de Física, Universidad de Sonora, Unidad Regional Centro. Hermosillo, Sonora, México.

■ **S6E-P035 GENERATION AND DISTRIBUTION OF EMISSION MECHANISMS IN  $ZnO$  COLUMNS AND NANOTUBES BY THERMAL TREATMENT**

M. Gracia-Jiménez<sup>1</sup>, J. Cembrero<sup>2</sup>, B. Mari<sup>3</sup>, M. Mollar<sup>3</sup>, M. E. Hernández-Torres<sup>4</sup>

<sup>1</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, México., <sup>2</sup>Departament d'Enginyeria

Mecànica i Materials, Universitat Politècnica de Valencia, Spain., <sup>3</sup>Departament de Física Aplicada-IDF, Universitat Politècnica de Valencia, Spain., <sup>4</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, México.

■ **S6E-P036 SYNTHESIS, CHARACTERIZATION AND CYTOTOXICITY OF PHOSPHORESCENT  $SrAl_2O_4$  NANOPARTICLES CO-DOPED WITH  $Eu^{2+}/Dy^{3+}$  IONS**

J. Montes-Frausto<sup>1</sup>, G. Hirata-Flores<sup>2</sup>, K. Juárez-Moreno<sup>2,3</sup>

<sup>1</sup>Departamento de Física de Materiales, Centro de Investigación Científica y de Educación Superior de Ensenada, México. <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México. <sup>3</sup>Investigador de Cátedras CONACYT, México.

■ **S6E-P037 PHOTOLUMINESCENCE FROM TANTALUM OXIDE SYNTHESIZED BY HFCVD APPROACH**

H. Herrera<sup>1</sup>, T. Díaz-Becerril<sup>1</sup>, C. Morales Ruiz<sup>1</sup>, G. García-Salgado<sup>1</sup>, Rosendo Andres<sup>1</sup>, R. Galeazzi<sup>1</sup>, R. Romano Trujillo<sup>1</sup>

<sup>1</sup>CIDS-ICUAP Benemérita Universidad Autónoma de Puebla, México

■ **S6E-P038 SILICA COATED, AMINOSILANE FUNCTIONALIZATION, UPCONVERSION EMISSION AND CYTOTOXICITY OF THE NANOPARTICLES  $Y_2O_3$  AND  $Gd_2O_3$  CO-DOPED WITH  $Yb^{3+}$  and  $Er^{3+}$**

D. Chávez<sup>1</sup>, G. A. Hirata<sup>2</sup> and K. Juárez-Moreno<sup>2,3</sup>

<sup>1</sup>Posgrado en Física de Materiales, CICESE-UNAM, Centro de Nanociencias y Nanotecnología. México. <sup>2</sup>Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, México. <sup>3</sup>Investigador de Cátedras CONACYT, México.

■ **S6E-P039 SYNTHESIS OF  $\text{Sr}_4\text{Al}_{14}\text{O}_{25}:\text{Eu}/\text{Dy}:\text{B}_{0.4}$  BY COMBUSTION METHOD AND ITS PERFORMANCE AS TL/AG/OSL DOSIMETER**

N. J. Zúñiga-Rivera,<sup>1</sup> P. Salas-Castillo,<sup>2</sup> L. A. Díaz-Torres,<sup>3</sup> R. Meléndrez A,<sup>4</sup> V. Chernov,<sup>4</sup> M. Pedroza-Montero,<sup>4</sup> R. García,<sup>4</sup> and M. Barboza-Flores<sup>4</sup>

<sup>1</sup>Departamento de Física, Posgrado en Nanotecnología, Universidad de Sonora, Hermosillo, México <sup>2</sup>Departamento de Nanotecnología. Centro de Física y Tecnología Aplicada y Tecnología Avanzada, UNAM. México <sup>3</sup>Centro de Investigación en Óptica, México <sup>4</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, México

■ **S6E-P040 ANALYSIS OF LUMINESCENCE IN NANOSTRUCTURED FILMS OF  $\text{SnO}_2:\text{Sb}:\text{F}$  DEPOSITED BY ULTRASONIC SPRAY PYROLYSIS.**

Roberto Vázquez Arreguín<sup>1,2</sup>, Miguel García Rocha<sup>1</sup>, Ciro Falcony Guajardo<sup>1</sup>.

<sup>1</sup> CINVESTAV-IPN, México. <sup>2</sup> ESCOM-IPN, México

■ **S6E-P041 PERSISTENT LUMINESCENCE, TL AND OSL CHARACTERIZATION OF BETA IRRADIATED  $\text{SrAl}_2\text{O}_4:\text{Eu}/\text{Dy}:\text{B}_{0.1}$  AND  $\text{SrAl}_2\text{O}_4:\text{Eu}/\text{Nd}:\text{B}_{0.1}$  COMBUSTION SYNTHESIZED PHOSPHORS**

N. J. Zúñiga-Rivera,<sup>1</sup> P. Salas-Castillo,<sup>2</sup> L. A. Díaz-Torres,<sup>3</sup> R. Meléndrez A,<sup>4</sup> V. Chernov,<sup>4</sup> M. Pedroza-Montero,<sup>4</sup> R. García,<sup>4</sup> and M. Barboza-Flores<sup>4</sup>

<sup>1</sup>Departamento de Física, Posgrado en Nanotecnología, Universidad de Sonora, Hermosillo, México <sup>2</sup>Departamento de Nanotecnología. Centro de Física y Tecnología Aplicada y Tecnología Avanzada, UNAM. Juriquilla, Qro. México <sup>3</sup>Centro de Investigación en Óptica, México <sup>4</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, México

■ **S6E-P042  $\text{SiO}_x$  FILMS DEPOSITED BY HFCVD: HYDROGEN FLOW EFFECT ON THE PHOTOLUMINESCENT PROPERTIES**

D. E. Vázquez Valerdi<sup>1</sup>, A. Benítez Lara<sup>1</sup>, J. A. Luna López<sup>1</sup>, G. García Salgado<sup>1</sup>, J. Carrillo López<sup>1</sup>, A. Morales Sánchez<sup>2</sup>, D. Hernández de la Luz<sup>1</sup>, Miguel A. Domínguez<sup>1</sup>

<sup>1</sup>CIDS-ICUAP Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Centro de Investigación en Materiales Avanzados S.C. México.

■ **S6E-P043 HIGH-PRECISION MEASUREMENT OF HYPERFINE STRUCTURE IN THE  $\text{D}_2$  LINE OF CESIUM-133 ATOM USING AN ULTRA-STABLE LASER**

C. A. Ortiz Cardona<sup>1,2</sup>, E. de Carlos López<sup>1</sup>, J. M. López Romero<sup>1</sup>, S. López López<sup>1</sup>, R. Gutiérrez Gómez<sup>1,2</sup> and S. Jiménez-Sandoval<sup>2</sup>

<sup>1</sup> Dirección de Metrología de Tiempo y Frecuencia, Centro Nacional de Metrología, CENAM, México. <sup>2</sup> Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional (IPN), CINVESTAV, Unidad Querétaro, México.

■ **S6E-P044 LUMINESCENT PROPERTIES IN  $\text{ZrO}_2:\text{Dy},\text{Gd}$  FILMS**

R. C. Martínez<sup>1</sup>, J. Guzmán<sup>1</sup>, M. García-Hipólito<sup>2</sup>, C. Falcony<sup>3</sup>

<sup>1</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, IPN, Unidad Legaria, México D. F. <sup>2</sup>Instituto de Investigaciones en Materiales, UNAM, México, D. F. <sup>3</sup>Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional, México.

■ **S6E-P045 FLUORESCINE INFILTRATION EFFECTS ON THE PHOTOLUMINESCENT AND ELECTRICAL PROPERTIES OF POROUS SILICON**

J. A. Luna López<sup>1</sup>, M. Meneses Meneses<sup>1</sup>, E. Gómez Barojas<sup>1</sup>, J. F. J. Flores Gracia<sup>1</sup>, A. Morales Sánchez<sup>2</sup>, D. Hernández de la Luz<sup>1</sup>, Miguel A. Domínguez<sup>1</sup>

<sup>1</sup>CIDS-ICUAP Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Centro de Investigación en Materiales Avanzados S.C., México.

■ **S6E-P046 MODULATION OF THE THERMOLUMINESCENCE GLOW CURVE OF SOL-GEL SYNTHESIZED  $\text{SiO}_2$  AND  $\text{SiO}_2:\text{Eu}$  THROUGH THERMAL ANNEALING**

Ch. J. Salas-Juárez<sup>1</sup>, R. Bernal<sup>2</sup>, C. Cruz-Vázquez<sup>1</sup>, V. M. Castaño<sup>3</sup>

<sup>1</sup> Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora. México. <sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, México. <sup>3</sup> Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México,

■ **S6E-P047 POLYMER OPTICAL FIBER WITH RHODAMINE DOPED CLADDING FOR LIGHTING SYSTEMS**

R. Narro-García, R. Quintero-Torres, L. Domínguez-Juárez, M.A. Ocampo

Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.



■ **S6E-P048 PHOTOLUMINESCENCE OF GLASSES WITH HIGH GeO<sub>2</sub> CONTENT OF THE TERNARY SYSTEM CdO-TeO<sub>2</sub>-GeO<sub>2</sub>**

C.L. Medrano-Pesqueira<sup>1</sup>, María E. Zayas<sup>2</sup>, J. Alvarado-Rivera<sup>3</sup>, R. Lozada-Morales<sup>4</sup>, G.C. Díaz<sup>5</sup>, E. Álvarez<sup>1</sup>

<sup>1</sup> Departamento de Física, Universidad de Sonora, Sonora, México. <sup>2</sup> Departamento de Investigación de Física, Universidad de Sonora, México. <sup>3</sup> Cátedras CONACYT, Departamento de Física, Universidad de Sonora, México. <sup>4</sup> Facultad de Ciencias Físico-Matemáticas, Benemérita Universidad Autónoma de Puebla, Puebla, México. <sup>5</sup> Facultad de Ciencias Químicas, Universidad Autónoma de Baja California, Tijuana, México.

■ **S6E-P049 THERMOLUMINESCENCE PROPERTIES OF NaCl:Mn AND NaCl:KCl:Mn CRYSTALS EXPOSED TO GAMMA RADIATION**

L. Somera-León<sup>1,2</sup>, E. Cruz-Zaragoza<sup>1</sup>

<sup>1</sup> Instituto de Ciencias Nucleares UNAM, México. <sup>2</sup> Instituto de Investigación en Materiales UNAM, México.

■ **S6E-P050 THERMOLUMINESCENCE OF EUROPIUM-DOPED ZINC OXIDE EXPOSED TO BETA PARTICLE IRRADIATION**

J. L. Iriqui-Razcón<sup>1</sup>, C. Cruz-Vázquez<sup>1</sup>, R. Bernal<sup>2</sup>, V. M. Castaño<sup>3</sup>

<sup>1</sup> Departamento de Investigación en Polímeros y Materiales de la Universidad de Sonora, Hermosillo, México. <sup>2</sup> Departamento de Investigación en Física de la Universidad de Sonora, Hermosillo, México. <sup>3</sup> CIATEQ-Centro de Tecnología Avanzada, México.

■ **S6E-P051 SYNTHESIS OF SUPRAMOLECULAR-ASSAMBLER OF  $\pi$ -CONJUGATED DENDRIMERS AND RYLEN-BISIMIDES TO MULTICHROMOPHORIC OLEDs**

K. Navarrete-Islas<sup>1</sup>, K. Mondragón-Vásquez<sup>1</sup>, M. R. Mendoza-López<sup>2</sup>, O. García-Barradas<sup>2</sup>, J. G. Domínguez-Chávez<sup>1</sup>

<sup>1</sup> Facultad de Bioanálisis Región Veracruz, U.V. México. <sup>2</sup> Unidad SARA, U.V. México.

■ **S6E-P052 UPCONVERSION LUMINESCENCE OF Gd<sub>2</sub>O<sub>3</sub> PHOSPHORS EMBEDDED INTO POLYESTER FILMS**

Karen Jaqueline Martínez Avila<sup>1</sup>, Salvador Carmona Téllez<sup>2</sup>, Luis Mariscal B.<sup>3</sup>, Dulce Yolotzin Medina Velazquez<sup>1</sup>, Gilberto Alarcón-Flores<sup>4</sup>, Héctor Murrieta S.<sup>2</sup> and Ciro Falcony<sup>3</sup>

<sup>1</sup>UAM-A, Azcapotzalco, México D.F. México. <sup>2</sup>IF-UNAM, Coyoacán, México D.F. México. <sup>3</sup>Cinvestav, Gustavo A. Madero, México D.F. México. <sup>4</sup> CICATA-IPN, Miguel Hidalgo, México D. F., México

■ **S6E-P053 STRUCTURES AND LUMINESCENT PROPERTIES OF SAMARIUM-DOPED TiO<sub>2</sub> FILMS SYNTHESIZED BY ULTRASONIC SPRAY PYROLYSIS TECHNIQUE**

L. Sánchez-Carriola<sup>1</sup>, F. Camargo-Aguilar<sup>1</sup>, A. N. Meza Rocha<sup>1</sup>, S. Carmona-Téllez<sup>2</sup>, R. Sánchez-Alarcón<sup>3</sup>, G. Alarcón-Flores<sup>3</sup>, E. Zaleta Alejandre<sup>4</sup> and C. Falcony<sup>1</sup>

<sup>1</sup>Cinvestav, Gustavo A. Madero, México D.F. <sup>2</sup> IF-UNAM, Coyoacán, México. <sup>3</sup> CICATA-IPN; México D.F. <sup>4</sup> Universidad Autónoma del Estado de Hidalgo - Escuela Superior de Apan, México

■ **S6E-P054 EFFECT OF GROWTH TEMPERATURE ON THE CARRIER RECOMBINATION IN CdSe/ZnSe ULTRATHIN QUANTUM WELLS**

A. Duran-Ledezma<sup>1</sup>, M. García Rocha<sup>2</sup>, I. Hernández Calderon<sup>2</sup>

<sup>1</sup>Depto. de Física, Cinvestav-IPN. México

■ **S6E-P055 OPTICAL CHARACTERIZATION OF MATERIALS BY SPECTRAL CORRELATION TECHNIQUE AND TIME RESOLVE SPECTROSCOPY**

A. Duran-Ledezma<sup>1</sup>, L.F. Rojas Ochoa<sup>2</sup>, M. García Rocha<sup>2</sup>

<sup>1</sup>Depto. de Física, Cinvestav-IPN. México

ROOM: MEXICO  
THURSDAY, AUGUST 20

■ Session Chair: **JOANNA MCKITTRICK**  
UNIVERSITY OF CALIFORNIA, SAN DIEGO, USA

▶ **08:30 - 09:00 S6E-0009 Invited Talk RARE EARTH DOPED NANOPARTICLES FOR IMAGING AND THERAPY: PERSPECTIVES OF Nd<sup>3+</sup> IONS IN NANOMEDICINE**

J. García Solé<sup>1</sup>

<sup>1</sup>Fluorescence Imaging Group, Departamento de Física de Materiales, Facultad de Ciencias, Campus de Cantoblanco, Universidad Autónoma de Madrid, Spain.

■ **09:00 - 09:15 S6E-0010 DEPENDENCE OF THE UP-CONVERSION EMISSION OF Li+ CO-DOPED Y<sub>2</sub>O<sub>3</sub>: ER<sup>3+</sup> FILMS WITH DOPANT CONCENTRATION**

Abraham Meza-Rocha<sup>3</sup>, Evelyn Huerta<sup>3</sup>, Ulises Caldiño<sup>3</sup>, Salvador Carmona-Téllez<sup>2</sup>, Ciro Falcony<sup>4</sup>

<sup>3</sup>Departamento de Física, Universidad Autónoma Metropolitana-Iztapalapa, México. <sup>4</sup>Programa de Doctorado en Nanociencias y Nanotecnología, CINVESTAV

IPN, México. <sup>4</sup>Instituto de Física, UNAM, México. <sup>4</sup>Centro de Investigación y de Estudios Avanzados del IPN, Departamento de Física, México.

■ **09:15 - 09:30 S6E-0011 REVISITING THE SYSTEM  $Zr_{1-x}YxO_{2-x/2}$  DOPED WITH TRIVALENT LANTHANIDES: THE RELATIONSHIP AMONG LUMINESCENT AND STRUCTURAL PROPERTIES**

F. González<sup>1</sup>, R. López Juárez<sup>2</sup>, H. Molina-Morales<sup>1</sup>, Enrique Barrera-Calva<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería de Procesos e Hidráulica, Universidad Autónoma Metropolitana-Iztapalapa, México.

<sup>2</sup>Departamento de Materiales Metálicos y Cerámicos, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México.

▶ **09:30 - 10:00 S6E-0012 *Invited Talk* MULTIFUNCTIONAL FLEXIBLE III-N LIGHT-EMITTING DIODES**

Shahab Shervin<sup>1</sup>, Seung-Hwan Kim<sup>1</sup>, Mojtaba Asadirad<sup>1</sup>, Jae-Hyun Ryou<sup>1</sup>

<sup>1</sup>University of Houston, Houston, USA

■ **10:00 - 10:15 S6E-0013 BRIGHT VISIBLE LIGHT EMISSION FROM SUSPENDED GRAPHENE STRUCTURES**

Y.D. Kim<sup>1,2</sup>, M.-H. Bae<sup>3</sup>, Y.D. Park<sup>1</sup>

<sup>1</sup>Department of Physics & Astronomy, Seoul National University, Korea, <sup>2</sup>Department of Mechanical Engineering, Columbia University, New York, USA, <sup>3</sup>Korea Research Institute of Standards and Science, Korea

■ **10:15 - 10:30 S6E-0014 SILICON OXYCARBIDE THIN FILMS WITH INTENSE WHITE LUMINESCENCE OBTAINED BY O-CAT-CVD**

A. Dutt<sup>1</sup>, Y. Matsumoto<sup>1,2</sup>, G. Santana-Rodríguez<sup>3</sup>, J Santoyo Salazar<sup>4</sup>, S. Godavarthi<sup>5</sup>

<sup>1</sup>SEES, Electrical Engineering Department, Centro de Investigación y de Estudios Avanzados del IPN, Mexico,

▶ **10:30 - 11:00 S6E-0015 *Invited Talk* OFF STOICHIOMETRIC SILICON RICH OXIDE CHARACTERISTICS AND APPLICATIONS**

Mariano Aceves Mijares

Coordinación de Electrónica, INAOE. México.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: LUIS ARMANDO DIAZ-TORRES, CENTRO DE INVESTIGACIONES EN ÓPTICA, LEÓN, GTO. MÉXICO**

▶ **12:30 - 13:00 S6E-0016 *Invited Talk* ZINC PHOSPHATE PHOSPHORS WITH POSSIBLE APPLICATION TO WHITE LIGHT-EMITTING DIODES**  
Ulises Caldiño<sup>1</sup>

<sup>1</sup>Departamento de Física, Universidad Autónoma Metropolitana-Iztapalapa, México

■ **13:00 - 13:15 S6E-0017 ANGLE DEPENDENT LIGHT EMISSION FROM DYE-DOPED CHIRAL NEMATIC STRUCTURES**

M. V. Santos,<sup>1,2</sup> E. Pecoraro,<sup>1</sup> R. A. S. Ferreira,<sup>2</sup> L. D. Carlos,<sup>2</sup> S. J. L. Ribeiro<sup>1</sup>

<sup>1</sup>Institute of Chemistry, São Paulo State University, UNESP, Brazil. <sup>2</sup>Physics Department, University of Aveiro, Campus de Santiago, Aveiro, Portugal.

■ **13:15 - 13:30 S6E-0018 THE INFLUENCE OF CONVENTIONAL AND CONTROLLED PRESSURE HYDROTHERMAL METHODS IN UPCONVERSION PHOTOLUMINESCENCE OF  $YPO_4:Er^{3+}$**

S.L. Rivera<sup>a</sup>, F.J Carrillo<sup>a</sup>, A. Murillo<sup>a</sup>, J. Oliva<sup>b</sup>

<sup>a</sup>CIITEC-IPN, <sup>b</sup> Centro de Investigaciones en Óptica.

▶ **13:30 - 14:00 S6E-0019 *Invited Talk* SINTERIZATION TEMPERATURE EFFECTS IN  $Dy^{3+}$  DOPPED HAFMIUM OXIDE. SPECTROSCOPIC STUDIES**

César Leonardo Ordóñez Romero<sup>1</sup>, Cristina Flores J.<sup>1</sup>, José Hernández A.<sup>1</sup>, Enrique Camarillo G.<sup>1</sup>, Enrique Cabrera<sup>1</sup>, Manuel García Hipólito<sup>2</sup> and Héctor Murrieta S.<sup>1</sup>

<sup>1</sup>Instituto de Física U.N.A.M. México. <sup>2</sup>Instituto de Investigación en Materiales. U.N.A.M. México.

✕ **14:00- 16:00 LUNCH**

👤 **Session Chair: IGOR AHARONOVICH SCHOOL OF PHYSICS AND ADVANCED MATERIALS, UNIVERSITY OF TECHNOLOGY, SYDNEY**

▶ **16:00 - 16:30 S6E-0020 *Invited Talk* RARE EARTH DOPED GLASSES AND GLASS-CERAMICS FOR WHITE LIGHT GENERATION AND WAVELENGTH CONVERSION FOR SOLAR APPLICATIONS**

S. Pelli<sup>1,4</sup>, G. Gorni<sup>1,2</sup>, A. Durán<sup>2</sup>, Y. Castro<sup>2</sup>, M.J. Pascual<sup>2</sup>, U. Caldiño<sup>3</sup>, C. Falcony<sup>4</sup>, A. Speghini<sup>1,5</sup>, M. Bettinelli<sup>5</sup>,



A. Cosci<sup>1,4</sup>, S. Berneschi<sup>1</sup>, V. Raimondi<sup>1</sup>, L. Palombi<sup>1</sup>,  
E. Pasquini<sup>1</sup>, M. Ferrari<sup>6,7</sup>, G.C. Righini<sup>1,6</sup>

<sup>1</sup> Istituto di Fisica Applicata "Nello Carrara" (IFAC-CNR), Italy, <sup>2</sup> Instituto de Cerámica y Vidrio (CSIC), Spain, <sup>3</sup> Departamento de Física, Universidad Autónoma Metropolitana-Iztapalapa, México D.F., Mexico, <sup>4</sup> Centro de Investigación y de Estudios Avanzados del IPN, DF, Mexico, <sup>5</sup> Dipartimento di Biotecnologie, Università di Verona and INSTM, Udr Verona, Verona, Italy, <sup>6</sup> Museo Storico della Fisica e Centro Studi e Ricerche "Enrico Fermi", Roma, Italy, <sup>7</sup> IFN-CNR CSMFO Lab, Italy

■ **16:30 - 16:45 S6E-0021 WHITE AND MULTICOLOR PHOTOLUMINESCENT EMISSION OF NANOSTRUCTURED ZrO<sub>2</sub>: RE**

A. Ramos<sup>1</sup>, J. Guzmán<sup>1</sup>, M. García<sup>2</sup>, C. Falcony<sup>3</sup>

<sup>1</sup> Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, IPN, México. <sup>2</sup> Instituto de Investigación en Materiales, UNAM, <sup>3</sup> Centro de Investigación y Estudios Avanzados, IPN, México.

■ **16:45 - 17:00 S6E-0022 LUMINESCENT AND STRUCTURAL PROPERTIES OF Sm<sup>3+</sup>: Y<sub>2</sub>O<sub>3</sub> NANOPHOSPHOR OBTAINED BY THE MICROWAVE ASSISTED METHOD**

R.I. Sánchez-Alarcón<sup>1</sup>, G. Alarcón-Flores<sup>1</sup>, S. Carmona-Téllez<sup>3</sup>, P.J. Rodríguez Cantó<sup>4</sup>, M.A. Aguilar-Frutis<sup>1</sup>, C. Falcony-Guajardo<sup>2</sup>, J.P. Martínez Pastor<sup>4</sup>

<sup>1</sup> Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del IPN Unidad Legaria. México, <sup>2</sup> Departamento de Física, Centro de Investigación y Estudios Avanzados del IPN. México, <sup>3</sup> Instituto de Física – UNAM. Ciudad Universitaria, México, D.F., México, <sup>4</sup> ICMUV - Universidad de Valencia, España.

► **17:00 - 17:30 S6E-0023 Invited Talk STRUCTURAL AND OPTICAL PROPERTIES OF HfO<sub>2</sub> FILMS DOPED WITH Eu<sup>3+</sup> AND Tb<sup>3+</sup> IONS PROCESSED BY LASER ABLATION FOR LUMINESCENT APPLICATIONS**

A.A. Aguilar-Castillo<sup>1</sup>, J. Aguilar-Hernández<sup>1</sup>, L.A. Martínez-Ara<sup>1</sup>, G.S. Contreras-Puente<sup>1</sup>, J.M. Hernandez-Alcantara<sup>2</sup>, M. Garcia-Hipolito<sup>3</sup>

<sup>1</sup> Escuela Superior de Física y Matemáticas - Instituto Politécnico Nacional, México D.F. <sup>2</sup> Instituto de Física – Universidad Nacional Autónoma de México, México, D.F. <sup>3</sup> Instituto de Investigaciones en Materiales – Universidad Nacional Autónoma de México, México, D.F.

■ **17:30 - 17:45 S6E-0024 CALCIUM PHOSPHATES POWDERS OBTAINED BY PRECIPITATION AT DIFFERENT pH FOR THERMOLUMINESCENCE APPLICATIONS**

A. Barrera-Villatoro<sup>1</sup>, J. Zarate-Medina<sup>1</sup>, M.E. Contreras García<sup>1</sup>, T. Rivera\_Montalvo<sup>2</sup>

<sup>1</sup> Instituto de Investigación en Metalurgia y Materiales de la Universidad Michoacana de San Nicolás de Hidalgo, <sup>2</sup> Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada-Legaria, IPN. México

► **17:45 - 18:15 S6E-0025 Invited Talk INFLUENCE OF CdTe QUANTUM DOT DOWN SHIFTING PHOTOLUMINESCENT NANOSTRUCTURES AND NANOTEXTURIZATION IN SOLAR CELL PERFORMANCE**

Arturo A. Ayón

The University of Texas at San Antonio

■ **18:15 - 18:30 S6E-0026 UPCONVERSION LUMINESCENCE OF HfO<sub>2</sub> PHOSPHORS EMBEDDED INTO POLYESTER FILMS**

Salvador Carmona Téllez<sup>1</sup>, Luis Mariscal B.<sup>2</sup>, José Manuel Hernández<sup>1</sup>, Gilberto Alarcón Flores<sup>3</sup>, Héctor Murrieta S.<sup>1</sup> and Ciro. Falcony<sup>2</sup>

<sup>1</sup> IF-UNAM, Coyoacán, México. <sup>2</sup> Cinvestav, México. <sup>3</sup> CICATA-IPN, México

► **18:30 - 19:00 S6E-0027 Invited Talk DESIGN AND DEVELOPMENT OF PHOSPHORS FOR SOLID STATE LIGHTING**

Joanna McKittrick<sup>1,2</sup>, Jungmin Ha<sup>2</sup>, Zhenbin Wang<sup>3</sup>, Gustavo A. Hirata<sup>4</sup>, Olivia A. Graeve<sup>1,2</sup>, Shyue Ping Ong<sup>3</sup>

<sup>1</sup> Dept. of Mechanical and Aerospace Engineering

<sup>2</sup> Materials Science and Engineering Program <sup>3</sup> Dept. of NanoEngineering University of California, San Diego. USA

<sup>4</sup> Center for Nanoscience and Nanotechnology. México.



## Symposium 6F

# MATERIALS AND ENVIRONMENT

**Eddie López-Honorato** / MEXICO / CINVESTAV, Unidad Saltillo

**Reyes Sierra-Alvarez** / USA / The University of Arizona

**Refugio Rodríguez Vázquez** / MEXICO / CINVESTAV-IPN

**Rosendo López González** / MEXICO / Universidad Juárez Autónoma de Tabasco

ROOM: TULUM A  
MONDAY, AUGUST 17

 Session Chair: **REYES SIERRA** THE UNIVERSITY OF ARIZONA

▶ **09:00 - 09:30 S6F-0001 *Invited Talk* CONTINUOUS FLOW SYNTHESIS OF METAL NANOPARTICLES IN IONIC LIQUID DROPLETS AS A SUSTAINABLE METHOD OF NANOMANUFACTURING**

**R. L. Brutchey**<sup>1</sup>

<sup>1</sup>Department of Chemistry, University of Southern California, Los Angeles, USA

▶ **09:30 - 10:00 S6F-0002 *Invited Talk* SYNTHETIC DEVELOPMENT AND CURRENT CHALLENGES IN CZTS- AND PEROVSKITE-BASED NANOMATERIALS FOR ENERGY CONVERSION**

**J. Vela**

Department of Chemistry, Iowa State University, and Ames Laboratory, Ames, USA

▶ **10:00 - 10:30 S6F-0003 *Invited Talk* PRECURSOR ROUTES TO UNUSUAL PHASES AND STRUCTURES OF PHOSPHIDES, NITRIDES, AND OXIDES FOR PHOTOCATALYSIS OR ELECTROCATALYSIS**

**E. G. Gillan**<sup>1</sup>

<sup>1</sup>University of Iowa, Department of Chemistry, Iowa City, USA

■ **10:30 - 10:45 S6F-0004 THE EXTRACTION AND REGENERATION OF CR(VI) UTILIZING A HIGHLY FLEXIBLE ZNO-PLLA NANOFIBER NANOCOMPOSITE FOR CONTINUOUS FLOW MODE PURIFICATION OF WATER**

**T. Burks**,<sup>1</sup> **A. Uheida**,<sup>2</sup> **M. Saleemi**,<sup>2</sup> **M. Avila**,<sup>2</sup> **F. Akthar**,<sup>3</sup> and **Y. Kiroso**<sup>3</sup>

<sup>1</sup>Department of Chemical Engineering and Technology, Royal Institute of Technology (KTH), Stockholm, Sweden, <sup>2</sup>Division of Functional Materials, Royal Institute of Technology (KTH), Sweden, <sup>3</sup>Department of Materials and Environmental Chemistry, Stockholm University, Stockholm, Sweden

■ **10:45 - 11:00 S6F-0005 DEVELOPING 3D GRAPHENE BIOSENSE FOR MICROCYSTIN-LR DETECTION IN DRINKING WATER**

**Wei Zhang**<sup>1,2,□</sup>, **Changseok Han**<sup>3,□</sup>, **Christopher Saint**<sup>2</sup>, **Mallikarjuna Nadagouda**<sup>3</sup> and **Dionysios Dionysiou**<sup>1</sup>

<sup>1</sup>Environmental Engineering and Science Program, School of Energy, Environmental, Biological and Medical Engineering, University of Cincinnati, Cincinnati, USA, <sup>2</sup>Centre for Water Management and Reuse, University of South Australia, Mawson Lakes, Australia, <sup>3</sup>National Risk Management Research Laboratory, United States Environmental Protection Agency, Cincinnati, USA.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**



 Session Chair: **RICHARD BRUTCHEY, UNIVERSITY OF SOUTHERN CALIFORNIA**



**14:00- 16:00 LUNCH**

■ **12:30 - 12:45 S6F-0006 GRAPHENE OXIDE FUNCTIONALIZED WITH MAGNETITE AND ITS APPLICATION TO WATER REMEDIATION**

I. Gómez-Robayo<sup>1</sup>, E. Mejía-Ospino<sup>1</sup>, R. Cabanzo-Hernández<sup>1</sup>

<sup>1</sup>Laboratorio de Espectroscopía Atómica y Molecular, Facultad de Ciencias, Universidad Industrial de Santander, Bucaramanga, Colombia

▶ **12:45 - 13:15 S6F-0007 Invited Talk THE NANOTECHNOLOGY AS A POLLUTION SOURCE AND AS BENEFITS PROVIDER: A GROWING ENVIRONMENTAL CONCERN ACROSS THE WORLD**

Fabián Fernández-Luqueño<sup>1</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Saltillo. México.

▶ **13:15 - 13:45 S6F-0008 Invited Talk SYNTHESIS OF METAL OXYNITRIDE AND NITRIDE PHOTOCATALYSTS AS SHAPE-DEFINED NANOCRYSTALS**

S. E. Skrabalak<sup>1</sup>

<sup>1</sup>Indiana University - Bloomington, Department of Chemistry, USA

■ **13:45 - 14:00 S6F-0009 FLUX-MEDIATED GROWTH OF ISOMETRIC CRYSTALS OF CADMIUM-CONTAINING TRANSITION METAL (Ti4+, Nb5+, AND Ta5+) OXIDES AND THEIR (OXY)NITRIDE DERIVATIVES**

Mirabbos Hojamberdiev<sup>1</sup>, Hajime Wagata<sup>1</sup>, Shuji Oishi<sup>1</sup>, Katsuya Teshima<sup>1,2</sup>

<sup>1</sup>Department of Environmental Science and Technology, Faculty of Engineering, Shinshu University, Japan <sup>2</sup>Center for Energy and Environmental Science, Japan

■ **14:00 - 14:15 S6F-0010 ENHANCED PHOTOACTIVITY OF TiO<sub>2</sub> UNDER UV AND VISIBLE LIGHT USING MONO AND BIMETALLIC NANOPARTICLES OF Ag AND Cu**

María G. Méndez-Medrano<sup>1,2</sup> Alexandre Herissan,<sup>1</sup> Ewa Kowalska,<sup>3</sup>Anaïs Lehoux,<sup>3</sup> Bunsho Ohtani,<sup>3</sup>Daniel Bahena,<sup>4</sup> Christophe Colbeau-Justin,<sup>1</sup> José Luis Rodríguez-López,<sup>2</sup>and Hynd Remita<sup>1</sup>

<sup>1</sup>Laboratoire de Chimie Physique, France. <sup>2</sup>Advanced Materials Department, IPICYT, Mexico. <sup>3</sup>Catalysis Research Center, Hokkaido University, Sapporo, Japan. <sup>4</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, D.F., Mexico.

 Session Chair: **JAVIER VELA, IOWA STATE UNIVERSITY**

■ **16:00 - 16:15 S6F-0011 DOPED LAYERED DOUBLE HYDROXIDES AS NEW PHOTOCATALYSTS FOR THE PHOTODEGRADATION OF POLLUTANTS**

Getsemani Morales Mendoza<sup>1</sup>, Francisco Tzompantzi<sup>1</sup>, Angeles Mantilla<sup>2</sup>, Ricardo Gómez<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Iztapalapa, Departamento de Química. <sup>2</sup>Instituto Politécnico Nacional, CICATA-Legaria.

▶ **16:15 - 16:45 S6F-0012 Invited Talk EFFECT OF SURFACE MODIFICATION IN THE TOXICITY, BIOACTIVITY AND BIOCOMPATIBILITY OF SOL-GEL NANOMATERIALS**

Mayra Alvarez<sup>1</sup>, Rosendo López<sup>1</sup>, Erick De la Cruz<sup>2</sup>

<sup>1</sup>División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, México, <sup>2</sup>División Académica Multidisciplinaria Comalcalco, Universidad Juárez Autónoma de Tabasco, México

▶ **16:45 - 17:15 S6F-0013 Invited Talk THE IMPORTANCE OF THE METALS IN A MIXTURE OF OXIDATION STATES AS IMPORTANT FACTOR FOR THE PHOTOCATALYTIC HYDROGEN PRODUCTION FORM METHANOL WATER SOLUTION**

Ricardo Gómez<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Iztapalapa.

■ **17:15 - 17:30 S6F-0014 ELECTROLYTICAL SYNTHESIS OF MAGNETITE PARTICLES**

J. Manrique-Julio<sup>1</sup>, F. Machuca-Martínez<sup>1</sup>, N. Marriaga-Cabrala<sup>1</sup>, M. Pinzón-Cárdenas<sup>1</sup>

<sup>1</sup>Escuela de Ingeniería Química, Universidad del Valle, Cali, Colombia.

**ROOM: TERRACE  
MONDAY, AUGUST 17**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S6F-P001 PREPARATION OF POLYVINYLIDENE-FLUORIDE-BASED MICROPOROUS CARBONS FOR CO<sub>2</sub> ADSORPTION**

S.-M. Hong<sup>1</sup>, K. B. Lee<sup>1</sup>

<sup>1</sup>Department of Chemical and Biological Engineering, Korea University, Republic of Korea

■ **S6F-P002 Pt-Ni NANOPARTICLES ON MULTIWALL CARBON NANOTUBES TO REMOVAL AZO DYES FROM WATER**

E. Torres-Santillan<sup>1</sup>, L. Diaz-Barriga<sup>2</sup>, C. M. Reza-San German<sup>3</sup>, S. Capula-Colondrines<sup>4</sup>, M. Manzano-Ramirez<sup>1</sup>

<sup>1</sup>Dept. of Basic Thermodynamic. National Polytechnic Institute, Mexico DF. <sup>2</sup>Dept. of Metallurgical Eng. National Polytechnic Institute, Mexico DF. <sup>3</sup>Lab. of Analytical Chemistry, National Polytechnic Institute, Mexico D.F. <sup>4</sup>Centro de Investigación en Computación, CIC-IPN, Mexico D.F.

■ **S6F-P003 ELECTRO-CULTURE PROCESSES FOR Arabidopsis thaliana USING IrO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub> 1/2Ti AS A DIMENSIONAL STABLE ANODE**

Acosta-Santoyo<sup>1</sup>, R.A. Herrada-García<sup>1</sup> and E. Bustos<sup>1</sup>

<sup>1</sup>Environmental Electrochemistry Group, Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S. C. México

■ **S6F-P004 UTILIZATION OF IONIC LIQUIDS FOR COMPLEX NOBLE METAL NANOPARTICLE SYNTHESIS**

E. J. Roberts<sup>1</sup>, R. L. Brutchey<sup>1</sup>

<sup>1</sup>Department of Chemistry, University of Southern California, Los Angeles, United States

■ **S6F-P005 EFFECTIVE PHOTOCATALYTIC DEGRADATION OF RHODAMINE 6G DYE BY HETEROGENEOUS COMPOSITES OF POLY(3-HEXYLTHIOPHENE)/TiO<sub>2</sub>/ZnO/NATURAL ZEOLITE**

J. Ramírez-Aparicio<sup>1</sup>, T. M. S. Kekunawela-Pathirana<sup>2</sup>, M. C. Stefan<sup>2</sup>, R. Ramírez-Bon<sup>1</sup>.

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Querétaro, México. <sup>2</sup>University of Texas at Dallas, Department of Chemistry, Richardson, Texas

■ **S6F-P006 SURFACE IMPURITIES ON SELENITE GIANT CRYSTALS FROM NAICA, MEXICO**

M. E. Montero-Cabrera<sup>1</sup>, I. Castillo-Sandoval<sup>1</sup>, I. J. A. Carreño-Márquez<sup>1</sup>, H. E. Esparza-Ponce<sup>1</sup>, L. E. Fuentes-Cobas<sup>1</sup>, M. E. Fuentes-Montero<sup>2</sup>, M. Reyes-Cortes<sup>3</sup>, B. Pérez-Cázares<sup>3</sup>, M. L. Ballinas-Casarrubias<sup>2</sup> and, M. Y. Luna-Porres<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMA), México <sup>2</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Chihuahua, México <sup>3</sup>Facultad de Ingeniería, Universidad Autónoma de Chihuahua, México.

■ **S6F-P007 SORPTION OF ATRAZINE IN TWO CLAY SOILS FROM MEXICO**

Prado, B.<sup>1</sup>, Duwig, C.<sup>2</sup>, Mora, L.<sup>1</sup>, Zamora, O.<sup>1</sup>

<sup>1</sup>Instituto de Geología, Universidad Nacional Autónoma de México, Mexico, D.F. <sup>2</sup>IRD/Université Grenoble1/CNRS/G-INP, France

■ **S6F-P008 SYNTHESIS OF FLUORINATED PRECURSOR FOR HYDROPHOBIC COATINGS**

E. Martín Varguez<sup>1</sup>, A. Torres Castro<sup>1</sup>, V. A. González González<sup>1</sup>, U. Ortíz Mendez<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León

■ **S6F-P009 MECHANICAL STRENGTH OF POLYMERS CURED AT DIFFERENT TEMPERATURES**

S. Apodaca García<sup>1</sup>, J.M. Gómez Soberón<sup>2</sup>, R. Corral Higuera<sup>1</sup>, J.L. Almaral Sánchez<sup>1</sup>, S.P. Arredondo Rea<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Sinaloa, Facultad de Ingeniería Mochis, Posgrado, Ángel Flores y Poseidón, Ciudad Universitaria. <sup>2</sup>Universidad Politécnica de Cataluña, Escuela Politécnica Superior de Edificación de Barcelona, España.

■ **S6F-P010 COMPARISON OF GEOPOLYMERS BASED ON DIFFERENT FLY ASH**

C.G. Morales Agundez<sup>1</sup>, J.M. Gómez Soberón<sup>2</sup>, R. Corral Higuera<sup>1</sup>, J.L. Almaral Sánchez<sup>1</sup>, S.P. Arredondo Rea<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Sinaloa, Facultad de Ingeniería Mochis, Posgrado, Ángel Flores y Poseidón. <sup>2</sup>Universidad Politécnica de Cataluña, Escuela Politécnica Superior de Edificación de Barcelona, España.

■ **S6F-P011 CURING TIME EFFECT ON THE MECHANICAL PROPERTIES OF MORTARS FLY ASH BASED GEOPOLYMER**

A.J. Barreras Miranda<sup>1</sup>, S.P. Arredondo Rea<sup>1</sup>, J.M. Gómez Soberón<sup>2</sup>, J.L. Almaral Sánchez<sup>1</sup>, R. Corral Higuera<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Sinaloa, Facultad de Ingeniería Mochis, Posgrado, Ángel Flores y Poseidón, <sup>2</sup>Universidad Politécnica de Cataluña, Escuela Politécnica Superior de Edificación de Barcelona, España.

■ **S6F-P012 ETHYLENEDIAMINE TiO<sub>2</sub> XEROGELS IN REACTIONS OF PHOTOREDUCTION**

Sandra Cipagauta-Díaz<sup>1</sup>, Agileo Hernández-Gordillo<sup>2</sup>, Ricardo Gómez<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana Unidad Iztapalapa, México D.F. <sup>2</sup>CIEMAD-Instituto Politécnico Nacional, México.



■ **S6F-P013 PHOTOCATALYTIC ACTIVITY OF SnO<sub>2</sub>-NANOPOWDER MODIFIED WITH BIVALENT AND PENTAVALENT IONS**

G. M. M. M. Lustosa<sup>1</sup>, N. Jacomaci<sup>1</sup>, L. A. Perazolli<sup>1</sup>, M. A. Zaghete<sup>1</sup>

<sup>1</sup>Interdisciplinary Laboratory of Electrochemistry and Ceramics, Chemistry Institute – UNESP, Brazil

■ **S6F-P014 OXIDES METALLIC EMPLOYED TO SUPPORT HYBRID ZINC SULFIDE IN HYDROGEN PRODUCTION**

J.M. Alvaro<sup>1</sup>, G. Jácome-Acatitla<sup>1</sup>, C. García-Mendoza<sup>1</sup>, S. Oros-Ruiz<sup>1,2</sup>, A. Hernández-Gordillo<sup>2,3</sup>, R. Gómez<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Iztapalapa, Depto. Química, México. <sup>2</sup>CONACYT, Cátedras Conacyt, México.

<sup>3</sup>Instituto de Investigaciones en Materiales, UNAM, México

■ **S6F-P015 REMOTION OF ORGANOCHLORADE PESTICIDES WITH SURFACTED CLAY AND TEZONTLE**

C.BustosRivera-Bahena<sup>1</sup>, M.L Dominguez-Patiño<sup>2</sup>, G. Dominguez-Patiño<sup>2</sup>

<sup>1</sup>Universidad Autonoma del Estado de Morelos, CIICAp, Mexico. <sup>2</sup>Universidad Autonoma del Estado de Morelos, FCQel, Mexico.

■ **S6F-P016 COMPARATIVE STUDY ON THE REMOVAL OF CHROMIUM (VI) BY CLAY MINERALS WITH HIGH PROPORTION OF MONTMORILLONITE, STEVENSITE AND HEMATITE FUNCTIONALIZED WITH HDTMA.**

N.R. Osornio-Rubio<sup>1</sup>, J.A. Torres-Ochoa<sup>2</sup>, H. Jimenez-Islas<sup>3</sup>, M.L. Palma-Tirado<sup>4</sup>, J.C. Fierro-Gonzalez<sup>1</sup>, G.M. Martínez-González<sup>1</sup>.

<sup>1</sup> Departamento de Ingeniería Química, Instituto Tecnológico de Celaya. <sup>2</sup> Departamento de Materiales, CINVESTAV-Unidad Querétaro <sup>3</sup> Departamento de Ingeniería Bioquímica, Instituto Tecnológico de Celaya. <sup>4</sup> Unidad de Microscopía, Instituto de Neurobiología, UNAM-Juriquilla.

■ **S6F-P017 CHARACTERIZATION AND PREPARATION OF CHEMICALLY MODIFIED IXTLE FIBER**

<sup>1</sup>Alma Judith Villarreal Rodriguez<sup>1</sup>, Fernando Martínez Bustos<sup>1</sup>, Juan Muñoz Saldaña<sup>1</sup>. Omar Aconeltzin Jimenez Arevalo<sup>2</sup>, Magdalena Trujillo Barragan<sup>3</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional Unidad Querétaro.

<sup>2</sup>Universidad Aeronáutica en Querétaro. <sup>3</sup>Departamento de Materiales y Manufactura. Laboratorios de Ingeniería Mecánica,

■ **S6F-P018 ENCAPSULATED MESOPOROUS COMPOSITES AS RELEASERS OF 2,4-D AND ATRAZINE**

Ana G. Rodríguez-Camacho<sup>1</sup>, Mariana L. Rivera-Téllez<sup>1</sup>, Álvaro Sampieri<sup>1</sup>, Blanca L. Prado<sup>2</sup>, Olivia Zamora-Martínez<sup>2</sup>, José A. Rivera-Ortega<sup>3</sup>

<sup>1</sup>Benemérita Universidad Autónoma de Puebla, Facultad de Ingeniería Química, Mexico. <sup>2</sup>Universidad Nacional Autónoma de México, Instituto de Geología, Mexico.

<sup>3</sup>Benemérita Universidad Autónoma de Puebla, Facultad de Ciencias Químicas, Mexico

■ **S6F-P019 PREPARATION, CHARACTERIZATION AND EVALUATION OF STIR BAR FOR SORPTIVE EXTRACTION BASED ON HYBRID COATING**

M. J. Burgos-Tan<sup>1</sup>, A. R. Vilchis-Néstor<sup>2</sup>, D. Muñoz-Rodríguez<sup>1</sup>, C. Carrera-Figueiras<sup>1</sup>, Y. Pérez-Padilla<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Química, UADY, México. <sup>2</sup>Centro Conjunto de Investigación en Química Sustentable, UAEM-UNAM, México.

■ **S6F-P020 PREPARATION OF SIX MATERIALS BY THE TECHNIQUE OF SOLID-PHASE SYNTHESIS AND THEIR EVALUATION IN THE DETECTION AND REMOSION OF Fe, Cu AND Mn ON CONTAMINATED WATER**

E. F. Placencia Fontes<sup>1</sup>, H. Santacruz Ortega<sup>1</sup>, A. Gómez Álvarez<sup>2</sup>, R. E. Navarro Gaurtrin<sup>1</sup>

<sup>1</sup>Departamento de Investigación en Polímeros y Materiales.

<sup>2</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora. Unidad Centro. Hermosillo, Sonora, México

■ **S6F-P021 STUDY THERMOCHEMICAL POLYESTER FIBER IN CARBON DIOXIDE DYEING SUPERCRITICAL**

T. Ramírez-Rodríguez<sup>1</sup>, F. de L. Castillo-Alvarado<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, Unidad Prof. ALM, México,

■ **S6F-P022 OBTAINING AND CHARACTERIZATION OF CHITOSAN-CITRONELA COMPOSITE WITH A POSSIBLE APPLICATION AGAINST BEMISIA TABACI WHITEFLIES ON TOMATO CROPS**

H. Navarro-Navarrete<sup>1</sup>, C. Shimizu-Durán<sup>2</sup>, A. Martínez-del Río<sup>3</sup>

<sup>1,2,3</sup>Universidad de La Ciénega del Estado de Michoacán de Ocampo, México

■ **S6F-P023 PROPANE SENSING PROPERTY OF SOL-GEL-DERIVED Sm<sub>1-x</sub>Ca<sub>x</sub>Fe<sub>0.7</sub>Co<sub>0.3</sub>O<sub>3</sub> THIN FILMS WITH DIFFERENT CALCIUM CONCENTRATIONS (x = 0.0 – 0.3)**

**T. Hernández<sup>1</sup>, A. M. Nieto<sup>1</sup>, M. de la L. Olvera<sup>2</sup>.**

<sup>1</sup> Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, Laboratorio de Materiales I, Ciudad Universitaria, México. <sup>2</sup> Centro de Investigación y de Estudios Avanzados del I.P.N. México.

■ **S6F-P024 DEGRADATION OF EVANS BLUE DIAZO DYE BY ELECTROCHEMICAL PROCESSES BASED ON FENTON'S REACTION CHEMISTRY**

**V. S. Antonin<sup>1</sup>, S. Garcia-Segura<sup>2</sup>, M. C. Santos<sup>1</sup>, E. Brillas<sup>2</sup>**

<sup>1</sup> Laboratório de Eletroquímica e Materiais Nanoestruturados (LEMN), Centro de Ciências Naturais e Humanas (CCNH), Universidade Federal do ABC (UFABC), Brazil, <sup>2</sup> Laboratori d'Electroquímica dels Materials i del Medi Ambient, Departament de Química Física, Facultat de Química, Universitat de Barcelona, Spain

■ **S6F-P025 MORPHOLOGICAL STUDY OF FOAMING COMPOSITES BASED ON LOW DENSITY POLYETHYLENE-ETHYLENE VINYL ACETATE AND AGAVE FIBER FOR AUTOMOTIVE APPLICATIONS**

**F. Hernandez-Gamez<sup>1</sup>, F. Soriano-Corral<sup>1</sup>, E. Hernandez-Hernandez<sup>1</sup>, P. Gonzalez-Morones<sup>1</sup>, F. Zendejo-Rodríguez<sup>1</sup>, S. Zertuche-Martínez<sup>1</sup>, G. Mendez-Padilla<sup>1</sup>, M. I. Montalvo Sierra<sup>2</sup>, A. Calva Nava<sup>2</sup>.**

<sup>1</sup> Centro de Investigación en Química Aplicada. <sup>2</sup> Universidad Politécnica de Pachuca (UPP). México.

■ **S6F-P026 CHARACTERIZATION PHYSICAL AND CHEMICAL SPECIES LUCINA PECTINATA SHELLS**

**I. S. Barros<sup>1</sup>, A. S. Oliveira<sup>1</sup>, C. F. Virgens<sup>1</sup>**

<sup>1</sup> Graduate Program in Applied Chemistry - Department of Exact and Earth Sciences (DCET) Campus I - University of the State of Bahia (UNEB). Brazil.

■ **S6F-P027 SOL-GEL SYNTHESIS, CHARACTERIZATION AND EVALUATION OF HYBRID POLYMER COATINGS AS SORBENTS FOR EXTRACTION SBSE**

**S. A. Medina-Cetina<sup>1</sup>, J. A. Barrón-Zambrano<sup>1</sup>, A. Ávila-Ortega<sup>1</sup>, Y. Pérez-Padilla<sup>1</sup>, D. Muñoz-Rodríguez<sup>1</sup>, C. Carrera-Figueiras<sup>1</sup>**

<sup>1</sup> Cuerpo Académico de Química Fundamental y Aplicada, Facultad de Ingeniería Química, UADY, México.

■ **S6F-P028 SYNTHESIS AND PHYSICAL-CHEMICAL CHARACTERIZATION OF TiO<sub>2</sub>-PDMS HYBRID NANOFIBERS OBTAINED BY ELECTROSPINNING FOR SOLID-PHASE MICROEXTRACTION**

**I.I. Cárdenas-Bates<sup>1</sup>, P.O. Acereto-Escoffé<sup>1</sup>, C. Carrera-Figueiras<sup>1</sup>.**

<sup>1</sup> Cuerpo Académico de Química Fundamental y Aplicada, Facultad de Ingeniería Química, UADY, Mérida, Yucatán México.

■ **S6F-P029 CERAMIC BODIES MADE OF RECYCLED GLASS AND SILICOALUMINATE BYPRODUCTS**

**I.M. Rodríguez-Calvillo<sup>1</sup>, J.I. Escalante-García<sup>1</sup>, A. Fernández-Fuentes<sup>1</sup>,**

<sup>1</sup> Cinvestav Unidad Saltillo. México.

ROOM: TULUM A  
TUESDAY, AUGUST 18

👤 Session Chair: **JEDDIE LÓPEZ-HONORATO**  
**CINVESTAV-SALTILLO**

▶ **09:00 - 09:30 S6F-0015 Invited Talk EFFECT OF NANOPARTICLES ON BACTERIAL COMMUNITIES ASSOCIATED WITH FERTILE SOILS.**

**Sandra I. Concha-Guerrero<sup>1</sup>, Elcia Margareth Souza Brito<sup>2</sup>, Hilda A. Piñón-Castillo<sup>1</sup>, S. H. Tarango-Rivero<sup>3</sup>, César A. Caretta<sup>4</sup>, Antonia Luna-Velasco<sup>1</sup>, Robert Duran<sup>5</sup> and Erasmo Orrantia-Borunda<sup>1</sup>**

<sup>1</sup> Center for Research in Advanced Materials, Chihuahua, CHIH, Mexico <sup>2</sup> Ingeniería Ambiental, Departamento de Ingeniería Civil, DI-CGT, Universidad de Guanajuato, Guanajuato, GTO, Mexico <sup>3</sup> Campo Experimental Delicias, INIFAP, CHIH, Mexico <sup>4</sup> Departamento de Astronomía, DCNyE-CGT, Universidad de Guanajuato, Guanajuato, GTO, Mexico <sup>5</sup> Equipe Environment et Microbiologie, IBEAS, Université de Pau et des Pays de l'Adour, Pau, France

■ **09:30 - 09:45 S6F-0016 ENHANCED ORGANIC DYES DEGRADATION BY PHOTOCATALYSIS USING SEMICONDUCTOR/ AND METAL SEMICONDUCTOR/ MORDENITE NANOCOMPOSITES**

**E. Jaime-Acuña<sup>1</sup>, V. Petranovskii<sup>2</sup>, H. Villavicencio-García<sup>2</sup>, O. Raymond-Herrera<sup>2</sup>**

<sup>1</sup> Posgrado en Física de Materiales, Centro de Investigación Científica y de Educación superior de Ensenada-Centro de Nanociencias y Nanotecnología- Universidad Nacional Autónoma de México, México. <sup>2</sup> Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, México.

■ **09:45 - 10:00 S6F-0017 METAL IONS REMOVAL BY MODIFIED CHITOSAN-TiO<sub>2</sub>- POLYURETHANE MATERIALS**





**L. A. Argüello L.<sup>1</sup>, O. Pérez A.<sup>2</sup>, M. R. Estévez G.<sup>1</sup>, A. L. Rodríguez M.<sup>1</sup>**

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, Campus Juriquilla, México. <sup>2</sup>Centro de Geociencias, Universidad Nacional Autónoma de México, Campus Juriquilla, México.

■ **10:00 - 10:15 S6F-0018 SYNTHESIS AND EVALUATION OF AN OIL SORBENT BASED ON POLYGLYCEROL**

**H. Calderón.<sup>1</sup>, G. Ramírez-Caballero.<sup>1</sup>**

<sup>1</sup>Universidad Industrial de Santander, Facultad de Ingenierías Físicoquímicas, Escuela de Ingeniería Química, Grupo de Investigación en Polímeros -GIP, Colombia-Bucaramanga, Colombia.

■ **10:15 - 10:30 S6F-0019 PHOTOCATALYTIC DEGRADATION OF BISPHENOL A BY NITROGEN DOPED TiO<sub>2</sub> AND TiO<sub>2</sub> CATALYSTS UNDER THE ACTION OF VISIBLE LIGHT: COMPARATIVE STUDY OF 3 ANALYTIC METHODS.**

**Daniel López Serna<sup>1</sup>, Santiago Suárez Vázquez<sup>1</sup>, Carlos Durán<sup>2</sup>, Rodolfo Zanella<sup>2</sup>, Odilón Vázquez Cuchillo<sup>3</sup>, Víctor Hugo Guerra Cobian<sup>1</sup>, Arquímedes Cruz-López<sup>1</sup>**

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Civil, <sup>2</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnología, Universidad Nacional Autónoma de México, México D. F. <sup>3</sup>Instituto tecnológico de Puebla, División de Estudios de Posgrado e Investigación, México.

■ **10:30 - 10:45 S6F-0020 THE STUDY OF CHARGE-CARRIER DYNAMICS BY TIME RESOLVED MICROWAVE CONDUCTIVITY IN PHOTOCATALYTIC TiO<sub>2</sub> FOR WATER TREATMENT**

**A. Hérisson<sup>1</sup>, N. A. Kouame<sup>1</sup>, J. Verrett<sup>1,2</sup>, H. Remita<sup>1</sup>, C. Colbeau-Justin<sup>1</sup>**

<sup>1</sup>Laboratoire de Chimie Physique, Orsay CEDEX, France

■ **10:45 - 11:00 S6F-0021 ZINC REMOVAL FROM AQUEOUS SOLUTIONS BY BIOADSORPTION ONTO AGAVE TEQUILANA WEBER**

**J. Romero-González<sup>1</sup>, V. Garza<sup>1</sup>, G. Velazquez<sup>1</sup>, Elena Rodríguez<sup>2</sup>, Jose Alberto Romero<sup>2</sup>**

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Cd. Juárez, México. <sup>2</sup>Department of Engineering, University of Texas at El Paso, El Paso, USA.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 **Session Chair: SARA SKRABALAK, INDIANA UNIVERSITY**

■ **12:30 - 12:45 S6F-0022 VISIBLE LIGHT PHOTOCATALYTIC ACTIVITY OF TiO<sub>2</sub> THIN FILMS WITH MIXTURE OF PHASES**

**V.H. Castrejón-Sánchez<sup>1,2,4</sup>, Enrique Camps<sup>2</sup>, M. Camacho-López<sup>3</sup>.**

<sup>1</sup>Facultad de Química, Universidad Autónoma del Estado de México, Toluca, México. <sup>2</sup>Departamento de Física, Instituto Nacional de Investigaciones Nucleares. <sup>3</sup>Laboratorio de Investigación y Desarrollo de Materiales Avanzados, Facultad de Química, Universidad Autónoma del Estado de México, México. <sup>4</sup>Tecnológico de Estudios Superiores de Jocotitlán,

▶ **12:45 - 13:15 S6F-0023 Invited Talk CITOTOXICITY OF INORGANIC NANOPARTICLES TOWARD ENVIRONMENTAL MICROORGANISMS**

**A. Chávez-Calderón<sup>1</sup>, E. Diaz-Duarte<sup>1</sup>, J. Gardea-Torres, E. Orrantia-Borunda<sup>1</sup>, A. Luna-Velasco<sup>1</sup>**

<sup>1</sup>Department of Environment and Energy, CIMAV- Centro de Investigación en Materiales Avanzados, México.

■ **13:15 - 13:30 S6F-0024 SYNTHESIS OF COMPOSITES BASED ON BIOCL-TiO<sub>2</sub> WITH PHOTOCATALYTIC ACTIVITY**

**Dalia Sánchez-Rodríguez<sup>1,2</sup>, Maria Guadalupe Mendez Medrano<sup>1,2</sup>, Vladimir Escobar-Barrios<sup>1</sup>, Hynd Remita**

<sup>1</sup> Polymer Laboratory, Instituto de Potosino de Investigación Científica y Tecnológica (IPICYT), San Luis Potosí, México. <sup>2</sup>Laboratoire de Chimie Physique, Université Paris-Sud, France.

■ **13:30 - 13:45 S6F-0025 PHOTOCATALYTIC ACTIVITY OF Fe<sub>3</sub>O<sub>4</sub>BiFeO<sub>3</sub> REUSABLE NANOCOMPOSITES**

**J.G. García-Posada<sup>1</sup>, C. Ostos<sup>1</sup>, M. Castro<sup>1</sup>, D. Velez<sup>1</sup>, J. Velez<sup>1</sup>, S. Carmona<sup>1</sup>, R. Torres<sup>2</sup>, O. Raymond<sup>3</sup>, J. M. Siqueiros<sup>3</sup>.**

<sup>1</sup> Grupo CATALAD, Instituto de Química, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia, Medellín, Colombia. <sup>2</sup>Grupo GIRAB, Instituto de Química, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia, Medellín, Colombia. <sup>3</sup> Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Mexico.

■ **13:45 - 14:00 S6F-0026 ENHANCEMENT OF THE CATALYTIC ACTIVITY OF DSA ANODES IN THE Cl<sub>2</sub>-ACTIVE SPECIES ELECTROGENERATED IN CHLORIDE MEDIA: APPLICATION IN THE REMOVAL**

**OF ANTIBIOTIC ACTIVITY FROM A PHARMACEUTICAL COMPOUND**

R. E. Palma-Goyes<sup>1</sup>, J. Vazquez-Arenas<sup>2</sup>, C. Ostos-Ortiz<sup>3</sup>, R. A. Torres Palma<sup>1</sup>, I. Gonzalez<sup>2</sup>, J. A. Calderón<sup>4</sup>

<sup>1</sup>Grupo de Remediación Ambiental y Biocatálisis, Universidad de Antioquia, Colombia<sup>2</sup>Universidad Autónoma Metropolitana-Iztapalapa, Departamento de Química, México<sup>3</sup> Grupo CATALAD, Instituto de Química, Universidad de Antioquia, Colombia<sup>4</sup> Centro de Investigación, Innovación y Desarrollo de Materiales – CIDEMAT, Universidad de Antioquia, Colombia

■ **14:00 - 14:15 S6F-0027 ANTIBACTERIAL NANOGEOPOLYMERS: FOR GREEN BUILDING MATERIALS APPLICATIONS.**

J.C. Rubio Avalos<sup>1</sup>, J.J. Pérez Bueno<sup>2</sup>.

<sup>1</sup>Sección de Investigación e Innovación Tecnológica en Materiales para la Construcción, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo.

<sup>2</sup> Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S.C.



**14:00- 16:00 LUNCH**

👤 Session Chair: **ROSENDO LÓPEZ, UNIVERSIDAD AUTÓNOMA DE TABASCO**

■ **16:00 - 16:15 S6F-0028 FILTER FOR WASTEWATER TREATMENT ELABORATED WITH ZEOLITE, SILICA SAND AND FELDSPAR SODIUM-POTASSIUM  $\text{SiO}_2(\text{Na,K})(\text{Si3Al})\text{O8K}(\text{Al,Si3})\text{O8}$**

Ángeles-Mejía<sup>1</sup>, D. Aranda-Valladares<sup>1</sup>, A. Bahena-Zamilpa<sup>1</sup>, E.D. García-Mundo<sup>1</sup>, J. Martínez-Acevedo<sup>1</sup>, M.A. Nava-Figueroa<sup>1</sup>, D.M. Ramos-González<sup>1</sup>, D. Romero-Martínez<sup>1</sup>, M. Valencia-Negrete<sup>1</sup> and R. Sibaja-Hernández<sup>1</sup>.

<sup>1</sup>Universidad Politécnica del Estado de Guerrero, Comunidad de Puente Campuzano, México.

▶ **16:15 - 16:45 S6F-0029 Invited Talk DEVELOPMENT OF AN ELECTROCHEMICALLY ASSISTED BIOREACTOR FOR AZO DYE DEGRADATION: IDENTIFICATION OF EXPERIMENTAL CONDITIONS AND HYDRAULIC CHARACTERIZATION OF AN UPFLOW FIXED-BED REACTOR**

Carlos Frontana<sup>1</sup>, Arely Cárdenas-Robles<sup>1</sup>, Eduardo Martínez-González<sup>1</sup>, Idelfonso Rendón-Alcántar<sup>1</sup>, Linda González<sup>1</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica, SC.

▶ **16:45 - 17:15 S6F-0030 Invited Talk IN SILICO DESIGN OF MOLECULAR RECOGNITION AGENTS - CHEMOSENSORS AND SEQUESTANT AGENTS FOR BIOREMEDIATION**

J. Barroso-Flores<sup>1</sup>, P. Zarabadi-Poor<sup>1</sup>

<sup>1</sup>Centro Conjunto de Investigación en Química Sustentable UAEM - UNAM. Mexico

■ **17:15 - 17:30 S6F-0031 INTERACTION OF PRISTINE MWCNT WITH PLANT CELLS, RHIZOBIA AND MYCORRHIZA DURING GROWTH OF LUCERNE (MEDICAGO SATIVA) AND BARLEY (HORDEUM VULGARE)**

D. K. Tiwari<sup>1,2</sup>, J. Villegas<sup>3</sup>, L. Carreto Montoya<sup>3</sup>

<sup>1</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, B.C., México. <sup>2</sup>Instituto de Física y Matemáticas, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México. <sup>3</sup>Instituto de Investigaciones Químico-Biológicas, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México.

**ROOM: TERRACE  
TUESDAY, AUGUST 18**

▶ **18:30 - 20:30 POSTER SESSION & COFFEE BREAK**

■ **S6F-P030 SYNTHESIS OF COMPOSITES OF NATURAL ZEOLITE/TiO<sub>2</sub> FOR PHOTOCATALYTIC APPLICATIONS**

J. Ramírez-Aparicio<sup>1</sup>, R. Ramírez-Bon<sup>1</sup>, J.E. Samaniego-Benitez<sup>1</sup>.

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN, Unidad Querétaro, México.

■ **S6F-P031 REMOTION OF DYES FROM TEXTILE INDUSTRY OF ORGANOCCLAY WITH TEZONTLE**

C. BustosRivera-Bahena<sup>1</sup>, M.L. Dominguez-Patiño<sup>2</sup>, G. Dominguez-Patiño<sup>2</sup>

<sup>1</sup>Universidad Autonoma del Estado de Morelos, CIICAp, Mexico. <sup>2</sup>Universidad Autonoma del Estado de Morelos, FCQel, Mexico.

■ **S6F-P032 SYNTHESIS AND CHARACTERIZATION OF COMPOSITES Ag/TiO<sub>2</sub>/ZSM-5 FOR PHOTOCATALYTIC HYDROGEN PRODUCTION**

S-6F



**N. Pineda<sup>1</sup>, M.A. Valenzuela<sup>1</sup>, S. Alfaro<sup>1</sup>**

<sup>1</sup>Lab. Catálisis y Materiales. ESIQIE-Instituto Politécnico Nacional. México D.F.

■ **S6F-P033 SYNTHESIS AND CHARACTERIZATION OF BIODEGRADABLE LUBRICANTS FROM SOYBEAN OIL**

**Daniel M. Márquez-López<sup>1</sup>, Sergio O. Flores-Valle<sup>1</sup>, Ricardo Peralta-Robledo<sup>1</sup>, Jorge A. Mendoza-Perez<sup>2</sup>**

<sup>1</sup>Laboratorio de Catálisis y Materiales, ESIQIE, IPN, <sup>2</sup>ENCB, IPN

■ **S6F-P034 PREPARATION OF HIGHLY EFFICIENT PHOTOCATALYSTS MnOX/TiO<sub>2</sub> BY SOL-GEL METHOD**

**Sandra Cipagauta-Díaz<sup>1</sup>, Agileo Hernández-Gordillo<sup>2</sup>, Ricardo Gómez<sup>1</sup>, Francisco Tzompantzi<sup>1</sup>, Hugo Rojas<sup>3</sup>**

<sup>1</sup>Universidad Autónoma Metropolitana Unidad Iztapalapa, México D.F., México. <sup>2</sup>CIEMAD-Instituto Politécnico Nacional, México, D.F. México. <sup>3</sup>Universidad Pedagógica y Tecnológica de Colombia. Tunja, Colombia,

■ **S6F-P035 REMOVAL OF BLUE IN AQUEOUS SOLUTIONS USING SANDOCRIL WASTE OF CORN**

**R. G Guevara Villa<sup>1</sup>, J. J Juárez-Lucero<sup>1</sup>, J. E. Zamora Castro<sup>1</sup>, E. Avalos Flores<sup>1</sup>, A. Anaya Varela<sup>1</sup>, O. Flores García<sup>1</sup>.**

<sup>1</sup>Ingeniería en Biotecnología, Universidad Politécnica Metropolitana de Puebla, Puebla, México,

■ **S6F-P036 CYTOTOXICITY ASSESSMENT OF SILVER NANOPARTICLES ON CELL LINE OF MOUSE LYMPHOMA M12. I-AK.C3F6 AND NORMAL FIBROBLASTS CELLS L-929.**

**Lara Castillo J.<sup>1</sup>, Rodríguez León E.<sup>2</sup>, Ramón Gallegos E.<sup>3</sup>, Velázquez Contreras C. A.<sup>4</sup>, Maldonado Arce A.<sup>2</sup>, Tánori Córdova J. C.<sup>1</sup>**

<sup>1</sup>Departamento de Investigación en Polímeros y Materiales, México. <sup>2</sup>Departamento de Física, México. <sup>3</sup>Departamento de Morfología, México. <sup>4</sup>Departamento de Ciencias Químico Biológicas, México.

■ **S6F-P037 SYNTHESIS AND CHARACTERIZATION OF ZnO-ZrO<sub>2</sub> NANOPARTICLES BY SOL-GEL PROCESS**

**M. Álvarez<sup>1</sup>, M. Uribe<sup>1</sup>, A. González<sup>1</sup>, R. López<sup>1</sup>, J. Acosta<sup>1</sup>**

<sup>1</sup>División Académica de Ingeniería y Arquitectura. Universidad Juárez Autónoma de Tabasco, Mexico.

■ **S6F-P038 EVALUATION OF A POLYMER BIOCOMPOSITE BASED ON POLYLACTIC ACID AND BAMBOO ANGUSTIFOLIA LIGNOCELLULOSIC FIBERS**

**E.M. Cadena<sup>1</sup>, L.Y. Jaramillo<sup>2</sup>, J.C Posada<sup>2</sup>, L. García<sup>2</sup>**

<sup>1</sup>Grupo de Ingeniería Agrícola, Universidad Nacional de Colombia, Sede Medellín, Colombia. <sup>2</sup>Grupo de

Investigación en calidad, metrología y producción, Grupo de investigación en Materiales Avanzados y Energía. Instituto Tecnológico Metropolitano-ITM, Colombia.

■ **S6F-P039 STUDY OF THE EFFECT OF MECHANICAL ACTIVATION OF THE RAW MATERIALS USED FOR THE PRODUCTION OF FLAT GLASS ON THEIR MELTING PROCESS**

**P. Rodríguez-Salazar<sup>1</sup>, G. Vargas-Gutiérrez<sup>1</sup>, J. López-Cuevas<sup>1</sup>, A. Fuentes<sup>1</sup>, FA López-Cota<sup>1</sup>**

<sup>1</sup>CINVESTAV Unidad Saltillo,

■ **S6F-P040 PHOTODEGRADATION OF PHENOL USING NANOPARTICLES OF TiO<sub>2</sub>-SnO<sub>2</sub>.**

**I. Rangel-Vázquez<sup>1</sup>, G. del Angel<sup>1</sup>, V. Bertín<sup>1</sup>, F. González<sup>2</sup>, E. Ramos-Ramírez<sup>2</sup>, Claudia M. Gómez<sup>3</sup>, M.A. Lunagómez<sup>1</sup>, A. Cervantes<sup>1</sup>, V. Melchor Lagar<sup>1</sup>.**

<sup>1</sup>Universidad Autónoma Metropolitana-Iztapalapa. Departamento de Química, Área de Catálisis, México. <sup>2</sup>Universidad Autónoma Metropolitana-Iztapalapa, Departamento de Ingeniería de Procesos e Hidráulica, México. <sup>3</sup>Departamento de Química, División de Ciencias Naturales y Exactas, Campus Guanajuato de la Universidad de Guanajuato México.

■ **S6F-P041 FABRICATION OF ANODIC ALUMINUM OXIDE (AAO) TEMPLATES FROM RECYCLABLE AND LOW-PURITY ALUMINUM SUBSTRATES**

**M. Castro<sup>1</sup>, C. Ostos<sup>1</sup>, J.J. Gervacio<sup>2</sup>**

<sup>1</sup>Grupo CATALAD, Instituto de Química, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia, Medellín, Colombia. <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, BC, Mexico.

■ **S6F-P042 CALCIUM CARBONATE OBTAINED FROM HEN EGG SHELL FOR REMOVAL OF HEAVY METALS (Pb + 2, Hg + 2, Cu+2, Cd + 2 AND Zn+2 IN AQUEOUS MEDIUM.**

**P.H.D. Student Alamillo López Verónica Margarita<sup>1</sup>**

<sup>1</sup>Universidad Autónoma del Estado de México, Facultad de Química, México.

■ **S6F-P043 ALTERATIONS IN THE GERMINATION AND EARLY DEVELOPMENT OF COMMON BEAN (Phaseolus vulgaris L.) BY THE PRESENCE OF NANOPARTICLES**

**A. Arreaga-Tovar<sup>1</sup>, F. Fernández-Luqueño<sup>1</sup>, J. A. Acosta-Gallegos<sup>2</sup>**

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Saltillo. México.

<sup>2</sup>Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Campo Experimental Bajío. México.

- **S6F-P044 SYNTHESIS OF INTERPENETRATING POLYMER NETWORK BASED ON POLY (ACRYLIC ACID), THERMOPLASTIC ELASTOMER AND CELLULOSE NANOCRYSTALS (CNCS) AS COMPATIBILIZER AND REINFORCING ADDITIVE FOR POLYMER BLENDS**

Mancera-García Karen M.<sup>1</sup> and Escobar-Barrios Vladimir A.<sup>2</sup>

<sup>1</sup>Environmental Science Division, Instituto Potosino de Investigación Científica y Tecnológica, México. <sup>2</sup>Advanced Materials Division, Instituto Potosino de Investigación Científica y Tecnológica, México

- **S6F-P045 PHOTOCATALYTIC DEGRADATION OF 2-NAPHTHOL USING  $\alpha$ - $\text{Bi}_4\text{V}_2\text{O}_{11}$  OBTAINED BY TWO SYNTHESIS METHODS**

Lucy T. González<sup>1</sup>, F. E. Longoria Rodríguez<sup>2</sup>, M. Sánchez-Domínguez<sup>2</sup>, Iván J. Maza<sup>3</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, División de Estudios de Posgrado, Mexico. <sup>2</sup>Centro de Investigación en Materiales Avanzados SC, Unidad Monterrey, México <sup>3</sup>Universidad de Oriente, Núcleo Monagas, Venezuela

- **S6F-P046 DEVELOPING A COATING SUPERHYDROPHOBIC FOR GENERATING SELF-CLEANING CERAMIC SURFACES**

H.L. Inestroza-Zelaya, J.J. Ruiz-Valdés, 1A. Álvarez-Mendez, 1A.I. Sanchez-Vázquez, 1J. Ibarra-Rodríguez

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, Nuevo León.

- **S6F-P047 EFFECT OF ORGANIC COMPOUNDS AS SURFACE MODIFIERS ON THE PHOTOCATALYTIC ACTIVITY OF SILICA NANOMATERIALS.**

Mayra Alvarez, Gustavo López, Melina Uribe

<sup>1</sup> División Académica de Ingeniería y Arquitectura, Universidad Juárez Autónoma de Tabasco, México,

- **S6F-P048 SYNTHESIS AND CHARACTERIZATION OF  $\text{TiO}_2$  MODIFIED WITH POLYSTYRENE AND APPLICATION FOR THE SOLID PHASE EXTRACTION OF ORGANOPHOSPHORUS PESTICIDES**

E. Alejo<sup>1</sup>, C. Carrera<sup>1</sup>, D. Muñoz<sup>1</sup>

<sup>1</sup>Cuerpo Académico de Química Fundamental y Aplicada. Facultad de Ingeniería Química, Campus de Ingenierías y Ciencias Exactas. Universidad Autónoma de Yucatán. México.

- **S6F-P049 NANOSTRUCTURED  $\text{ZnO}$  THIN FILMS PRODUCED BY THE CHEMICAL BATH TECHNIQUE USED IN PHOTODEGRADATION OF ORGANIC COMPOUNDS**

Dwight R. Acosta<sup>1</sup>, Francisco Hernández<sup>1</sup>, Carlos Magaña<sup>1</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México, México D.F.

- **S6F-P050 STRUCTURAL AND OPTICAL PROPERTIES OF SOL-GEL  $\text{ZnO}$  COATINGS TO USE IN BUILDINGS WINDOWS**

E.D. Díaz Márquez<sup>1</sup>, A.S. López Rodríguez<sup>1</sup>, P. Sifuentes Gallardo<sup>1</sup>, M.A. Hernández Rivera<sup>1</sup>, E.V. Macías Melo<sup>1</sup>, M.G. Gárnica Romo<sup>2</sup> and L.L. Díaz Flores<sup>1</sup>

<sup>1</sup>División Académica de Ingeniería y Arquitectura Universidad Juárez Autónoma de Tabasco. México.

<sup>2</sup>Facultad de Ingeniería Civil Universidad Michoacana de San Nicolás de Hidalgo, Morelia Michoacán, México.

- **S6F-P051 STUDY OF PHOTOCATALYTIC ACTIVITY OF  $\text{Ag}_3\text{PO}_4$**

Martínez Miguel, Jessica<sup>1</sup>, Rubio-Rosas, Efrain<sup>2</sup>, Sánchez-Mora, Enrique<sup>3</sup>

<sup>1</sup>Facultad de Ingeniería Química, <sup>2</sup> Centro Universitario de Vinculación y Transferencia de Tecnología-CUTyTT,

<sup>3</sup>Instituto de Física, Luis Rivera Terrazas-IFUAP. Benemérita Universidad Autónoma de Puebla. México.

- **S6F-P052 EVALUATION OF ALUMINUM SULFATE TAKEN FROM AN INDUSTRIAL WASTE IN USING SURFACE WATER**

Rudy Solís Silván<sup>1</sup>, Israel Ávila Lázaro<sup>1</sup>, Edy David de la Cruz Morales<sup>1</sup>, Raúl Germán Bautista Margulis<sup>1</sup>, Gaspar López Ocaña<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco

- **S6F-P053 SELF-CONSOLIDATING NANO-GEOPOLYMER CONCRETE USING  $\text{TiO}_2$  AND  $\text{Fe}_2\text{O}_3$  FILLERS.**

J.C. Rubio Avalos<sup>1</sup>.

<sup>1</sup>Sección de Investigación e Innovación Tecnológica en Materiales para la Construcción, Facultad de Ingeniería Civil, Universidad Michoacana de San Nicolás de Hidalgo. México.

- **S6F-P054 EVALUATION OF THE MECHANICAL PROPERTIES OF CEMENT PASTE MADE FROM AGAVE FIBER, NUTSHELL AND PISTACHIO SHELL**

Rodríguez-García Karla Alejandra<sup>1</sup>, Moreno-Virgen Ma. del Rosario<sup>1</sup>, Hernández-Montoya Virginia<sup>1</sup>, Tovar-Gómez Rigoberto<sup>1</sup>, González-Vázquez Omar Francisco<sup>1</sup>.



<sup>1</sup>Instituto Tecnológico de Aguascalientes, México.

- **S6F-P055 PHOTODEGRADATION OF PYRIMIDINES BASED ON DOPED TiO<sub>2</sub>-SiO<sub>2</sub> NANOPARTICLES**  
F. F. Güemez-Cancino<sup>1</sup>, K. N. Castillo-Angulo<sup>1</sup>, M. A. Alvarez-Lemus<sup>1</sup>, R. López-González<sup>1</sup>, D. M. Frías-Marquez<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, División Académica de Ingeniería y Arquitectura, México

- **S6F-P056 HYDROGEN PRODUCTION WITH MIXED OXIDE AS SEMICONDUCTORS: TiO<sub>2</sub>-Ni<sub>x</sub>O<sub>y</sub>.**  
Pérez-Larios Alex<sup>1,2</sup>, Gómez Ricardo<sup>1</sup> and Zanella Rodolfo<sup>2</sup>.

<sup>1</sup>Universidad Autónoma Metropolitana-Iztapalapa, Depto. de Química, Área de Catálisis, Grupo ECOCATAL, México.

<sup>2</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, Universidad Nacional Autónoma de México UNAM México.

- **S6F-P057 OBTAINING HYDROXYHYDROQUINONE BY PHOTOCATALYSIS OF 4-CHLORO-2-NITROPHENOL WITH TiO<sub>2</sub>-CdS COMPOSITES UNDER VISIBLE LIGHT**  
M.E. Hernández-Torres<sup>1</sup>, A. Hernández León<sup>1</sup>, N. R. Silva-González<sup>2</sup> and J. M. Gracia-Jiménez<sup>2</sup>.

<sup>1</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, C.U. México.; <sup>2</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, C.U. México.

## ROOM: TULUM A WEDNESDAY, AUGUST 19

 Session Chair: REFUGIO RODRÍGUEZ, CINVESTAV

- ▶ **09:00 - 09:30 S6F-0032 Invited Talk N-TiO<sub>2</sub>-X/Me (Me= Au, Cu, Ag and Pt) PREPARED BY NITROGEN GAS PLASMA (AC) METHOD**  
R. Trejo-Tzab<sup>1</sup>, J.J. Alvarado-Gil<sup>2</sup>, P. Quintana<sup>2</sup>  
<sup>1</sup>Facultad de Ingeniería Química, Universidad Autónoma de Yucatán, México. <sup>2</sup> Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Unidad Mérida. México.
- **09:30 - 09:45 S6F-0033 SYNTHESIS OF STRUVITE, BRUCITE AND CALCITE IN THE LANDFILL LEACHATE TREATMENT BY MAGNESIUM ELECTRO-DISSOLUTION AND ALKALINE HETERO-COAGULATION**  
C. E. Alvarez-Pugliese<sup>1</sup>, D. P. Cobo Muriel<sup>1</sup>, D. Donneys-Victoria<sup>1</sup>, N. J. Marriaga-Cabrales<sup>1</sup>

<sup>1</sup> Escuela de Ingeniería Química, Universidad del Valle, Ciudadela Universitaria de Meléndez, Colombia

- **09:45 - 10:00 S6F-0034 OPTICAL FIBER GAS SENSORS USING SOL-GEL DERIVED NANOMATERIALS FOR APPLICATIONS IN ENVIRONMENTAL MONITORING**  
S. Tao<sup>1</sup>

<sup>1</sup>Department of Mathematics, Chemistry and Physics, West Texas A&M University, USA

- **10:00 - 10:15 S6F-0035 ALKALI METAL AND MAGNESIUM BASED DOUBLE SALT SORBENT FOR HIGH-TEMPERATURE CO<sub>2</sub> CAPTURE**  
C. H. Lee<sup>1</sup>, K. B. Lee<sup>1</sup>

<sup>1</sup>Department of Chemical and Biological Engineering, Korea University, Republic of Korea

- **10:15 - 10:30 S6F-0036 EVALUATION OF A CELLULAR GLASS-CERAMIC PRODUCED FROM SLUDGE OF DRINKING WATER TREATMENT PLANTS FOR NO<sub>x</sub> REDUCTION**

V. Sanchez-Orendain<sup>1</sup>, M. Solís-López<sup>1</sup>, F. Espejel-Ayala<sup>2</sup>, A. A. Morales<sup>1</sup>, R. Schouwenaars<sup>3</sup>, R. M. Ramírez-Zamora<sup>1</sup>

<sup>1</sup>Coordinación de Ingeniería Ambiental, Instituto de Ingeniería, Universidad Nacional Autónoma de México, Cd. Universitaria, Coyoacán, México. <sup>2</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica. <sup>3</sup>Departamento de Materiales y Manufactura, DIMEL, Facultad de Ingeniería, Universidad Nacional Autónoma de México, Cd. Universitaria, Coyoacán, México



- **10:30 - 10:45 S6F-0037 OPTICAL DETECTION OF VOLATILE HYDROCARBONS DURING ELECTROKINETIC TREATMENT OF POLLUTED SOIL USING AN OPTICAL FIBER MODIFIED WITH A COMPOSITE OF PRUSSIAN BLUE AND AN ACRYLIC POLYMERIC EMULSION**  
A. García<sup>1,2</sup>, O. Cuevas<sup>1</sup>, D. Monzón-Hernández<sup>2</sup> and E. Bustos<sup>1</sup>

<sup>1</sup>Environmental Electrochemistry Group, Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S. C. México. <sup>2</sup>GSOM, Centro de Investigaciones en Óptica A. C. México

- ▶ **10:45 - 11:15 S6F-0038 Invited Talk CEMENTITIOUS MATERIALS AND THE ENVIRONMENT**  
J Ivan Escalante-García<sup>1</sup>

<sup>1</sup>Center for Research and Advanced Studies (Cinvestav-Salttillo) México.



-  **11:00 – 11:30 COFFEE BREAK**
-  **11:30 – 12:30 PLENARY LECTURE**

 **Session Chair: EDDIE LÓPEZ-HONORATO, CINVESTAV-SALTILLO**

■ **12:45 - 13:00 S6F-0039 EXPERIMENTAL ANALYSIS OF HEAT AND MOISTURE TRANSPORT IN THE STRUCTURE DEVELOPED THERMAL INSULATION PLASTERS**

J. Hroudová<sup>1</sup>, E. Helanová<sup>1</sup>, M. Sedlmajer<sup>1</sup>, J. Zach<sup>1</sup>

<sup>1</sup>Brno University of Technology, Faculty of Civil Engineering, Institute of Technology of Building Materials and Components, Czech Republic

■ **13:00 - 13:15 S6F-0040 DEVELOPMENT OF CEMENTITIOUS COMPOSITE FROM THE REUSE OF WASTE CERAMIC PORCELAIN TILE: A CONTRIBUTION TO SUSTAINABILITY**

D.C.Matos<sup>1</sup>, I.P.P.Silva<sup>2</sup>, C.R.Calado<sup>3</sup>, A.C.S.Bezerra<sup>4</sup>

<sup>1,2,3,4</sup>Centro Federal de Educação Tecnológica de Minas Gerais – CEFET-MG, Brazil

■ **13:15 - 13:30 S6F-0041 STUDY OF POSSIBILITY OF DEVELOPMENT OF ENVIRONMENT FRIENDLY INSULATION MATERIALS BASED ON WASTE ORGANICS FIBERS**

J. Hroudová<sup>1</sup>, J. Zach<sup>1</sup>, A. Korjenic<sup>2</sup>

<sup>1</sup>Brno University of Technology, Faculty of Civil Engineering, Institute of Technology of Building Materials and Components, Czech Republic <sup>2</sup>Vienna University of Technology, Faculty of Civil Engineering, Institute of Building Construction and Technology, Austria

■ **13:30 - 13:45 S6F-0042 SUGAR CANE BAGASSE ASH AND RECYCLED CONCRETE AGGREGATE AS INGREDIENTS TO DEVELOP AERATED CONCRETE MASONRY BASED IN PORTLAND CEMENT**

José Alejandro Herrera González Pedro Leobardo Valdez Tamez<sup>1</sup> Alejandro Durán Herrera<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, UANL-FIC, México.

■ **13:45 - 14:00 S6F-0043 RECYCLED HDPE USED AS WASTEWATER PIPES: MECHANICAL PROPERTIES AND MOLECULAR STRUCTURE**

M. Alzerrecá<sup>1,2</sup>, M. Paris<sup>2</sup>, O. Boyron<sup>3</sup>, D. Orditz<sup>1</sup>, G. Louarn<sup>2</sup>, O. Correc<sup>1</sup>

<sup>1</sup>Centre Scientifique et Technique du Bâtiment (CSTB) Nantes, Aquasim, (France). <sup>2</sup>Institut des Matériaux Jean

Rouxel (IMN) ; (France). <sup>3</sup>Laboratoire de Chimie Catalyse Polymères et Procédés (C2P2), Université de Lyon, (France).

 **14:00- 16:00 LUNCH**

**ROOM: TERRACE  
WEDNESDAY, AUGUST 19**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S6F-P058 EVALUATION OF CHITOSAN MEMBRANES FOR REMOVAL OF POLYBROMINATED DIPHENYL ETHERs (PBDEs) IN WATER.**

A. Fernández-Aguilera<sup>1</sup>, A. Ozaeta-Galindo<sup>1</sup>, B. Rocha Gutiérrez<sup>1</sup>, L. Manjarrez Nevárez<sup>1</sup>.

<sup>1</sup>Facultad de Ciencias Químicas, Universidad, Autónoma de Chihuahua, México.

■ **S6F-P059 CHARACTERIZATION OF NANOCOMPOSITES MEMBRANES OF CHITOSAN AND MAGNETIC OXIDE PARTICLES FOR REMOVING FLUORIDE FROM WATER**

E.Chavira Rojo<sup>1</sup>, E. García Marta<sup>1</sup>, E. Barrientos Juárez<sup>2</sup>, L. Manjarrez Nevárez<sup>1</sup>

<sup>1</sup>Facultad de Ciencias Químicas, Universidad, Autónoma de Chihuahua, México. <sup>2</sup>Instituto Nacional de Investigaciones Forestales Agrícolas y Pecuarias,

■ **S6F-P060 REMOVAL OF AB25, AB74, BB9, BB3 AND RB4 DYES USING A MODIFIED CARBON**

R. Tovar Gómez<sup>1</sup>, V. Hernández Montoya<sup>1</sup>, Ma. R. Moreno Virgen<sup>1</sup>.

<sup>1</sup>Departamento de Ingeniería Química y Bioquímica. Instituto Tecnológico de Aguascalientes. Aguascalientes, Ags., México.

■ **S6F-P061 PHOTODEGRADATION OF DYES BY CORE/SHELL SiO<sub>2</sub>-TiO<sub>2</sub> NANOPARTICLES.**

J.A. Acosta-Alejandro, R. López-González, M. A. Lemus-Álvarez and M. Uribe-López<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, México.

■ **S6F-P062 ADSORPTION OF HEAVY METALS ON ACTIVATED CARBONS MATERIALS AND THEIR RESPECTIVE LIGNOCELLULOSIC PRECURSORS**

A. Peláez Cid<sup>1</sup>, A.M. Herrera González<sup>2</sup>

S-6F



<sup>1</sup>Facultad de Ingeniería, BUAP, México, <sup>2</sup>Instituto de Ciencias Básicas e Ingeniería, Universidad Autónoma del Estado de Hidalgo, Mineral de la Reforma, Hidalgo, México

■ **S6F-P063 ADSORPTION OF RR2 AND BG1 DYES USING MODIFIED CARBONS WITH DIFERENT CHEMICAL REAGENTS**

Ma. T. Hernández Eudave<sup>1</sup>, R. Tovar Gómez<sup>1</sup>, V. Hernández Montoya<sup>1</sup>, Ma. R. Moreno Virgen<sup>1</sup>.

<sup>1</sup>Departamento de Ingeniería Química y Bioquímica. Instituto Tecnológico de Aguascalientes. México.

■ **S6F-P064 MIXED Bi2S3/TiO2 SEMICONDUCTORS FOR HYDROGEN PRODUCTION.**

García Mendoza<sup>1</sup>, S. Oros-Ruiz<sup>1,2</sup>, R. López<sup>3</sup>, R. Gómez<sup>1</sup>

<sup>1</sup>Universidad Autónoma Metropolitana-Iztapalapa. Departamento de Química, grupo Ecocatal. México.D.F. <sup>2</sup>CONACYT, Cátedras Conacyt. <sup>3</sup>Universidad Juárez Autónoma de Tabasco, División Académica de Ingeniería y Arquitectura, Cunduacán, Tabasco, México.

■ **S6F-P065 EFFECT OF MEDIA COMPOSITION ON THE TOXICITY OF CuO NANOPARTICLES TO BACTERIA**

Chávez-Calderón<sup>1</sup>, E. Orrantía-Borunda<sup>1</sup>, M.A. Luna-Velasco<sup>1</sup>

<sup>1</sup> Department of environmental science and technology, CIMAV- Centro de Investigación en Materiales Avanzados- México.

■ **S6F-P066 INFLUENCE OF THE CALCINATION TEMPERATURE IN THE g-AL2O3-TIO2 CATALYST FOR THE PHOTOCATALYTIC DEGRADATION OF PHENOL**

Claudia M. Gómez<sup>1</sup>, Manuel Sánchez C.<sup>2</sup>, E. Ramos R.<sup>1</sup>, F. Tzompantzi<sup>3</sup>, A. Mantilla<sup>4</sup>

<sup>1</sup>Universidad de Guanajuato, México <sup>2</sup>Benemérita Universidad Autónoma de Puebla, Facultad de Ingeniería Química, México <sup>3</sup>UAM-Iztapalapa, Departamento de Química, México, DF, México. <sup>4</sup>Instituto Politécnico Nacional, México D. F.

■ **S6F-P067 STUDIES ON THERMAL AND RADIATIVE DEGRADATION OF POLYVINYL CHLORIDE (PVC)**

D.E.Gavrila<sup>1</sup>, H. C.Gavrila<sup>1</sup>

<sup>1</sup>Physics Department, University "Politehnica" of Bucharest, Romania, Electrical Engineering Department, University "Politehnica" of Bucharest, Romania,

■ **S6F-P068 PHOTOCATALYTIC PROPERTIES OF TiO2 THIN FILMS DEPOSITED BY DC SPUTTERING**

M. Pérez-González<sup>1</sup>, M. Morales-Luna<sup>1</sup>, V. Cruz-San Martín<sup>2</sup>, G. A. Ayala-Sánchez<sup>2</sup>, F.J. Hernández-Rubio<sup>1</sup>, S.A. Tomás<sup>1</sup>

<sup>1</sup>Departamento de Física, Centro de Investigación y de Estudios Avanzados del IPN, México. <sup>2</sup>Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, México

■ **S6F-P069 ENVIRONMENTALLY FRIENDLY CEMENTITIOUS MATERIALS BASED ON URBAN AND INDUSTRY BY-PRODUCTS**

R. Martínez-López<sup>1</sup>, J. I. Escalante-García<sup>1</sup>

<sup>1</sup>Cinvestav IPN Unidad Saltillo,

■ **S6F-P070 ENERGETIC AND CRYSTAL STRUCTURES OF HYBRID INORGANIC/SULFATE SYSTEMS: QUANTITATIVE AND QUALITATIVE EFFECT OF VDW INCLUSION**

I.J.A. Carreño-Márquez<sup>1</sup> and J. Camarillo-Cisneros<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Chihuahua, México.

■ **S6F-P071 EFFECT OF PURITY OF THE MEXICAN NATURAL ZEOLITE IMPREGNATED WITH DIETHANOLAMINE FOR THE CO2 CAPTURE**

A. Sánchez-Ruiz, F. Espejel-Ayala

Center of Research and Technological Development in Electrochemistry. México.

■ **S6F-P072 CHARACTERIZATION OF FLUE GASES DUST FROM SECONDARY ALUMINIUM PRODUCTION FOR ITS RECOVERY**

Marius-Viorel Olteanu<sup>1,2</sup>, György Deák<sup>2</sup>, Ecaterina Matei<sup>1</sup>

<sup>1</sup>University Ploitehnica of Bucharest, Faculty of Material Engineering, Romania. <sup>2</sup>National Institute for Research and Development in Environmental Protection, Romania

■ **S6F-P073 TEXTIL DYES REMOVAL USING POLYELECTROLYTES WITH SULFONIC ACID GROUP**

Caldera-Villalobos<sup>1</sup>, Ana M. Herrera-González<sup>2</sup>, A. A. Peláez-Cid<sup>3</sup>, J. García-Serrano<sup>2</sup>

<sup>1</sup>Maestría en Ciencias de los Materiales, Universidad Autónoma del Estado de Hidalgo, Ciudad del Conocimiento. <sup>2</sup>Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo. Ciudad del Conocimiento. <sup>3</sup>Facultad de Ingeniería, Benemérita Universidad Autónoma de Puebla, Ciudad Universitaria,

■ **S6F-P074 PHYSICOCHEMICAL CHARACTERIZATION OF RuO2-ZnGeN2 AS SEMICONDUCTOR-CATALYSTS FOR HYDROGEN PRODUCTION UNDER UV LIGHT.**

Adriana Limón-Pozos<sup>1</sup>, Santiago I. Suarez Vázquez<sup>1</sup>, Ricardo Cavazos Gonzales<sup>1</sup>, Arquímedes Cruz López<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería Civil, Universidad Autónoma de Nuevo León, México.

■ **S6F-P075 AIRBORNE PARTICULATE MATERIAL IN METROPOLITAN ZONE OF TOLUCA VALLEY BY SCANNING ELECTRON MICROSCOPY (SEM) AND INDUCTIVELY COUPLED PLASMA SECTOR FIELD MASS SPECTROMETRY (ICP-SFMS)**

A. Kuri-Cruz<sup>1,2</sup>, E.T. Romero-Guzmán<sup>1</sup>, H. Hernández-Mendoza<sup>1</sup>.

<sup>1</sup>Instituto Nacional de Investigaciones Nucleares, México. <sup>2</sup>Universidad Politécnica del Valle de Toluca, México.

■ **S6F-P076 EFFECT OF Nd<sup>3+</sup> ION DOPING TO TiO<sub>2</sub> ON THE PHOTOCATALYTIC DEGRADATION OF CONGO RED DYE UNDER UV-VIS-IRRADIATION**

Balter Trujillo-Navarrete<sup>1</sup>, Ernesto De La Paz Andrés<sup>1</sup>, Martin Alberto Miramontes González<sup>1</sup>, Rosa María Félix Navarro<sup>1</sup>, Francisco Paraguay Delgado<sup>2</sup> and Edgar Alonso Reynoso Soto<sup>1</sup>

<sup>1</sup>Centro de Graduados e Investigación. Instituto Tecnológico de Tijuana, México. <sup>2</sup>Centro de Investigación en Materiales Avanzados, México

■ **S6F-P077 ENVIRONMENTALLY FRIENDLY FUNCTIONALIZED ZINC OXIDE NANOPARTICLES WITH ANTICANCER PROPERTIES**

Mayra Angélica Álvarez Lemus<sup>1</sup>, Lisbeth Almeida Ramón<sup>1,2</sup>, José Gilberto Torres Torres<sup>2</sup>, Erick Natividad de la Cruz Hernández<sup>3</sup>

<sup>1</sup>Materials Laboratory. Academic Division of Engineering and Architecture, <sup>2</sup>Laboratory of Heterogeneous Catalysis. Academic Division of Basic Sciences, <sup>3</sup>Epigenetic and Molecular Biology of Cancer Laboratory, Academic Multidisciplinary Division of Comalcalco, Juarez Autonomous University of Tabasco. Mexico

■ **S6F-P078 BIOCERAMICS OF CEMENTS AND MORTARS OBTAINED THROUGH OYSTER CRASSOSTREA VIRGINICA SHELLS RECYCLED**

Montejo Cortazar<sup>1</sup>, J.M. Pérez Arias<sup>1</sup>, A.S. López Rodríguez<sup>1</sup>, P. Sifuentes Gallardo<sup>1</sup>, M.A. Hernández Rivera<sup>1</sup>, and L.L. Díaz Flores<sup>1</sup>

<sup>1</sup>División Académica de Ingeniería y Arquitectura Universidad Juárez Autónoma de Tabasco. México

■ **S6F-P079 DEVELOPMENT OF A SUPERHYDROPHILIC COATING FOR THE GENERATION OF SELF-CLEANING CERAMIC SURFACES**

J. Alarcón-Tienda<sup>1</sup>, J. J. Ruiz-Valdés<sup>1</sup>, A. I. Sánchez-Vázquez<sup>1</sup>, A. Álvarez-Méndez<sup>1</sup>, J. Ibarra-Rodríguez<sup>1</sup>

<sup>1</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, México

■ **S6F-P080 INFLUENCE OF SLAG GRAIN SIZE AS ADDING TO CEMENT IN THE DURABILITY AND STRENGTH**

M.M López<sup>1</sup>, Y.Pineda Triana<sup>1</sup>, O.J.Gutierrez Junco<sup>1</sup>

<sup>1</sup>Instituto para la Investigación e Innovación en Tecnología de Materiales INCITEMA, Universidad Pedagógica y Tecnológica de Colombia UPTC, Sede Central, Tunja, Boyacá, Colombia.

■ **S6F-P081 FORMATION OF POROUS ANODIC FILM ON TITANIUM IN ACID MEDIA CONTAINING FLUORIDE IONS AT LOW OVER-POTENTIALS**

I.E. Castañeda<sup>1</sup>, O. Concha<sup>2</sup>, D. De Haro<sup>1</sup>, R. Guardian<sup>2</sup>, A. Marban<sup>2</sup>, D. Mayorga<sup>2</sup>, K. Cuentas<sup>2</sup>, J. Uruchurtu<sup>2</sup>, M. Rincon<sup>3</sup>, C. Menchaca-Campos<sup>2</sup>

<sup>1</sup>Instituto Tecnológico Superior de Jerez. <sup>2</sup>Centro de Investigaciones en Ingeniería y Ciencias Aplicadas UAEM, Mexico. <sup>3</sup>Instituto de Energías Renovables-UNAM, Mexico

■ **S6F-P082 BIOSYNTHESIS OF NANOPARTICLES OF CU (0) SYNTHESIZED BY CYANIDINE-O-3-GLUCOSIDE AT LOWER TEMPERATURES AND ITS STRONG ANTIMICROBIAL ACTIVITY**

O. Vázquez-Cuchillo<sup>1</sup>, Tovar Corona<sup>2,3</sup>, M. A. Lobo-Sánchez<sup>3</sup>, R. Zanella<sup>4</sup>, J. López-Pérez<sup>2</sup>, J. J. Vázquez- Bravo<sup>2</sup>,

<sup>1</sup>Instituto Tecnológico de Puebla, División de Estudios de Posgrado e Investigación, México. <sup>2</sup>Universidad Politécnica Metropolitana de Puebla. Ingeniería en Biotecnología. México. <sup>3</sup>Benemérita Universidad Autónoma de Puebla, Facultad de Cs. Químicas, México. <sup>4</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, UNAM, México D. F.

■ **S6F-P083 Al<sub>2</sub>O<sub>3</sub> COATING WITH TiO<sub>2</sub> AND ITS EFFECT ON CATALYTIC PHOTODEGRADATION P-CRESOL AND PHENOL**

Claudia M. Gómez<sup>1</sup>, G. Del Ángel<sup>2</sup>, E. Ramos-Ramírez<sup>1</sup>, I. Rangel-Vazquez<sup>2</sup>, F. González<sup>3</sup>, A. Arrieta<sup>3</sup>, A. Vazquez-Zavala<sup>3</sup>, A. Bonilla<sup>2</sup>

<sup>1</sup>Departamento de Química, División de Ciencias Naturales y Exactas, Campus Guanajuato de la Universidad de Guanajuato México, <sup>2</sup>Laboratorio de Catálisis,

S-6F



Departamento de Química, DCBI, Universidad Autónoma Metropolitana-Iztapalapa, México <sup>1</sup>Departamento de Ingeniería de Procesos e Hidráulica, Universidad Autónoma Metropolitana-Iztapalapa, México

■ **S6F-P084 SHAPE EFFECT OF CDS PREPARED IN ETHYLENEDIAMINE TEMPLATE WITH PHOTOCATALYTIC ACTIVITY**

Agileo Hernández-Gordillo<sup>1</sup>, Etel Maya-Flores<sup>2</sup>, Vicente Rodríguez-Gonzalez<sup>3</sup>, Ricardo Gomez<sup>4</sup>

<sup>1</sup> Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México. <sup>2</sup> Instituto Mexicano del Petróleo, México. <sup>3</sup> División de Materiales Avanzados, Instituto Potosino de Investigación Científica y Tecnológica, Mexico. <sup>4</sup> Depto. de Química, Área de Catálisis, Universidad Autónoma Metropolitana – Iztapalapa, México

■ **S6F-P085 NITRATES REDUCTION USING COPPER ELECTRODES SUPPORTED OVER GOLD NANOPARTICLES IN ACID MEDIA**

Ezeta-Mejía<sup>1</sup>, M. Aguilar-Sánchez<sup>1</sup>, S. Corona-Avendaño<sup>1</sup>, E.M Arce Estrada<sup>2</sup>.

<sup>1</sup> Departamento de Materiales, Universidad Autónoma Metropolitana-Azcapotzalco, México, D.F. <sup>2</sup> Instituto Politécnico Nacional. ESIQIE. Departamento de Metalurgia y Materiales. México, D.F.

## Symposium 6G

# MATERIALS SCIENCE OF PHARMACEUTICAL SOLIDS

**Graciela Díaz De Delgado** / VENEZUELA / Universidad de Los Andes

**Magali Hickey** / USA / Alkermes

**Lauro Bucio** / MEXICO / Universidad Nacional Autónoma de México

ROOM: CHICHEN ITZA I  
WEDNESDAY, AUGUST 19

 Session Chair: **MAGALI HICKEY**

▶ **08:30 - 09:00 S6G-0001 *Invited Talk* MATERIAL RESEARCH IN PHARMACEUTICAL DEVELOPMENT: BRIDGING FORM AND FUNCTION TO ADVANCE MEDICINAL PRODUCTS**

Magali B. Hickey

Alkermes, Inc., Waltham, MA, USA.

▶ **09:00 - 09:30 S6G-0002 *Invited Talk* ENGINEERING COCRYSTAL THERMODYNAMIC STABILITY AND THE IMPORTANCE OF TRANSITION POINTS**

N. Rodríguez-Hornedo

Department of Pharmaceutical Sciences, University of Michigan, Ann Arbor, Michigan, USA

▶ **09:30 - 10:00 S6G-0003 *Invited Talk* CHARACTERIZATION AND PHASE IDENTIFICATION OF PHARMACEUTICAL AND BIOACTIVE MATERIALS USING X-RAY POWDER DIFFRACTION TECHNIQUES**

T. Blanton<sup>1</sup>, T. Fawcett<sup>1</sup>, J. Kaduk<sup>2</sup>, K. Zhong<sup>1</sup>, A. Gindhart<sup>1</sup>, S. Gates<sup>1</sup>, J. Blanton<sup>1</sup>, S. Kabbekodu<sup>1</sup>

<sup>1</sup>International Centre for Diffraction Data, Newtown Square, USA, <sup>2</sup>Illinois Institute of Technology, USA

■ **10:00 - 10:15 S6G-0004 X-RAY POWDER DIFFRACTION DATA OF NEBIVOLOL HYDROCHLORIDE**

J.A. Henao<sup>(1)</sup>, José H. Quintana<sup>(1)</sup> and J.M. Delgado<sup>(2)</sup>

<sup>(1)</sup>Universidad Industrial de Santander, Facultad de Ciencias, Escuela de Química, Grupo de Investigación en Química Estructural (GIQUE), Bucaramanga, Colombia. <sup>(2)</sup> Universidad de Los Andes, Facultad de Ciencias, Laboratorio de Cristalografía-LNDRX, Mérida, Venezuela.

■ **10:15 - 10:30 S6G-0005 THE STRUCTURAL CHARACTERIZATION OF NEW FORMS OF ACTIVE PHARMACEUTICAL INGREDIENTS OBTAINED BY VARYING CRYSTALLIZATION CONDITIONS AND BY HEAT TREATMENT**

G. Díaz de Delgado<sup>1</sup>, R. A. Toro H.<sup>1</sup>, G. Borges<sup>1</sup>, J. M. Delgado<sup>1</sup>, J. Bruno-Colmenárez<sup>2</sup>, C-H. Chen<sup>3</sup>, J. A. Henao<sup>4</sup>

<sup>1</sup>Laboratorio de Cristalografía-LNDRX, Universidad de Los Andes, Mérida, Venezuela. <sup>2</sup>LaMTE/CITeMa, IVC, Maracaibo, Venezuela. <sup>3</sup>IUMSC, Indiana University, Bloomington, IN, USA. <sup>4</sup>GIQUE, Facultad de Ciencias, UIS, Bucaramanga, Colombia

■ **10:30 - 10:45 S6G-0006 X-RAY DIFFRACTION ANALYSES OF PHARMACEUTICAL SAMPLES**

E. M. Rivera-Muñoz<sup>1</sup>, B. Millán-Malo<sup>1</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.


■ **10:45 - 11:00 S6G-0007 POLYMORPHISM IN PHARMACEUTICAL DRUGS AND CHARACTERIZATION OF ACTIVE INGREDIENT USING CALORIMETRIC TECHNIQUES**

B.A. Ramírez<sup>1</sup>, L. Bucio<sup>2</sup>






<sup>1</sup>Instituto de Investigación en Materiales, México. <sup>2</sup>Instituto de Física, Circuito de la Investigación Científica Ciudad Universitaria México.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **GRACIELA DIAZ DE DELGADO**

 **12:30 - 13:00 S6G-0008 Invited Talk DRUGS FOR NEGLECTED DISEASES: CHALLENGES FOR CRYSTAL ENGINEERING**

A. P. Ayala

Physics Department, Federal University of Ceará, Fortaleza, Brazil

■ **13:00 - 13:15 S6G-0009 SYNTHESIS AND CHARACTERIZATION A NEW Zn-FLUCONAZOLE COMPLEX**

J.M. Delgado<sup>1</sup>, Analio J. Dugarte<sup>1</sup>, G. Díaz de Delgado<sup>1</sup>, J.A. Henao<sup>2</sup>

<sup>1</sup>Laboratorio de Cristalografía-LNDRX, Facultad de Ciencias, Universidad de Los Andes, Mérida, Venezuela. <sup>2</sup>Grupo de Investigación en Química Estructural (GIQUE), Escuela de Química, Facultad de Ciencias, Universidad Industrial de Santander, Bucaramanga, Colombia.

 **13:15 - 13:45 S6G-0010 Invited Talk SUSTAINED PULMONARY DELIVERY OF A WATER-SOLUBLE ANTIBIOTIC WITHOUT USING ENCAPSULATING CARRIERS**

Winston Ong<sup>1</sup>, Pawel Nowak<sup>1</sup>, Yen Cu<sup>1</sup>, Lisa Schopf<sup>1</sup>, James Bourassa<sup>1</sup>, Elizabeth Enlow<sup>1</sup>, Samuel M. Moskowitz<sup>2</sup> and Hongming Chen<sup>1</sup>

<sup>1</sup>Kala Pharmaceuticals, Inc., <sup>2</sup>Department of Pediatrics, Massachusetts General Hospital and Harvard Medical School, Boston,

 **13:45 - 14:15 S6G-0011 Invited Talk FORMULATION CONSIDERATIONS FOR ENGINEERED PARTICLE PULMONARY DRUG DELIVERY**

J. M. Perry

Pulmatrix, Inc., Lexington,

 **14:00- 16:00 LUNCH**

## ROOM: TERRACE WEDNESDAY, AUGUST 19

 **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S6G-P001 INTERACTION OF PALLADIUM(II) COMPOUNDS WITH MERCAPTOETHANOL**

A.N. Azizova<sup>1</sup>, D.B. Tagiev<sup>1</sup>, M.M. Asadov<sup>1</sup>, S.R. Imamverdieva<sup>2</sup>

<sup>1</sup>Institute of Catalysis and Inorganic Chemistry, Azerbaijan National Academy of Sciences, Baku, <sup>2</sup>Institute of Control Systems, Azerbaijan National Academy of Sciences, Baku

■ **S6G-P002 COBALT(II) AND NICKEL(II) COORDINATION COMPOUNDS FROM SCHIFF-BASE DERIVATIVES OF ALOIN WITH ANTICANCER POTENTIAL**

R. Bolívar-Cimé<sup>1</sup>, C. Carrera-Figueiras<sup>1</sup>, A. Esparza-Ruiz<sup>1</sup>

<sup>1</sup>Chemical Engineering Faculty, Autonomous University of Yucatan (UADY). Campus de Ingenierías y Ciencias Exactas. México.

■ **S6G-P003 CHARACTERIZATION AND COMPARATIVE STUDY OF ANTICONVULSANT ACTIVITY AND NEUROTOXICITY OF HYDROXYAMIDES**

L. Romero-Rosas<sup>1</sup>, SE. Meza-Toledo<sup>2</sup>, C. Zorrilla<sup>3</sup>, Germán Chamorro Cevallos<sup>1</sup>

<sup>1</sup>Escuela Nacional de Ciencias Biológicas, Departamento de Farmacia. México, D.F.; <sup>2</sup>Departamento de Bioquímica. Instituto Politécnico Nacional. <sup>3</sup>Instituto de física de la Universidad Autónoma de México.

■ **S6G-P004 OBTAINING MICROSPHERES OF THERMOSENSITIVE COPOLYMER AND INDOMETHACIN**

Valeria Jordana González Coronel<sup>1</sup>, Alejandra Salgado Meza<sup>1</sup>, Gerardo Pozos Sánchez<sup>1</sup>, Marco Antonio González Coronel<sup>2</sup>, Efrain Rubio Rosas<sup>3</sup>

<sup>1</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, Puebla México, <sup>2</sup>Facultad de Ciencias Químicas, Benemérita Universidad Autónoma de Puebla, Puebla México, <sup>3</sup>Centro Universitario de Vinculación y Transferencia Tecnológica, Benemérita Universidad Autónoma de Puebla, Puebla México

■ **S6G-P005 RAMAN SPECTROSCOPY STUDY OF METFORMIN CHLORIDRATE FROM PHARMACEUTICAL PRESENTATIONS AVAILABLE IN THE MEXICAN MARKET**

A.Y. Torres-Moreno<sup>1</sup>, I. Belio-Reyes<sup>2</sup>, L. Bucio<sup>1</sup>, S. García-Medina<sup>3</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México. Circuito de la investigación científica SN Ciudad Universitaria, México, D.F. <sup>2</sup>Universidad Autónoma de Sinaloa, Facultad de Odontología. <sup>3</sup>Instituto Politécnico Nacional. Escuela Nacional de Ciencias Biológicas, Unidad Zacatenco.

■ **S6G-P006 STRUCTURAL CHARACTERIZATION OF CLENBUTEROL ACETATE, A NEW FORM OBTAINED BY VARYING THE CRYSTALLIZATION CONDITIONS**

R. Toro<sup>1</sup>, G. Díaz de Delgado<sup>1</sup>, J.M. Delgado Quiñones<sup>1</sup>

<sup>1</sup>Laboratorio de Cristalografía-LNDRX, Departamento de Química, Facultad de Ciencias, Universidad de Los Andes, Mérida – Venezuela

■ **S6G-P007 SYMMETRY OF FULLERENE THAT INFLUENCES THEIR ACTIVITY AS VEHICLE FOR DELIVERING DRUGS**

Jacobo Martínez-Reyes<sup>1</sup>, E. Orozco<sup>1</sup>

<sup>1</sup> Instituto de Física, Universidad Nacional Autónoma de México. México, D.F.

■ **S6G-P008 COMPARATIVE ANALYSIS OF SILDENAFIL CITRATE AVAILABLE IN THE MEXICAN MARKET**

L. Bucio<sup>1</sup>, I.A. Belio-Reyes<sup>2</sup>, E.M. Rivera-Muñoz<sup>3</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México, México, <sup>2</sup>Facultad de Odontología, Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México, <sup>3</sup>Centro de Física Aplicada y Tecnología Avanzada, UNAM, Juriquilla, Querétaro, México

■ **S6G-P009 ANALYSIS OF SOME APIs AND EXCIPIENTS BY GEOMETRICAL CRYSTALLOGRAPHY**

I.A. Belio-Reyes<sup>1</sup>, B. Ramírez-Almaguer<sup>2</sup>, A.Y. Torres-Moreno<sup>2</sup>, L. Bucio<sup>2</sup>

<sup>1</sup>Facultad de Odontología, Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México, México

## Symposium 6H

# MATERIALS IN NUCLEAR SCIENCE AND TECHNOLOGY

Angeles del C. Díaz Sánchez / MEXICO / Instituto Nacional de Investigaciones Nucleares  
Ma. Magdalena Cruz Gris / MEXICO / Central Laguna Verde

ROOM: ACAPULCO  
MONDAY, AUGUST 17

■ **09:00 - 09:15 S6H-0001 PWR FUEL ELEMENT NEUTRONIC ANALYSIS WITH BURNABLE POISON RODS USING ZIRCALOY AND HI-NICALON TYPE S CLADDINGS**

R. B. de Faria<sup>1,2</sup>, A. Fortini<sup>1,2</sup> and C. Pereira<sup>1,2</sup>

<sup>1</sup> Departamento de Engenharia Nuclear – Escola de Engenharia, Universidade Federal de Minas Gerais, Brasil, <sup>2</sup> Instituto Nacional de Ciências e Tecnologia de Reatores Nucleares Inovadores/CNPq, Brazil

■ **09:15 - 09:30 S6H-0002 ION BEAM MODIFICATIONS OF MICROSTRUCTURAL PROPERTIES OF SILICON CARBIDE COMPOSITES**

N. Chaâbane<sup>1</sup>, S. Doriot<sup>2</sup>, S. Urvoy<sup>2</sup>, T. Vandenberghe<sup>2</sup>, C. Sandt<sup>3</sup>

<sup>1</sup>CEA, INSTN/UEINE, France, <sup>2</sup>CEA, DEN/DMN/SRMA, France, <sup>3</sup>Synchrotron SOLEIL, L'Orme des Merisiers, Saint-Aubin, France

▶ **09:30 - 10:00 S6H-0003 *Invited Talk* THE ROLE OF GRAIN BOUNDARY COMPLEXIONS ON THE DIFFUSION OF SILVER THROUGH SiC IN TRISO FUEL PARTICLES**

Eddie López-Honorato<sup>1</sup>, F. Cancino-Trejo<sup>1</sup>, R. Walker<sup>2</sup>, R. Salomon-Ferrer<sup>2</sup>

<sup>1</sup> Centro de Investigación y de estudios Avanzados del IPN- Unidad Saltillo, <sup>2</sup> University of California-San Diego, San Diego Supercomputer Centre

▶ **10:00 - 10:30 S6H-0004 *Invited Talk* EXAMINATION OF COATED PARTICLE FUEL IRRADIATION PERFORMANCE**

J.D. Hunn<sup>1</sup>, P.A. Demkowicz<sup>2</sup>, R.N. Morris<sup>1</sup>, C.A. Baldwin<sup>1</sup>, T.J. Gerczak<sup>1</sup>, J.M. Harp<sup>2</sup>, F.C. Montgomery<sup>1</sup>, S.A. Ploger<sup>2</sup>, E.L. Reber<sup>2</sup>, and P.L. Winston<sup>2</sup>

<sup>1</sup>Oak Ridge National Laboratory, USA, <sup>2</sup>Idaho National Laboratory, USA

▶ **10:30 - 11:00 S6H-0005 *Invited Talk* RADIATION TOLERANT IMPERVIOUS NANOCERAMIC BARRIERS FOR NEXT GENERATION NUCLEAR SYSTEMS**

Garcia Ferre<sup>1</sup>, A. Mairov<sup>2</sup>, L. Ceseracciu<sup>3</sup>, C. Baumier<sup>4</sup>, O. Kaitasov<sup>4</sup>, Y. Serruys<sup>5</sup>, L. Beck<sup>5</sup>, M.G. Beghi<sup>6</sup>, K. Sridharan<sup>2</sup> and F. Di Fonzo<sup>1</sup>

<sup>1</sup>Center for Nano Science and Technology, Istituto Italiano di Tecnologia, Italy, <sup>2</sup>Department of Engineering Physics, University of Wisconsin-Madison, USA, <sup>3</sup>Smart Materials, Nanophysics, Istituto Italiano di Tecnologia, Italy, <sup>4</sup>CNRS/IN2P3/CSNSM/SEMIRAMIS, Université Paris Sud, France, <sup>5</sup>Service de Recherches de Métallurgie Physique, Laboratoire JANNUS, CEA, DEN, France, <sup>6</sup>Dipartimento di Energia, Politecnico di Milano, Italy

▶ **11:00 - 11:30 S6H-0006 CHARACTERIZATION OF ROCK SALT, BENTONITE AND GRANITE CONSIDERED AS NUCLEAR WASTE STORAGE FORMATIONS BY THERMAL ANALYSIS METHODS**

Ekkehard Post<sup>1</sup>, Doreen Rapp<sup>1</sup>, Fabia Neidhardt<sup>1</sup>, Bob Fidler<sup>2</sup>

<sup>1</sup>NETZSCH Geraetebau GmbH, Germany, <sup>2</sup>NETZSCH Instruments North America,

☒ 11:00 – 11:30 COFFEE BREAK

📖 11:30 – 12:30 PLENARY LECTURE

■ 12:30 - 12:45 S6H-0007 REDUCING GRAIN SIZE OF THE VANADIUM ALLOY THROUGH COLD DEFORMATION AND REHEATING

J. Ding, S. Yang, B. Zhu and F. Wan

School of Materials Science and Engineering, University of Science and Technology Beijing, China

▶ 12:45 - 13:15 S6H-0008 *Invited Talk A* CONTEMPORARY PERSPECTIVE OF STRESS CORROSION CRACKING

Peter L. Andresen<sup>1</sup>

<sup>1</sup>GE Global Research Center, Schenectady.

■ 13:15 - 13:30 S6H-0009 SHIFT IN NIL - DUCTILITY REFERENCE TEMPERATURE DETERMINATION USING NEUTRON FLUENCE MEASUREMENTS FOR A BWR REACTOR VESSEL BELTLINE MATERIALS

J. Palacios<sup>1</sup>, E. Robles<sup>1</sup>, J. Merino<sup>1</sup>

<sup>1</sup>Gerencia de Ciencias Aplicadas, Instituto Nacional de Investigaciones Nucleares, Mexico

■ 13:30 - 13:45 S6H-0010 OXIDE FILM CHARACTERIZATION AFTER THE CRACK PROPAGATION IN CT SPECIMENS OF AISI 304L UNDER HYDROGEN WATER CHEMISTRY CONDITION

Á. Díaz Sánchez<sup>1</sup>, A. Contreras Ramirez<sup>1</sup>, C. Arganis Juárez<sup>1</sup>

<sup>1</sup>Instituto Nacional de Investigaciones Nucleares,

✂ 14:00- 16:00 LUNCH

■ 16:00 - 16:15 S6H-0011 THERMOLUMINESCENCE OF In<sub>2</sub>TiO<sub>5</sub> EUROPIUM ACTIVATED

I.C. Muñoz<sup>1</sup>, F. Brown<sup>2</sup>, F. M. Vazquez-Paz<sup>1</sup>, J. Marcazzó<sup>3</sup> and E. Cruz-Zaragoza<sup>4</sup>

<sup>1</sup>Departamento de Ciencias Químico-Biológicas, Universidad de Sonora, México. <sup>2</sup>Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora, México. <sup>3</sup>IFAS - CIFICEN (CONICET - UNCPBA), Argentina. <sup>4</sup>Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, México.

▶ 16:15 - 16:45 S6H-0012 *Invited Talk* MICROSTRUCTURED SEMICONDUCTOR NEUTRON DETECTORS

D.S. McGregor, S.L. Bellingier, R.G. Fronk, J. K. Shultis

SMART Laboratory, Dept. of Mechanical and Nuclear Engineering, Kansas State University, Manhattan,

■ 16:45 - 17:00 S6H-0013 A NANOSTRUCTURED SCINTILLATING OPTICAL FIBER PREPARED USING A SOL-GEL METHOD FOR DETECTING GAMMA RADIATION

S. Tao<sup>1</sup>

<sup>1</sup>Department of Mathematics, Chemistry and Physics, West Texas A&M University, USA

▶ 17:00 - 17:30 S6H-0014 *Invited Talk* RADIATION DAMAGE OF MATERIALS IN A NUCLEAR REACTOR

Miguel Balcazar<sup>1</sup>, Arturo García-Borquez<sup>2</sup>

<sup>1</sup>Instituto Nacional de Investigaciones Nucleares, Mexico. <sup>2</sup>Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, Mexico.

■ 17:30 - 17:45 S6H-0015 MICROHETEROGENEOUS APPROACHES FOR THE INSERTION OF REPROCESSED AND COMBINED THORIUM FUEL CYCLES IN A PWR SYSTEM

F. B. A. Monteiro<sup>1,2</sup>, R. B. de Faria<sup>1</sup>, Â. Fortini<sup>1</sup>, C. A. M. Da Silva<sup>1</sup>, C. Pereira<sup>1,2</sup>

<sup>1</sup>Departamento de Engenharia Nuclear – Escola de Engenharia, Universidade Federal de Minas Gerais, Brasil. <sup>2</sup>Instituto Nacional de Ciências e Tecnologia de Reatores Nucleares Inovadores/CNPq, Brazil

ROOM: TERRACE  
MONDAY, AUGUST 17

▶ 18:30 - 20:30 POSTER SESSION & COFFEE BREAK

■ S6H-P001 PERFORMANCE ANALYSIS OF INP P-I-N DIODE SWITCHES FOR WIRELESS SUPERVISORY CONTROL SYSTEMS

Luis Alejandro Iturri Hinojosa, Gabriela Leija Hernández and Mohamed Badaoui

Instituto Politécnico Nacional, Escuela Superior de Ingeniería Mecánica y Eléctrica, México D.F.

■ S6H-P002 ANALYSIS OF THE RELATIONSHIP BETWEEN THE FRACTAL DIMENSION AND THE ENERGY OF ALPHA PARTICLES DEPOSITED ON SSNTD MATERIAL

J.A. Lima<sup>1</sup>, M.R. Palomino<sup>1</sup>, V.M. Castaño<sup>2</sup>, G. Espinosa<sup>3</sup>

<sup>1</sup>Facultad de Ciencias Físico Matemáticas, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Centro de

S-6H



Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México. <sup>3</sup>Instituto de Física, Universidad Nacional Autónoma de México, México.

■ **S6H-P003 WATER VAPOR FURNACE FOR TG-MS MEASUREMENTS: CORROSION OF ZIRCALOY AND STEEL**

Ekkehard Post<sup>1</sup>, Bob Fidler<sup>2</sup>

<sup>1</sup>NETZSCH Geraetebau GmbH, Germany, <sup>2</sup>NETZSCH Instruments North America, LLC,

■ **S6H-P004 DESORPTION OF HELIUM IN SAMPLE OF IRON EFDA (99.9999 %) FOR USE IN NUCLEAR FUSION REACTORS**

Salazar-Roman AR<sup>1</sup> y Pinedo-Vega JL<sup>1</sup>, Sánchez F<sup>2</sup>, Ibarra A<sup>2</sup>, Vila R<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Zacatecas, <sup>2</sup>Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Av. Complutense España,

■ **S6H-P005 EFFECT OF PALLADIUM ON THE CHARACTERISTICS OF THE GRAIN BOUNDARIES IN SiC AND ITS INFLUENCE IN THE DIFFUSION OF SILVER IN TRISO FUEL PARTICLES**

F. Cancino Trejo, E. López-Honorato

Centro de Investigación y de Estudios Avanzados del IPN, Unidad Saltillo, México.

■ **S6H-P006 NEUTRON DOSIMETRY IN A SPHERICAL PHANTOM**

P.V. Cerón-Ramírez<sup>1</sup>, J. A. I. Díaz-Góngora<sup>1</sup>, L.C. Paredes-Gutierrez<sup>2</sup>, T. Rivera-Montalvo<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada Unidad Legaria, México. <sup>2</sup>Instituto Nacional de Investigaciones Nucleares, México

■ **S6H-P007 THE INDUCED IRRADIATION DAMAGE IN NEW GENERATION STEELS FOR NUCLEAR APPLICATIONS**

S. Alsagabi<sup>1,2</sup>, I. Charit<sup>1</sup>

<sup>1</sup>Department of Chemical and Materials Engineering, University of Idaho, Moscow, USA. <sup>2</sup>National Center for Nuclear Technology, King Abdulaziz City for Science and Technology, P.O. Saudi Arabia

ROOM: UXMAL I  
TUESDAY, AUGUST 18

■ **16:00 - 16:15 S6H-0016 ASSESSMENT OF LEAD FREE MATERIALS FOR ATTENUATION OF IONIZING RADIATION**

S. E. Plazas<sup>1</sup>, N.V. Paredes<sup>2</sup>, E.S. Cruz<sup>3</sup>

<sup>1</sup>Universidad-ECCI. Programa de Ingeniería de Plásticos. <sup>2</sup>Universidad-ECCI. Programa de Ingeniería Mecánica. <sup>3</sup>Universidad-ECCI. Programa de Ingeniería Biomédica.

▶ **16:15 - 16:45 S6H-0017 Invited Talk NUMERICAL EVALUATION OF FAST ION LOSSES AT THE ASDEX UPGRADE TOKAMAK**

J. García-Lopez,<sup>1,2</sup> M. Rodríguez-Ramos,<sup>1,2</sup> M. C. Jimenez-Ramos,<sup>2</sup> J. Galdon-Quiroga,<sup>1</sup> M. Garcia-Muñoz,<sup>1,2,3</sup> L. Sanchis-Sanchez<sup>1</sup> and the ASDEX Upgrade Team<sup>3</sup>

<sup>1</sup>Dept. of Atomic, Molecular and Nuclear Physics. University of Seville. Spain, <sup>2</sup>CNA (U. Sevilla, CSIC, J. de Andalucía). Spain, <sup>3</sup>Max-Planck-Institut für Plasmaphysik, Garching, Germany

■ **16:45 - 17:00 S6H-0018 NEUTRONIC PERFORMANCE OF (U, TRU)C FUEL IN A LATTICE OF GFR USING SCALE 6.0**

A. Macedo<sup>1,2</sup>, C. A. M. Silva<sup>1,2</sup>, and C. Pereira<sup>1,2</sup>

<sup>1</sup>Departamento de Engenharia Nuclear – Escola de Engenharia, Universidade Federal de Minas Gerais, Brasil. <sup>2</sup>Instituto Nacional de Ciências e Tecnologia de Reatores Nucleares Inovadores/CNPq, Brazil

▶ **17:00 - 17:30 S6H-0019 Invited Talk ADVANCED SYSTEMS AND FUEL CYCLES FOR THE NUCLEAR ENERGY SUSTAINABILITY**

Juan Luis François

Universidad Nacional Autónoma de México, Facultad de Ingeniería, Morelos, México.

■ **17:30 - 17:45 S6H-0020 EFFECTS ON CRITICALITY AND BURNUP CALCULATIONS CHANGING ADS CLADDING MATERIAL**

Carlos E.Velasquez<sup>1,2</sup>, G. P. Barros<sup>3</sup>, M. A. F. Veloso<sup>1,2</sup>, A. L. Costa<sup>1,2</sup> and C. Pereira<sup>1,2</sup>

<sup>1</sup>Departamento de Engenharia Nuclear – Escola de Engenharia, Universidade Federal de Minas Gerais, Brasil, <sup>2</sup>Instituto Nacional de Ciências e Tecnologia de Reatores Nucleares Inovadores/CNPq, Brazil, <sup>3</sup>CNEN - Comissão Nacional de Energia Nuclear, Brasil



## Symposium 6I

# MULTIFERROIC MATERIAL SYSTEMS AND MULTILAYER FERROIC HETEROSTRUCTURES: EXPERIMENT, THEORY, PROPERTIES, AND APPLICATIONS

**Greg P. Carman** / USA / Translational Applications of Multiferroic Systems

TANMS Mechanical and Aerospace Engineering Department, UCLA

**Melanie W. Cole** / USA / U.S. Army Research Laboratory, WMRD

**S. Pamir Alpay** / USA / University of Connecticut

**Luis-Fuentes Cobas** / MEXICO / Centro de Investigación en Materiales Avanzados

ROOM: MAYA VI  
MONDAY, AUGUST 17

**Session Chair: DOMINICK LABANOWSKI & DIANA CIEN**

▶ **08:30 - 09:00 S6I-0001 *Invited Talk* OVERVIEW OF THE CENTER FOR TRANSLATIONAL APPLICATIONS OF NANOSCALE MULTIFERROIC SYSTEMS (TANMS)**

**Greg P. Carman**

Director Translational Applications of Nanoscale Multiferroic Systems TANMS, UCLA, Mechanical & Aerospace Engineering Dept

▶ **09:00 - 09:15 S6I-0002 *Invited Talk* TANMS MAGNETIZATION CONTROL IN MULTIFERROIC RING STRUCTURES**

**H. Sohn<sup>1</sup>, M. E. Nowakowski<sup>2</sup>, C.-Y. Liang<sup>1</sup>, S. M. Keller<sup>1</sup>, C. S. Lynch<sup>1</sup>, G. P. Carman<sup>1</sup>, J. Bokor<sup>2</sup>, and R. N. Candler<sup>1,3</sup>**

<sup>1</sup>University of California, Los Angeles, USA, <sup>2</sup>University of California, Berkeley, USA, <sup>3</sup>California NanoSystems Institute, Los Angeles, USA

▶ **09:15 - 09:30 S6I-0003 *Invited Talk* ELECTRICALLY-DRIVEN MAGNETIC DOMAIN WALL ROTATION IN MULTIFERROIC HETEROSTRUCTURES TO MANIPULATE SUSPENDED ON-CHIP MAGNETIC PARTICLES**

**M. E. Nowakowski<sup>1</sup>, H. Sohn<sup>2</sup>, C.-Y. Liang<sup>3</sup>, J. L. Hockel<sup>3</sup>, K. Wetzlar<sup>3</sup>, S. Keller<sup>3</sup>, B. M. McLellan<sup>4</sup>, M. A. Marcus<sup>5</sup>, A. Doran<sup>5</sup>, A. Young<sup>5</sup>, M. Kläui<sup>6</sup>, G. P. Carman<sup>3</sup>, J. Bokor<sup>1</sup>, R. N. Candler<sup>2,7</sup>**

<sup>1</sup>Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, California, USA, <sup>2</sup>Department of Electrical Engineering, University of California, Los Angeles, California, USA, <sup>3</sup>Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, California, USA, <sup>4</sup>Department of Physics, NYU Polytechnic School of Engineering, New York, New York, USA, <sup>5</sup>Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, California, USA, <sup>6</sup>Institute of Physics, University of Mainz, Mainz, Germany, <sup>7</sup>California NanoSystems Institute, Los Angeles, California, USA

▶ **09:30 - 09:45 S6I-0004 *Invited Talk* STRAIN-MEDIATED DETERMINISTIC CONTROL OF 3600 DOMAIN WALL MOTION IN MAGNETOELECTRIC NANORINGS**

**Abdon E. Sepulveda<sup>1</sup>, Cheng-Yen Liang<sup>2</sup>, Scott M. Keller<sup>3</sup>, Gregory. P. Carman<sup>4</sup>**

<sup>1</sup>University of California, Los Angeles, USA, <sup>2</sup>University of California, Los Angeles, USA, <sup>3</sup>University of California, Los Angeles, USA, <sup>4</sup>University of California, Los Angeles, USA

■ **09:45 - 10:00 S6I-0005 MODELING OF STRAIN-MEDIATED DETERMINISTIC CONTROL IN MAGNETOELASTIC RING NANOSTRUCTURES AND MULTIFERROIC APPLICATIONS**

**Cheng-Yen Liang<sup>1</sup>, Abdon E. Sepulveda<sup>1</sup>, Jizhai Cui<sup>1</sup>, Daniel Hoff<sup>1</sup>, Scott M. Keller<sup>1</sup>, Gregory. P. Carman<sup>1</sup>**

<sup>1</sup>Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, USA



▶ **10:00 - 10:15 S61-0006 *Invited Talk* INTEGRATED MULTIFERROICS FOR SENSORS AND RF ELECTRONICS**  
Nian X. Sun

W.M. Keck Laboratory for Integrated Ferroics, and Electrical and Computer Engineering Department, Northeastern University, Boston, MA, USA

▶ **10:15 - 10:30 S61-0007 *Invited Talk* REVERSIBLE SWITCHING OF THE MAGNETIC EASY AXIS IN Co/BiFeO<sub>3</sub>/SrRuO<sub>3</sub>/SrTiO<sub>3</sub> HETEROSTRUCTURES AND THEIR APPLICATION IN ELECTRIC-FIELD TUNABLE GIANT MAGNETORESISTANCE DEVICES**

Ichiro Takeuchi

Department of Materials Science and Engineering, University of Maryland

▶ **10:30 - 10:45 S61-0008 *Invited Talk* STRAIN-MEDIATED VOLTAGE CONTROL OF MAGNETIZATION USING A SUBSTRATE CLAMPED CONTINUOUS PZT FILM**

Jizhai Cui, Christopher S. Lynch.

☑ 11:00 - 11:30 COFFEE BREAK

📖 11:30 - 12:30 PLENARY LECTURE

👤 Session Chair: **DOMANN & AUNI KUNDU**

▶ **12:30 - 12:45 S61-0009 *Invited Talk* MULTISCALE MODELING AND PHENOMENOLOGICAL THEORY OF MAGNETO-ELECTRIC COUPLING IN COMPOSITE MULTIFERROICS**

O.G. Udalov<sup>1</sup>, N.M. Chtchelkatchev<sup>1</sup> and I.S. Beloborodov<sup>1</sup>

<sup>1</sup>California State University Northridge

■ **12:45 - 13:00 S61-0010 TANMS: MONTE-CARLO SIMULATIONS OF COMPOSITE MULTIFERROICS**

G. Udalov<sup>1,2</sup>, N.M. Chtchelkatchev<sup>1,3,4</sup>, I.S. Beloborodov<sup>1</sup>

<sup>1</sup>Department of Physics and Astronomy, California State University Northridge, Northridge, USA, <sup>2</sup>Institute for Physics of Microstructures, Russian Academy of Science, Nizhny Novgorod, Russia, <sup>3</sup>L.D. Landau Institute for Theoretical Physics, Russian Academy of Sciences, Russia, <sup>4</sup>Department of Theoretical Physics, Moscow Institute of Physics and Technology, Russia

■ **13:00 - 13:15 S61-0011 TAILORING THE MAGNETIZATION ORIENTATION OF FERH/MGO HETEROSTRUCTURES VIA STRAIN AND ELECTRIC FIELD**

Guohui Zheng<sup>a,b</sup>, Phuong-Vu Ong<sup>a</sup>, Sanhuang Ke<sup>b</sup>, Rammoorthy Ramesh<sup>c</sup>, Maosheng Miao<sup>a</sup> and Nicholas Kioussis<sup>a</sup>

<sup>a</sup>Department of Physics, California State University, Northridge, CA, USA, <sup>b</sup>School of Physics Science and Engineering, Tongji University, Shanghai, P. R. China, <sup>c</sup>Department of Materials Science and Engineering, University of California Berkeley, CA, USA

▶ **13:15 - 13:30 S61-0012 *Invited Talk* AN UNUSUAL ROUTE TO ENHANCED MAGNETOELECTRIC COUPLING IN MULTIFERROICS**

I. Ponomareva, C.-M. Chang, B.K. Mani, S. Lisenkov

Department of Physics, University of South Florida, Tampa, FL, USA

■ **13:30 - 13:45 S61-0013 MULTIFERROIC MODELING OF NANOSTRUCTURED MAGNETIC DIPOLE ELEMENTS**  
Dorinamaria Carka, Scott M. Keller, Gregory P. Carman

UCLA

▶ **13:45 - 14:00 S61-0014 *Invited Talk* FULLY COUPLED MAGNETOELECTROELASTIC MODELING**

Scott M Keller, Maria Carka

UCLA

■ **14:00 - 14:15 S61-0015 ATOMIC LAYER DEPOSITION OF Pb(ZrxTi<sub>1-x</sub>)O<sub>3</sub> THIN FILMS TO ENGINEER NANOSCALE MULTIFERROIC COMPOSITES (NSF ERC TANMS)**

D. Chien<sup>1</sup>, A. Buditama<sup>2</sup>, L. Schelhas<sup>2</sup>, X. Li<sup>3</sup>, K. Wong<sup>3</sup>, P. Khalili<sup>3</sup>, K. Wang<sup>3</sup>, S. Tolbert<sup>2</sup>, and J.P. Chang<sup>1</sup>

<sup>1</sup>Department of Chemical and Biomolecular Engineering, <sup>2</sup>Department of Chemistry and Biochemistry, <sup>3</sup>Department of Electrical Engineering, University of California, Los Angeles (UCLA), Los Angeles, California, USA.

☒ **14:00- 16:00 LUNCH**

👤 Session Chair: **SHAUN ROBBENOLT & MARK NOWAKOWSKI**

▶ **16:00 - 16:15 S61-0016 *Invited Talk* ATOMIC LAYER DEPOSITION OF EPITAXIAL MULTIFERROICS**

J. E. Spanier<sup>1</sup>

<sup>1</sup>Department of Materials Science & Engineering, Drexel University, Philadelphia PA USA

■ **16:15 - 16:30 S61-0017 THE QUEST FOR NEW ROOM TEMPERATURE MULTIFERROIC THIN FILMS**

L. Corbellini<sup>1</sup>, T. Hajlaoui<sup>1</sup>, C. Harnagea<sup>1</sup>, A. Pignolet<sup>1</sup>

<sup>1</sup>INRS - Institut National de la Recherche Scientifique, Centre Énergie Matériaux Télécommunications, CANADA

▶ **16:30 - 16:45 S61-0018 Invited Talk**  
**INVESTIGATIONS ON FERROELECTRIC/MULTIFERROIC TUNNEL JUNCTIONS FOR MULTIFUNCTIONAL APPLICATIONS**

Ram S. Katiyar<sup>1</sup>, D. Barrionuevo<sup>1</sup>, N. Ortega<sup>1</sup>, Le Zhang<sup>2</sup>, A. Sokolov<sup>2</sup>, and J.F. Scott<sup>3</sup>

<sup>1</sup>Department of Physics & Institute of Functional Nanomaterials, University of Puerto Rico, USA. <sup>2</sup>Department of Physics & Astronomy, University of Nebraska-Lincoln, Lincoln, Nebraska, USA. <sup>3</sup>Department of Physics, Cambridge University, Cambridge, U.K.

■ **16:45 - 17:00 S61-0019 HIGH STRAIN RATE MAGNETOELASTIC RESPONSE OF GALFENOL**

J.P. Domann<sup>1</sup>, C.M. Loeffler<sup>2</sup>, B.E. Martin<sup>3</sup>, G.P. Carman<sup>1</sup>

<sup>1</sup>Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, <sup>2</sup>Department of Mechanical and Energy Engineering, University of North Texas, USA, <sup>3</sup>Air Force Research Laboratories, Eglin Air Force Base.

■ **17:00 - 17:15 S61-0020 SURFACE ENERGY MEASUREMENT OF METALLIC SUBSTRATES AROUND ROOM TEMPERATURE USING LIQUID GALLIUM DROP METHOD**

Michael Van Order<sup>1</sup>, Suok-Min Na<sup>2</sup> and Alison Flatau<sup>1,2</sup>

<sup>1</sup>Dept. Materials of Science and Engineering, University of Maryland, Chemical & Nuclear Engineering Bldg., College Park, USA, <sup>2</sup>Dept. of Aerospace Engineering, University of Maryland, College Park, USA

■ **17:15 - 17:30 S61-0021 EFFECTS OF MAGNETIC FIELD AND FREQUENCY ON DIELECTRIC PERMITTIVITY IN BTO-CFO MULTIFERROIC NANOCOMPOSITES**

U. Acevedo<sup>1</sup>, R. López<sup>1,2</sup>, S. Ammar<sup>3</sup>, F. Calderón<sup>4</sup> and R. Valenzuela<sup>1</sup>

<sup>1</sup>Departamento de Materiales Metálicos y Cerámicos del Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, UNAM. D. F., México. <sup>2</sup>Departamento de Física Aplicada, Instituto de Cibernética, Matemática y Física, ICIMAF, CITMA. Cuba. <sup>3</sup>TODYS, Université Paris Diderot, PRES Sorbonne Paris Cité, France. <sup>4</sup>Instituto de Ciencia y Tecnología de Materiales, Universidad de La Habana, La Habana, Cuba.

■ **17:30 - 17:45 S61-0022 VOLTAGE CONTROL OF MAGNETIZATION IN FE/PD NANOCRYSTALS FOR THE NEXT GENERATION OF MAGNETOELECTRIC MEMORY IN TANMS**

S. Robbenolt<sup>1</sup>, M. Akyol<sup>2</sup>, X. Li<sup>2</sup>, P. Khalili<sup>2</sup>, K. Wang<sup>2</sup> and S. H. Tolbert<sup>1</sup>

<sup>1</sup>Department of Chemistry and Biochemistry, UCLA, Los Angeles, United States, <sup>2</sup>Department of Electrical Engineering, UCLA, Los Angeles, United States

■ **17:45 - 18:00 S61-0023 POLYMER TEMPLATED MESOPOROUS FRAMEWORKS FOR TANMS STRAIN-COUPLED MAGNETOELECTRIC COMPOSITES**

A. Buditama<sup>1</sup>, D. Chien<sup>2</sup>, J. Chang<sup>2</sup>, S. Tolbert<sup>1</sup>

<sup>1</sup>Department of Chemistry and Biochemistry, <sup>2</sup>Department of Chemical and Biomolecular Engineering, University of California, Los Angeles, USA

ROOM: TERRACE  
 MONDAY, AUGUST 17

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S61-P001 PIEZO-FERROELECTRIC PROPERTIES OF HIGHLY TEXTURED (K<sub>0.5</sub>Na<sub>0.5</sub>)<sub>0.985</sub>La<sub>0.005</sub>NbO<sub>3</sub> THIN FILMS**

H. H'Mok<sup>1</sup>, E. Martinez-Aguilar<sup>1</sup>, J.J. Gervacio<sup>2</sup>, X. Vendrell<sup>3</sup>, J. M. Siqueiros<sup>2</sup>, and O. Raymond<sup>2</sup>

<sup>1</sup>Posgrado en Física de Materiales, Centro de Investigación Científica y de Educación Superior de Ensenada, México, <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, Baja California, México. <sup>3</sup>Departament de Química Inorgànica, Universitat de Barcelona, Barcelona, España

■ **S61-P002 TANMS INVESTIGATIONS OF ACOUSTICALLY-DRIVEN FERROMAGNETIC RESONANCE FOR ANTENNA APPLICATIONS**

D. Labanowski<sup>1</sup>, A. Jung<sup>1</sup>, S. Salahuddin<sup>1</sup>

<sup>1</sup>Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, USA

■ **S61-P003 A DESIGN OF NANOSCALE MAGNETOELECTRIC HETEROSTRUCTURES WITH DETERMINISTIC MAGNETIZATION CONTROL USING PATTERNED ELECTRODES (TANMS)**

A. Kundu<sup>1</sup>, J. Cui<sup>1</sup>, X. Li<sup>1</sup>, C. Liang<sup>1</sup>, G.P. Carman<sup>1</sup>, C.S. Lynch<sup>1</sup>



<sup>1</sup>Mechanical and Aerospace Engineering, Henry Samueli School of Engineering and Applied Science, UCLA

■ **S61-P004 TANMS ELECTRICALLY-DRIVEN MAGNETIC DOMAIN WALL ROTATION IN SUBMICRON-SCALE MULTIFERROIC HETEROSTRUCTURES**

Hyunmin Sohn<sup>1</sup>, Mark Nowakowski<sup>2</sup>, Cheng-yen Liang<sup>3</sup>, Joshua L. Hockel<sup>3</sup>, Kyle Wetzlar<sup>3</sup>, Scott Keller<sup>3</sup>, Brenda M. McLellan<sup>4</sup>, Matthew A. Marcus<sup>5</sup>, Andrew Doran<sup>5</sup>, Anthony Young<sup>5</sup>, Mathias Kläui<sup>6</sup>, Gregory P. Carman<sup>3</sup>, Jeffrey Bokor<sup>2</sup>, Robert N. Candler<sup>1,7</sup>

<sup>1</sup>Department of Electrical Engineering, University of California, Los Angeles, USA, <sup>2</sup>Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, USA, <sup>3</sup>Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, USA, <sup>4</sup>Department of Physics, NYU Polytechnic School of Engineering, New York, New York, USA, <sup>5</sup>Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, USA, <sup>6</sup>Institute of Physics, University of Mainz, Mainz, Germany, <sup>7</sup>California NanoSystems Institute, Los Angeles, USA

■ **S61-P005 STRAIN TUNING THE MAGNETIC ANISOTROPY OF TbFe<sub>2</sub> WITH MOLECULAR BEAM EPITAXY**

Rachel Steinhardt, Ritika Dusad, Darrell Schlom  
Cornell University

■ **S61-P006 MULTIFERROIC SPIN WAVE LOGIC DEVICE: TANMS**

A. C. Chavez<sup>1</sup>, A. Barra<sup>1</sup>, G. P. Carman<sup>1</sup>

<sup>1</sup>University of California Los Angeles, Los Angeles, CA, United States of America

■ **S61-P007 ASYMMETRIC BEHAVIOR OF STRAIN-MEDIATED SPIN WAVES**

C. Chen, C.Y. Liang, A. E. Sepulveda, G. P. Carman

Mechanical and Aerospace Engineering Department, UCLA, Los Angeles, USA

■ **S61-P008 HIGH TEMPERATURE X-RAY DIFFRACTION STUDIES OF Bi<sub>5</sub>Fe<sub>1+x</sub>Ti<sub>3-x</sub>O<sub>15</sub> CERAMICS**

M.E. Mendoza and U. Salazar-Kuri

Instituto de Física, BUAP, Puebla, México

■ **S61-P009 GROWTH AND CHARACTERIZATION OF HYBRID MULTIFERROIC La<sub>2/3</sub>Sr<sub>1/3</sub>MnO<sub>3</sub>/BaTiO<sub>3</sub> BILAYERS DEPOSITED BY SPUTTERING DC AND RF.**

J. E. Ordoñez<sup>1</sup>, M. E. Gomez<sup>1,2</sup>, W. Lopera<sup>1</sup>, P. Prieto<sup>1,2</sup>.

<sup>1</sup>Department of Physics, Universidad del Valle, Cali, Colombia. <sup>2</sup>Center of Excellence on Novel Materials Cali, Colombia

■ **S61-P010 BiFeO<sub>3</sub> CODOPING WITH Ba, La AND Ti: MAGNETIC AND STRUCTURAL STUDIES**

O. García-Zaldívar<sup>1,2</sup>, S. Díaz-Castañón<sup>1,3</sup>, F.J. Espinoza-Beltrán<sup>2</sup>, M.A. Hernández-Landaverde<sup>2</sup>, G. López<sup>4</sup>, F. Calderón-Piñar<sup>1,2</sup>

■ **<sup>1</sup>Facultad de Física - Instituto de Ciencia y Tecnología de Materiales, Universidad de La Habana, San Lázaro y L, Vedado. La Habana, Cuba.**

**<sup>2</sup>CINVESTAV-Unidad Querétaro, México. <sup>3</sup>División Materiales Avanzados, Instituto Potosino de Investigación Científica, San Luis Potosí, México.**

**<sup>4</sup>Instituto Latino-Americano de Ciências da Vida e da Natureza, Universidade Federal da Integração Latino-Americana, (ILCVN-UNILA), Brasil**

**S61-P011 GROWTH AND ELECTRICAL PROPERTIES OF YCRO<sub>3</sub> MULTIFERROIC THIN FILMS**

J.J. Gervacio-Arciniega<sup>1</sup>, E. Prokhorov<sup>2</sup>, J. Siqueiros<sup>1</sup>, M. P. Cruz<sup>1</sup>

<sup>1</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, México, <sup>2</sup>CINVESTAV Unidad Querétaro, México.

■ **S61-P012 TUNING STATIC AND DYNAMIC MAGNETIC PROPERTIES OF FeGa/NiFe MULTILAYER COMPOSITES (NSF ERC TANMS)**

Colin Rementer<sup>ii</sup>, Wei-Yang Sun<sup>ii</sup>, Paul Nordeen<sup>ii</sup>, Qiang Zu<sup>iii</sup>, Gregory Carman<sup>ii</sup>, Yuanxun Wang<sup>iii</sup>, Jane P. Chang<sup>i</sup>

<sup>i</sup>Department of Chemical and Biomolecular Engineering,

<sup>ii</sup>Department of Mechanical and Aerospace Engineering,

<sup>iii</sup>Department of Electrical Engineering, University of California, Los Angeles, USA

■ **S61-P013 TANMS DYNAMIC MODELING OF BULK ACOUSTIC WAVE MEDIATED ANTENNA**

Z. Yao<sup>1</sup>, Y. E. Wang<sup>1</sup>

<sup>1</sup>University of California, Los Angeles, USA, Electrical Engineering Department, University of California, Los Angeles, USA

■ **S61-P014 ALTERING SHOCK RESPONSE USING ACTIVE METAMATERIALS**

C. Roberts<sup>1</sup>, P. Lv<sup>2</sup> & C. S. Lynch<sup>2</sup>

<sup>1</sup>Department of Materials Science and Engineering, Henry Samueli School of Engineering and Applied Science,

UCLA, <sup>2</sup>Department of Mechanical and Aerospace Engineering, Henry Samueli School of Engineering and Applied Science, UCLA,

ROOM: MAYA VI  
TUESDAY, AUGUST 18

 Session Chair: **PIERRE-EYMERIC JANOLIN**

**▶ 08:30 - 09:00 S61-0024 Invited Talk CONTROL AND MANIPULATION OF COMPETING INTERACTIONS OF FERROIC METAL-OXIDE FILMS**

A. P. Chen<sup>1</sup>, W. R. Zhang<sup>2</sup>, O. Lee<sup>3</sup>, M. R. Fitzsimmons<sup>1</sup>, J. Zhu<sup>1</sup>, H. Wang<sup>2</sup>, J. L. MacManus-Driscoll<sup>3</sup>, and Q. X. Jia<sup>1</sup>

<sup>1</sup>Center for Integrated Nanotechnologies (CINT), Los Alamos National Laboratory, Los Alamos, USA, <sup>2</sup>Department of Electrical and Computer Engineering, Texas A&M University, College Station, USA, <sup>3</sup>Department of Materials Science and Metallurgy, University of Cambridge, Pembroke Street, UK

**▶ 09:00 - 09:15 S61-0025 Invited Talk LOCAL DESCRIPTION OF GLOBAL PROPERTIES: CASE STUDY OF ANTIFERROELECTRICS-BASED FUNCTIONAL PEROVSKITES**

Pierre-Eymeric Janolin<sup>1</sup>, Romain Faye<sup>1</sup>, Charlotte Cochard<sup>1,2</sup>, Hongbo Liu<sup>3</sup>, Sergey Prosandeev<sup>4,5</sup>, Orland Guedes<sup>2</sup>, Laurent Bellaiche<sup>4</sup>, Brahim Dkhil<sup>1</sup>

<sup>1</sup>Laboratoire Structures, Propriétés et Modélisation des Solides, Université Paris Saclay, CentraleSupélec, CNRS; France. <sup>2</sup>Shanghai University of Engineering Science, China, <sup>3</sup>University of Arkansas, Fayetteville, USA, <sup>4</sup>Institute of Physics, Southern Federal University, Russia

**▶ 09:15 - 09:45 S61-0026 Invited Talk DEFECTS AND DOMAIN WALLS IN  $\text{LiNbO}_3$ : INSIGHTS FROM MICROSCOPIC SIMULATION**

Simon R. Phillpot<sup>1</sup>.

<sup>1</sup>Department of Materials Science and Engineering, University of Florida

**■ 09:15 - 09:30 S61-0027 HIGH PERMITTIVITY ( $\text{K}_{0.44}\text{Na}_{0.52}\text{Li}_{0.04}$ )<sub>0.97</sub> $\text{La}_{0.01}\text{Nb}_{0.9}\text{Ta}_{0.1}\text{O}_3$  CERAMICS OBTAINED BY THE RTGG METHOD USING  $\text{NaNbO}_3$  AS PRECURSOR**

J. Portelles<sup>1,2</sup>, J. Fuentes<sup>1,2</sup>, C. Ostos<sup>2,3</sup>, J. Gervacio<sup>2</sup>, O. Raymond<sup>2</sup>, M.P. Cruz<sup>2</sup>, J. Heiras<sup>2</sup>, J.M. Siqueiros<sup>2</sup>

<sup>1</sup>Facultad de Física, Universidad de La Habana, San Lázaro y L, La Habana, Cuba. <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, México, <sup>3</sup>Universidad de Antioquia, Instituto de Química, Facultad de Ciencias Exactas y Naturales, Colombia

**▶ 09:45 - 10:00 S61-0028 Invited Talk ENHANCED DIELECTRIC AND PIEZOELECTRIC RESPONSE IN PZT SUPERLATTICE-LIKE THIN FILMS**

N. Bassiri-Gharb<sup>1</sup>

<sup>1</sup>G.W.Woodruff School of Mechanical Engineering and School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, USA

**▶ 10:00 - 10:15 S61-0029 Invited Talk ORGANIC FERROELECTRICS**

Stephen Ducharme

Department of Physics and Astronomy, Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln,

**▶ 10:15 - 10:30 S61-0030 Invited Talk RECENT DEVELOPMENTS IN HIGH TEMPERATURE PIEZOELECTRICS**


A. Sehirlioglu and B. Kowalski

Department of Materials Science and Engineering, Case Western Reserve University, Cleveland,

**▶ 10:30 - 11:00 S61-0031 Invited Talk INTEGRATED FILMS OF TRANSITION METAL OXIDES WITH SEMICONDUCTORS**

Alex Demkov

Department of Physics, The University of Texas, Austin, TX, USA.

 11:00 - 11:30 COFFEE BREAK

 11:30 - 12:30 PLENARY LECTURE

 Session Chair: **SHASHANK PRIYA**

**■ 12:30 - 12:45 S61-0032 PROBING THE STRUCTURE AND DYNAMIC BEHAVIORS OF FERROELECTRIC DOMAIN WALLS WITH ATOMIC RESOLUTION IN REAL TIME**

Xiaoqing Pan<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering and Materials Science and Department of Physics and Astronomy, University of California - Irvine, US





■ **12:45 - 13:00 S61-0033 CONTROL OF STRUCTURE, CONDUCTION AND ORBITAL POLARIZATION IN NICKELATE HETEROSTRUCTURES**

A. S. Disa<sup>1</sup>, A. Malashevich<sup>1</sup>, M. S. J. Marshall<sup>1</sup>, D. P. Kumah<sup>1</sup>, F. J. Walker<sup>1</sup>, S. Ismail-Beigi<sup>1,2</sup>, C. H. Ahn<sup>1,2</sup>

<sup>1</sup>Department of Applied Physics and Center for Research on Interface Structures and Phenomena, Yale University, New Haven, USA, <sup>2</sup>Departments of Physics and Mechanical Engineering & Materials Science, Yale University, New Haven, USA

▶ **13:00 - 13:15 S61-0034 Invited Talk DUAL PHASE ENERGY HARVESTING - MATERIALS, CHARACTERIZATION, AND APPLICATIONS**

S. Priya

CEHMS, Mechanical Engineering, Virginia Tech, Blacksburg

▶ **13:15 - 13:30 S61-0035 Invited Talk SWITCHING, REVERSIBILITY, AND DYNAMICS OF THE STRUCTURAL PHASE TRANSITION IN COMPRESSIVELY STRAINED EPITAXIAL BIFEO<sub>3</sub>**

Margaret P. Cosgriff<sup>1</sup>, Pice Chen<sup>1</sup>, Sung Su Lee<sup>2</sup>, Hyeon Jun Lee<sup>2</sup>, Lukasz Kuna<sup>3</sup>, Krishna C. Pitike<sup>4</sup>, Lydie Louis<sup>4</sup>, William D. Parker<sup>5,6</sup>, Hiroo Tajiri<sup>7</sup>, Zuhuang Chen<sup>8</sup>, Serge M. Nakhmanson<sup>3,4</sup>, Ji Young Jo<sup>2</sup>, Lang Chen<sup>9</sup> and Paul G. Evans<sup>1</sup>

<sup>1</sup>University of Wisconsin-Madison, Madison, USA, <sup>2</sup>Gwangju Institute of Science and Technology, South Korea, <sup>3</sup>Department of Physics, University of Connecticut, Storrs, USA, <sup>4</sup>Department of Materials Science & Engineering, and Institute of Materials Science, University of Connecticut, Storrs, USA, <sup>5</sup>Argonne Leadership Computing Facility, Argonne National Laboratory, Argonne, USA, <sup>6</sup>School of Chemical Engineering, Purdue University, West Lafayette, USA, <sup>7</sup>Japan Synchrotron Radiation Research Institute, Japan, <sup>8</sup>Department of Materials Science and Engineering, University of California, USA, <sup>9</sup>Department of Physics, South University of Science and Technology of China, China

▶ **13:30 - 14:00 S61-0036 Invited Talk UNUSUAL FERROIC FUNCTIONALITIES IN COMPLEX-OXIDE MULTILAYERS BY DESIGN: FROM ATOMIC SCALE TO MESOSCALE**

L. Louis<sup>1</sup>, J. Mangeri<sup>2</sup>, K. C. Pitike<sup>1</sup>, W. D. Parker<sup>3,4</sup>, S. M. Nakhmanson<sup>1,2</sup>

<sup>1</sup>Department of Materials Science & Engineering, and Institute of Materials Science, University of Connecticut, Storrs, USA, <sup>2</sup>Department of Physics, University of

Connecticut, Storrs, USA, <sup>3</sup>Argonne Leadership Computing Facility, Argonne National Laboratory, Argonne, USA, <sup>4</sup>School of Chemical Engineering, Purdue University, West Lafayette, USA

▶ **14:00 - 14:30 S61-0037 Invited Talk DEVELOPING ELECTROCALORIC (ec) MATERIALS WITH GIANT EC RESPONSE AND CHIP-SCALE EC COOLING DEVICES**

Q. M. Zhang

The Penn State University, University Park, USA.



**14:00- 16:00 LUNCH**



Session Chair: **SERGE NAKHMANSON**

■ **16:00 - 16:15 S61-0038 IN-SITU POLARIZED NEUTRON REFLECTOMETRY DURIG THIN FILM GROWTH BY SPUTTER DEPOSITION**

W. Kreuzpaintner<sup>1</sup>, S. Mayr<sup>1</sup>, J. Ye<sup>1</sup>, B. Wiedemann<sup>1</sup>, A. Paul<sup>1</sup>, T. Mairoser<sup>2</sup>, A. Schmehl<sup>2</sup>, A. Herrnberger<sup>2</sup>, J. Stahn<sup>5</sup>, J.-F. Moulin<sup>4</sup>, P. Korelis<sup>5</sup>, M. Haese-Seiler<sup>4</sup>, M. Pomm<sup>4</sup>, B. Hjörvarsson<sup>6</sup>, P. Böni<sup>1</sup>, and J. Mannhart<sup>3</sup>

<sup>1</sup>Technische Universität München, Garching, Germany, <sup>2</sup>Universität Augsburg, Augsburg, Germany, <sup>3</sup>Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany, <sup>4</sup>Helmholtz-Zentrum-Geesthacht Zentrum für Material- und Küstenforschung GmbH, Geesthacht, Germany, <sup>5</sup>Paul Scherrer Institut, Laboratory for Neutron Scattering, Villigen PSI, Switzerland, <sup>6</sup>Uppsala University, Department of Physics and Astronomy, Uppsala, Sweden

▶ **16:15 - 16:30 S61-0039 Invited Talk A NOVEL APPROACH TO DETERMINE A Ba<sub>0.6</sub>Sr<sub>0.4</sub>TiO<sub>3</sub> THIN FILM TUNABILITY IN THz SPECTRUM USING AN ACTIVE SINGLE-NEGATIVE METAMATERIAL STRUCTURE**

D. Shreiber, W. Zhou, G. Dang, M. Taysing-Lara, G. Metcalfe, US Army Research Laboratory, RDRL-WMM-E,

▶ **16:30 - 17:00 S61-0040 Invited Talk THE REPRESENTATION OF COUPLING INTERACTIONS IN THE MATERIAL PROPERTIES OPEN DATABASE (MPOD)**

L. Fuentes-Cobas<sup>1</sup>, D. Chateigner<sup>2</sup>, G. Pepponi<sup>3</sup>, S. Grazulis<sup>4</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados, S.C., México, <sup>2</sup>Université de Caen-Basse Normandie, Caen, France, <sup>3</sup>MINALab, CMM-irst, Fondazione Bruno Kessler, Italy, <sup>4</sup>Department of Mathematical Computer Science, Vilnius University, Faculty of Mathematics and Informatics, Lithuania

## Symposium 6J

# NACE: CORROSION AND METALLURGY

**Jorge Canto Ibáñez** / MEXICO / Corrosión y Protección Ingeniería, S.C.

**Francisco Javier Rodríguez** / MEXICO / UNAM

**José G. Chacón Nava** / MEXICO / Centro de Investigación en Materiales Avanzados, S.C.

**Tezozómoc Pérez López** / MEXICO / Universidad Autónoma de Campeche

### ROOM: ACAPULCO TUESDAY, AUGUST 18

■ **08:30 - 08:45 S6J-0001 NATURAL GAS INDUSTRY: MATERIALS AND CORROSION**

R. Salinas<sup>1</sup>, Valdez<sup>1</sup>, M. Schorr<sup>1</sup>, J. M. Bastidas<sup>2</sup>

<sup>1</sup>Instituto de Ingeniería, Universidad Autónoma de Baja California. <sup>2</sup>National Center for Metallurgical Research, Consejo Superior de Investigaciones Científicas (CSIC), Madrid, Spain.

■ **09:00 - 09:15 S6J-0002 OXIDATION BEHAVIOR OF STEELS ALLOYED WITH Si AND Mn FOR GALVANIZING**

Mayra Y. Rodríguez<sup>1</sup>, Juan Pedraza<sup>2</sup>, Omar García<sup>2</sup>, Maribel de la Garza<sup>1</sup>, Nelson F. Garza-Montes de Oca<sup>1</sup>

<sup>1</sup> Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, <sup>2</sup>TERNIUM S.A. de C.V. Mexico

■ **09:15 - 09:30 S6J-0003 ELECTROCHEMICAL STUDY OF (2,6-BIS(((2-pyridylmethyl)oxy)methyl))pyridine) (POMP) AS A CORROSION INHIBITOR IN ACID**

E. García-Ochoa<sup>1</sup>, P. Maldonado-Rivas<sup>1</sup>, T Pandiyan<sup>2</sup>

<sup>1</sup>Centro de Investigaciones en Corrosión (CICORR) Universidad Autónoma de Campeche. Campus México. <sup>2</sup>Depto. Química analítica, DEPg, Facultad de Química, Universidad Nacional Autónoma de México, México.

■ **09:30 - 09:45 S6J-0004 ELECTROCHEMICAL ASSESSMENT OF WELDED JUNCTION BETWEEN**

**CARBON STEEL ASTM A 615 AND STAINLESS STEEL 304L EMBEDDED IN CONCRETE**

R. Hernández-Leos<sup>1</sup>, J.T. Pérez-Quiroz<sup>2</sup>, R. Antaño-López<sup>1</sup>, J. Terán-Guillen<sup>2</sup>, M. Martínez-Madrid<sup>2</sup>, J. L. Reyes-Barragán<sup>3</sup>

■ **09:45 - 10:00 S6J-0005 ELECTROCHEMICAL AND MICROSTRUCTURE CHARACTERIZATION OF 2101 DUPLEX STAINLESS STEEL WELDED WITH LASER CO<sub>2</sub> AND EVALUATED ON H<sub>2</sub>S ENVIRONMENT**

Victor M. Ventura<sup>1</sup>, Dora Irma Martínez<sup>1</sup>, Arturo Reyes<sup>2</sup>

<sup>1</sup>UANL FIME, Mexico, Nuevo leon

■ **10:00 - 10:15 S6J-0006 ASSESSMENT OF CORROSION RATE OF METALLIC MATERIALS IN BIODIESEL**

Lizbeth Rivera-Rivera<sup>1</sup>, José Trinidad Pérez-Quiroz<sup>2</sup>, Tezozomoc Pérez-López<sup>3</sup>, Jorge Terán-Guillén<sup>2</sup>, Miguel Martínez-Madrid<sup>2</sup>, José Luis Reyes-Barragán<sup>4</sup>

<sup>1</sup> Instituto tecnológico Superior de Irapuato, <sup>2</sup> Instituto Mexicano del Transporte, <sup>3</sup> Centro de Investigaciones en Corrosión, <sup>4</sup> Universidad Politécnica de la Zona Metropolitana de Guadalajara

■ **10:15 - 10:30 S6J-0007 ELECTROCHEMICAL AND MECHANICAL CHARACTERIZATION OF TiO<sub>2</sub> NANOTUBES OBTAINED BY ANODIC OXIDATION AT HIGH VOLTAGE**

S. Mejía Sintillo<sup>1</sup>, C. Cuevas Arteaga<sup>1</sup>, R. Ma. Melgoza, Ma. G. Valladares<sup>1</sup>

<sup>1</sup>FCQel-CIICAp-Universidad Autónoma del Estado de Morelos, México.



■ **10:30 - 10:45 S6J-0008 HIGH TEMPERATURE OF OXIDATION OF TI AND B CONTAINING HSLA STEELS FOR HOT STAMPING APPLICATIONS**

J.L. Gutiérrez-Platas<sup>1</sup>, O. García-Rincón<sup>2</sup>, F.A. Pérez-González<sup>1</sup> and N.F. Garza-Montes-de-Oca<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Centro de Investigación, Innovación en Desarrollo en Ingeniería y Tecnología, Facultad de Ingeniería Mecánica y Eléctrica, Mexico, <sup>2</sup>Ternium México S.A. de C.V, Mexico.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

■ **13:15 - 13:30 S6J-0009 CRITICAL CHLORIDE CONTENT OF THREE DIFFERENT TYPES OF REINFORCING STEEL USING ELECTROCHEMICAL TECHNIQUES**

J.O. Rivera-Corral<sup>1</sup>, G. Fajardo<sup>1</sup>, R. Orozco-Cruz<sup>2</sup>, G. Arluguie<sup>3</sup>, F. Deby<sup>3</sup>, P. Valdez<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, UANL, México, <sup>2</sup>Universidad Veracruzana, S.S. México. <sup>3</sup>LMDC, UPS, INSA, Université de Toulouse, France.

■ **13:30 - 13:45 S6J-0010 NUMERICAL ANALYSIS OF ELECTRICAL CONDUCTIVITY IN CEMENT PASTES ADDED WITH CARBON FIBER**

E.A. Carrillo Madrigal<sup>1</sup>, C.P. Barrios-Durstewitz<sup>1</sup>, J.M. Pellegrini<sup>1</sup>, R.E. Nuñez-Jaquez<sup>1</sup>, M.S. Flores Cortez<sup>1</sup>, J.H. Castorena González<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Sinaloa, Facultad de Ingeniería Mochis, México.

■ **13:45 - 14:00 S6J-0011 REMOTE MEASUREMENT OF LINEAR POLARISATION RESISTANCE IN CONCRETE STRUCTURES**

F. Bernal Castillo<sup>1</sup>, G. Roa-Rodríguez<sup>1</sup>, W. Aperador<sup>1</sup>

<sup>1</sup>Universidad Militar Nueva Granada, Bogota, Colombia

■ **14:00 - 14:15 S6J-0012 OXIDATION BEHAVIOR AND CORROSION RESISTANCE OF AUSTENITIC TWIP STEEL**

S. Leal<sup>1</sup>, R. Colás<sup>1</sup>, N. F. Garza-Montes-de-Oca<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica.

✂ **14:00- 16:00 LUNCH**

■ **16:00 - 16:15 S6J-0013 EROSION-CORROSION OF A 12 CR STEEL AT HIGH TEMPERATURES AND LOW IMPACT VELOCITY**

J.G. Chacon-Nava<sup>1</sup>, Z. Guzman-Escobedo<sup>1</sup>, A. Borunda-Terrazas<sup>1</sup>, C. G. Nava-Dino<sup>2</sup>, A. Martinez-Villafañe<sup>1</sup>

<sup>1</sup> Centro de Investigación en Materiales Avanzados SC, Mexico, <sup>2</sup> Universidad Autonoma de Chihuahua, Facultad de Ingeniería, Chihuahua, Chih., Mexico

■ **16:15 - 16:30 S6J-0014 EFFECT OF AGE-HARDENING ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF 2024 ALUMINUM ALLOY WITH ALUMINA NANOPARTICLES PRODUCED BY MECHANICAL MILLING**

C.A. López-Medina<sup>1,2</sup>, H. Borja-Cerda<sup>1,2</sup>, O. Esquivel-Ceniceros<sup>1,2</sup>, R. Martínez-Sánchez<sup>2</sup>, M. Neri-Flores<sup>2</sup>

<sup>1</sup>Ingeniería Metal-Mecánica, Universidad Tecnológica de Torreón, México. <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, Chihuahua México.

■ **16:30 - 16:45 S6J-0015 EFFECT OF HEAT TREATMENT ON CORROSION OF ELECTROLESS NI-P AND NI-B COATINGS IN 3.5 WT% NA CL SOLUTION**

J. González-Sánchez<sup>1</sup>; A. León-Geronimo<sup>1</sup>; L. Dzib-Pérez<sup>1</sup>; E. García-Ochoa<sup>1</sup>; J. G. Castaño<sup>2</sup>; A.A. Zuleta<sup>2</sup>

<sup>1</sup>Centro de Investigación en Corrosión, Universidad Autónoma de Campeche, México. <sup>2</sup>Centro de Investigación e Innovación de Materiales, Universidad de Antioquia, Medellín, Colombia.

■ **16:45 - 17:00 S6J-0016 ELECTROCHEMICAL EVALUATION OF REINFORCED CONCRETE ADDED WITH SUGAR CANE BAGASSE ASH, MICROSILICA AND FLY ASH**

R. E. Núñez-Jaquez<sup>1</sup>, A. N. Arballo-Sandoval<sup>1</sup>, G. J. Fajardo-San Miguel<sup>2</sup>, C. P. Barrios-Durstewitz<sup>1</sup>, M. J. Pellegrini-Cervantes<sup>1</sup>, J. H. Castorena-González<sup>1</sup>, J. P. García-Contreras<sup>3</sup>

<sup>1</sup>Facultad de Ingeniería Mochis, Unidad Regional Norte. Universidad Autónoma de Sinaloa. México. <sup>2</sup>Facultad de Ingeniería Civil. Universidad Autónoma de Nuevo León. México. <sup>3</sup>Facultad de Ingeniería. Universidad Autónoma de San Luis Potosí. México

■ **17:00 - 17:15 S6J-0017 APPLICATIONS OF POLYMER CONCRETE IN CORROSIVE ENVIRONMENTS**

C.Lora<sup>1</sup>, J.Ocampo<sup>2</sup>, B. Valdez<sup>1</sup>, M. Schorr<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería, Universidad Autónoma de Baja California, México. <sup>2</sup>Facultad de ingeniería, Universidad Autónoma de Baja California, México.

- **17:15 - 17:30 S6J-0018 EVALUACIÓN DE CORROSIÓN EN UNA SOLUCIÓN microaleado BIOETANOL acero USO técnicas electroquímicas**  
EJ Moreno Carpintero<sup>1,2</sup>, JG González-Rodríguez<sup>1</sup>, J.Uruchurtu-Chavarin<sup>1</sup>, E. Sarmiento Bustos<sup>3</sup>, A. Tlatelpa Becerro<sup>1,2</sup>, OC Benítez Centeno<sup>2</sup>, ED Rojas Ayala<sup>2</sup>  
<sup>1</sup> Universidad Autónoma del Estado de Morelos -CIICAP, México. <sup>2</sup> Instituto Tecnológico de Zacatepec, México. <sup>3</sup> Departamento de Mecánica Industrial, Universidad Tecnológica de Emiliano Zapata, México.
- **17:30 - 17:45 S6J-0019 COMPARATIVE STUDY: ETHANOL IN HUMAN BODY VS GASOLINE IN A VEHICLE MOTOR: OXIDATION AND COMBUSTION**  
Michael Schorr<sup>1</sup>, Benjamin Valdez<sup>1</sup>, Ernesto Valdez<sup>2</sup>, Noah Lothan<sup>3</sup>, Mónica Carillo<sup>1</sup>, Ricardo Salinas<sup>1</sup>, Amir Eliezer<sup>4</sup>  
<sup>1</sup>Laboratorio de Materiales, Minerales y Corrosión, Instituto de Ingeniería, Universidad Autónoma de Baja California, México. <sup>2</sup>Centro de Investigación Médica "Ixchel", Mexicali, México. <sup>3</sup>Department of Biomedical Engineering, Technion-Israel Institute of Technology, Haifa, Israel. <sup>4</sup>Corrosion Research Center, Sami Shamoon College of Engineering, Beer Sheva, Israel.
- **17:45 - 18:00 S6J-0020 STRUCTURE OF NANOPARTICLES AND ELECTROCHEMICAL MEASUREMENTS OF Li/TiO<sub>2</sub> MODIFIED BY GRAPHENE FOR STORAGE PERFORMANCE**  
C.G. Nava-Dino<sup>1</sup>, A. Borunda-Terrazas<sup>2</sup>, G. Llerar-Meza<sup>1</sup>, V.V. Espejel-García<sup>1</sup>, R.G. Bautista-Margulis<sup>3</sup>, J.G. Chacón-Nava<sup>2</sup>, A. Martínez-Villafañe<sup>2</sup>  
<sup>1</sup>Universidad Autónoma de Chihuahua, Facultad de Ingeniería. Chihuahua, Campus Universitario 2 Chihuahua, México. <sup>2</sup>Departamento de Integridad y Diseño de Materiales Compuestos. Centro de Investigación en Materiales Avanzados. S.C. CIMAV, Chihuahua, Chih. México. <sup>3</sup>Universidad Juárez Autónoma de Tabasco, División Académica de Ciencias Biológicas, Villahermosa-Tabasco, México.
- **18:00 - 18:15 S6J-0021 EVALUATION OF SUSCEPTIBILITY CORROSION OF GRIDS USED IN Pb-ACID BATTERY MANUFACTURED BY CASTING PROCESS AND ROLLING**  
J. F. Lima<sup>1</sup>, M. B. Queiroz<sup>2</sup>, E. O. Vilar<sup>3</sup>, M. C. Sousa<sup>4</sup>

<sup>1</sup>Programa de Pós-Graduação em Engenharia Química PPGEq- Universidade Federal de Campina Grande UFCG. Brazil, <sup>2</sup> Universidade Federal Rural do Semi-Árido UFERSA, Brazil, <sup>3</sup>Unidade Acadêmica de Engenharia Química UAEQ- Universidade Federal de Campina Grande UFCG. Brazil, <sup>4</sup>Unidade Acadêmica de Engenharia Química UAEQ- Universidade Federal de Campina Grande UFCG. Brazil

- **18:15 - 18:30 S6J-0022 EFFECT OF THE Fe/Cu RELATIONSHIP AND LOW ALLOYING ELEMENTS CONTENT ON CORROSION BEHAVIOR OF CAST ALUMINUM PARTS**  
C. Rodríguez-Rivera, C., García-Hinojosa, J.A., Rodríguez-Gómez, F.J.  
 Depto. Ing. Metalúrgica, Facultad de Química, UNAM, Ciudad Universitaria, México D.F.
- **18:30 - 18:45 S6J-0023 MECHANICAL PROPERTIES EVALUATION OF ALUMINUM 7075 REINFORCED WITH CARBON NANOTUBES BY MECHANICAL ALLOYING**  
H. Borja-Cerda<sup>1,2</sup>, C.A. López-Medina<sup>1,2</sup>, O. Esquivel-Ceniceros<sup>1,2</sup>, R. Martínez-Sánchez<sup>1</sup>  
<sup>1</sup>Ingeniería Metal-Mecánica, Universidad Tecnológica de Torreón, México. <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, México.

ROOM: ACAPULCO  
WEDNESDAY, AUGUST 19

- **08:30 - 08:45 S6J-0024 HIGH TEMPERATURE OXIDATION OF TWO NICKEL-BASED SUPERALLOYS**  
Francisco A. Pérez-González<sup>1</sup>, Nelson F. Garza-Montes de Oca<sup>1</sup>, Rafael Colás<sup>1</sup>  
<sup>1</sup>Universidad Autónoma de Nuevo Leon, Facultad de Ingeniería Mecánica y Eléctrica, México
- **09:00 - 09:15 S6J-0025 CHARACTERIZATION OF THE FRACTURE SURFACE GENERATED BY HYDROGEN INDUCED CRACKING (HIC)**  
P. K. Vázquez<sup>1</sup>, J. L. González<sup>1</sup>, D. I. Rivas<sup>1</sup>, H. J. Dorantes<sup>1</sup>, E. Morlet<sup>1</sup>, W. F. González<sup>1</sup>  
<sup>1</sup>Departamento de Ingeniería Metalúrgica y Materiales (DIMM-ESI/QIE-IPN), Instituto Politécnico Nacional, D.F., México.
- **09:15 - 09:30 S6J-0026 APPLYING A MATHEMATICAL MODEL TO ASSESS REMAINING LIFE**

S-9-S



**(RL) OF A CYLINDRICAL PRESSURE VESSEL HAVING HYDROGEN INDUCED CRACKING (HIC)**

Walter F. González, Jorge L. González<sup>1</sup>, Diego I. Rivas<sup>1</sup>, Héctor J. Dorantes<sup>1</sup>, G. Sepulveda, Perla V. Perales, E. Morlet G.

<sup>1</sup>Departamento de Ingeniería Metalúrgica y Materiales (DIMM-ESIQE-IPN), Instituto Politécnico Nacional, DF, México

**09:30 - 09:45 S6J-0027 QUANTITATIVE CHEMICAL STUDY OF "Ganoderma lucidum" AND ITS ELECTROCHEMICAL EVALUATION AS CORROSION INHIBITOR OF CARBON STEEL 1018**

R. Suarez Hernandez<sup>1</sup>, G.F. Dominguez-Patiño<sup>2</sup>, I. Tello Salgado<sup>3</sup>, and J.G. Gonzalez-Rodriguez<sup>1</sup>, Roy Lopez Sesenes<sup>1</sup>

<sup>1</sup>Universidad Autónoma del Estado de Morelos, CIICAp, México. <sup>2</sup>Universidad Autónoma del Estado de Morelos, FCQel, México. <sup>3</sup>Universidad Autónoma del Estado de Morelos, CIB, México

**09:45 - 10:00 S6J-0028 EVALUATION OF ATMOSPHERIC CORROSION OF PAINTED AND GALVANIZED STEEL UNDER DIFFERENT ENVIRONMENTS**

Carlos Vázquez<sup>1</sup>, Rene Garza<sup>3</sup>, Omar García<sup>3</sup>, Juan Pedraza<sup>3</sup>, Facundo Álmeraya<sup>1,2</sup> and Maribel de la Garza<sup>1</sup>

<sup>1</sup> Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, <sup>2</sup>CIIA, FIME, UANL, Mexico, <sup>3</sup>TERNIUM S.A. de C.V. Mexico

**10:00 - 10:15 S6J-0029 EVALUATION OF SINGLE LAYER HAFNIUM NITRIDE COATED TOOL FOR METAL CUTTING**

J. Navarro<sup>1</sup>, W. Aperador<sup>1</sup>, J. Cortes<sup>1</sup>

<sup>1</sup>School of Engineering, Universidad Militar Nueva Granada, Bogotá, Colombia.

**10:15 - 10:30 S6J-0030 OPUNTIAFICUSINDICA (NOPAL) EXTRACT AS GREEN CORROSION INHIBITOR FOR CARBON STEEL IN HCL1M SOLUTION**


J.P. Flores-De los Ríos<sup>1</sup>, M. Sánchez-Carrillo<sup>1</sup>, C.G. Nava-Dino<sup>2</sup>, J.G. Chacón-Nava<sup>1</sup>, J.G. González-Rodríguez<sup>3</sup>, M.A. Neri-Flores<sup>1</sup>, A. Martínez-Villafañe<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados S.C. Chihuahua, Chihuahua., México. <sup>2</sup>Universidad Autónoma de Chihuahua. Facultad de Ingeniería. Chihuahua, Chihuahua. México. <sup>3</sup>Universidad Autónoma del Estado de Morelos, CIICAp, Cuernavaca, Morelos, México.

**10:30 - 10:45 S6J-0031 HIGH TEMPERATURE OXIDATION OF TWO NICKEL-BASED SUPERALLOYS**

Francisco A. Pérez-González<sup>1</sup>, Nelson F. Garza-Montes de Oca<sup>1</sup>, Rafael Colás<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo Leon, Facultad de Ingeniería Mecánica y Eléctrica, México.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

**13:15 - 13:30 S6J-0032 EFFECTS OF THE RATES OF STRAIN IN AL-A319 AS-CAST CONDITION AND T7 HEAT TREATMENT IN COMPRESSION TEST**

O. Esquivel-Ceniceros<sup>1,2</sup>, C.A. López-Medina<sup>1,2</sup>, H. Borja-Cerda<sup>1,2</sup>, R. Torres-Gonzalez<sup>2</sup>

<sup>1</sup>Ingeniería Metal-Mecánica, Universidad Tecnológica de Torreón, México. <sup>2</sup>Universidad Autónoma de Coahuila, Facultad de Mecánica-Eléctrica, México.

**13:30 - 13:45 S6J-0033 EXTRACTS THEVETIA PERUVIANA AS INHIBITORS OF MILD STEEL CORROSION IN 1M HCl SOLUTION**

Castillo-Atoche<sup>1</sup>, L. Díaz-Ballote<sup>1</sup>

<sup>1</sup>Centro de investigación y de Estudios Avanzados - Unidad Mérida, México.

 **14:00- 16:00 LUNCH**

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

 **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

**S6J-P001 CORROSION CONTROL IN MILITARY ASSETS**

Michael Schorr<sup>1</sup>, Benjamín Valdez<sup>1</sup>, Ricardo Salinas<sup>1</sup>, Rogelio Ramos<sup>1</sup>, Nicola Nedev<sup>1</sup>, Mario Curriel<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería, Universidad Autónoma de Baja California,

**S6J-P002 STUDY OF CORROSION INHIBITION BEHAVIOR OF VAPPRO 884 VIA COLLOID FORMATION**

N. Cheng<sup>1</sup>, J. Cheng<sup>1</sup>, B. Valdez<sup>2</sup>, M. Schorr<sup>2</sup>, J.M. Bastidas<sup>3</sup>

<sup>1</sup> Magna International PTE. LTD., Singapur, <sup>2</sup>Instituto de Ingeniería, Universidad Autónoma de Baja California, México. <sup>3</sup>Centro Nacional de Investigaciones Metalúrgicas



(CENIM). Consejo Superior de Investigaciones Científicas (CSIC). Spain.

■ **S6J-P003 DEVELOPMENT OF ARTIFICIAL NEURAL NETWORK BY USING WAVELET TRANSFORM TREATMENT FOR DETECTION OF CORROSION TYPES IN STAINLESS STEEL 304**

J. Morales Hernández<sup>1</sup>, A. Mandujano Ruiz<sup>1</sup>, H. Herrera Hernández<sup>2</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica S.C.; Parque Tecnológico Sanfandila, México, <sup>2</sup>Universidad Autónoma del Estado de México/UAEM Valle De México; México.

■ **S6J-P004 QUANTITATIVE CHEMICAL STUDY OF "Ganoderma lucidum" AND ITS ELECTROCHEMICAL EVALUATION AS CORROSION INHIBITOR OF CARBON STEEL 1018**

R. Suarez Hernandez<sup>1</sup>, G.F. Dominguez-Patiño<sup>2</sup>, I. Tello Salgado<sup>3</sup>, and J.G. Gonzalez-Rodriguez<sup>3</sup>

<sup>1</sup>Universidad Autónoma del Estado de Morelos, CIICAp, México, <sup>2</sup>Universidad Autónoma del Estado de Morelos, FCQel, México, <sup>3</sup>Universidad Autónoma del Estado de Morelos, CIB, México

■ **S6J-P005 INFLUENCE OF SOLUTE ADDITION IN THE MICROSTRUCTURE AND HARDNESS OF THE AL-SI-CU ALLOYS**

H.M. Medrano-Prieto<sup>1</sup>, C.G. Garay-Reyes<sup>2</sup>, C.D. Gómez-Esparza<sup>3</sup>, R. Martínez-Sánchez<sup>4</sup>

<sup>1,2,3,4</sup>Centro de Investigación en Materiales Avanzados (CIMA), Laboratorio Nacional de Nanotecnología, México

■ **S6J-P006 THERMAL CYCLIC RESPONSE OF [Al<sub>2</sub>O<sub>3</sub>/8YSZ]<sub>n</sub> MULTILAYERED COATINGS DEPOSITED ON AISI 304 STAINLESS STEEL**

A. Escarraga<sup>1</sup>, M. Burgos<sup>1</sup>, J.C. Caicedo<sup>1</sup>, C. Amaya<sup>2</sup>, A. Toro<sup>3</sup>, Y. Aguilar<sup>1</sup>, G. Zambrano<sup>4</sup>

<sup>1</sup>Tribology, Powder Metallurgy and Processing of Solid Recycled Research Group, Universidad del Valle, Cali, Colombia, <sup>2</sup>Grupo de Investigación en Materiales ASTIN SENA Regional Valle, <sup>3</sup>Tribology and Surfaces Group, Universidad Nacional, Medellín, Colombia, <sup>4</sup>Thin Films Group, Universidad del Valle, Cali, Colombia

■ **S6J-P007 EFFECT OF THE PRESENCE OF NANOPARTICLES OF Ag AND Ag+ IONS ON THE PROCESS OF SWEET CORROSION INHIBITION OF A CARBON STEEL**

A. R. Hipólito-Nájera, J. Porcayo-Calderón, M. Casales-Díaz, L. Martínez Gómez

Instituto de Ciencias Físicas, Universidad Nacional Autónoma de México, Cuernavaca, México

■ **S6J-P008 DEVELOPMENT OF ARTIFICIAL NEURAL NETWORK BY USING WAVELET TRANSFORMS TREATMENT FOR DETECTION OF CORROSION TYPES IN STAINLESS STEEL 304**

J. Morales Hernández<sup>1</sup>, A. Mandujano Ruiz<sup>1</sup>, H. Herrera Hernández<sup>2</sup>

<sup>1</sup>Centro de Investigación y Desarrollo Tecnológico en Electroquímica S.C.; Parque Tecnológico Sanfandila, México, <sup>2</sup>Universidad Autónoma del Estado de México/UAEM Valle De México; México.

■ **S6J-P009 STUDY OF CORROSION PROCESS OF STEEL API 5L IN PRODUCTION WATER**

B. Alvares-Poblano<sup>1</sup>, O. Olivares-Xometl<sup>1</sup>, N. V. Likhanova<sup>2</sup>, I. Lijanov<sup>3</sup>, M. Lopez-Fuentes<sup>3</sup>

<sup>1</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, México, <sup>2</sup>Instituto Mexicano del Petróleo, Programa de Investigación y Posgrado, México, <sup>3</sup>Instituto Politécnico Nacional, CIITEC, México.

■ **S6J-P010 HIC CRACK GROWTH KINETICS MATHEMATICAL MODELING**

E. Morlet<sup>1</sup>, J. L. González<sup>1</sup>, D. I. Rivas<sup>1</sup>, H. J. Dorantes<sup>1</sup>, P. K. Vazquez<sup>1</sup>, W. F. González<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Metalúrgica y Materiales (DIMM-ESIQIE-IPN), Instituto Politécnico Nacional, D.F., México.

■ **S6J-P011 HEAT TREATMENT INFLUENCE ON THE CYCLIC OXIDATION BEHAVIOUR A WORK ROLL GRADE HIGH SPEED STEEL**

Mauro J. Gaona-Martinez<sup>1</sup>, Rafael Colás<sup>1</sup>, Francisco A. Pérez-Gonzalez<sup>1</sup>, Nelson F. Garza-Montes-de-Oca<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, San Nicolás de los Garza, N.L., México

■ **S6J-P012 CARBON STEEL CORROSION INHIBITION USING PALM OIL BASED IMIDAZOLINES: SIMS AND AFM ANALYSIS**

S. Godavarthi<sup>1</sup>, J. Porcayo-Calderón<sup>1</sup>, M. Casales-Díaz<sup>1</sup>, Yu. Kudriavtsev<sup>2</sup>, R. Asomoza<sup>2</sup>, L. Martínez-Gómez<sup>1</sup>

<sup>1</sup>Universidad Nacional Autónoma de México, Instituto de Ciencias Físicas, México, <sup>2</sup>Electrical Engineering

S-6J



Department, Centro de Investigación y de Estudios Avanzados del IPN, Mexico

- **S6J-P013 MICROBIOLOGICALLY INDUCED CORROSIÓN (MIC) OF ALUMINIUM AND ANODIZED ALUMINIUM. ELECTROCHEMICAL EVALUATION**  
**U. Jirón<sup>1</sup>, S. De la Rosa<sup>2</sup>, F. Corvo<sup>1</sup>, E. García-Ochoa<sup>1</sup>, P. Quintana<sup>3</sup>**

<sup>1</sup>Centro de Investigación en Corrosión (CICORR),

<sup>2</sup>Departamento de Microbiología Ambiental y Biotecnología (DEMAB) <sup>3</sup>Universidad Autónoma de Campeche, Cinvestav-Unidad Mérida

- **S6J-P014 CHARACTERIZATION OF BIOFUNCTIONALS PEG - CHITOSAN- HYDROXYAPATITE FILMS OBTAINED BY DIP COATING ON T6Al4V**

**Dario Y. Peña B.<sup>1</sup>, Anderson A. Sandoval A.<sup>2</sup>, Ana M. Nieto S.<sup>3</sup>, Dolly K. Díaz M.<sup>4</sup>, Hugo Estupiñán<sup>5</sup>**

<sup>1</sup>Ph.D en Corrosión GIC-UIS, Profesor Titular, <sup>2</sup>, Químicas de la UIS <sup>3,4,5</sup>Universidad Nacional de Colombia-Medellin, GTS.

- **S6J-P015 THE CORROSION PERFORMANCE OF METALS IN AN EXPERIMENTAL BIODIESEL VEHICLE MOTOR**

**G. Montero<sup>1</sup>, B. Valdez<sup>1</sup>, M. Coronado<sup>1</sup>, M. Schorr<sup>1</sup>, A. Eliezer<sup>2</sup>**

<sup>1</sup>Instituto de Ingeniería, Universidad Autónoma de Baja California, Mexicali, Baja California, Mexico, <sup>2</sup>Corrosion Research Center, Sami Shamon College of Engineering, Ber sheva, Israel

- **S6J-P016 PREPARATION AND ANTICORROSIVE PERFORMANCE OF CORROSION RESISTANT FILM COMPOSED OF CRYSTALLINE Mg(OH)2 AND Mg-Al layered ON Mg ALLOY BY STEAM COATING**

**T. Ishizaki<sup>1</sup>, N. Kamiyama<sup>1</sup>, K. Teshima<sup>2</sup>**

<sup>1</sup>Department of Material Science and Engineering, Faculty of Engineering, Shibaura Institute of Technology, Japan,

<sup>2</sup>Department of Environmental Science and Technology, Faculty of Engineering, Shinshu University, Japan

- **S6J-P017 STRESS CORROSION CRACKING BEHAVIOR OF X-70 PIPELINE STEEL IN E-10 AND E-85 GASOHOL**  
**A. del Pozo<sup>a</sup>, S. Serna<sup>a</sup> and A. Torres-Islas<sup>b</sup>, M.J. Colin<sup>b</sup>, J.C. Villalobosa<sup>a</sup>, M.M Miranda<sup>a</sup>**

<sup>a</sup>UAEM, Centro de Investigación en Ingeniería y Ciencias aplicadas (CIICAP) México. <sup>b</sup>Universidad Autónoma del Estado de Morelos (UAEM), Facultad de Ciencias Químicas e Ingeniería, PE. Ing. Mecánica, México.

- **S6J-P018 GARLIC AS NEW GREEN CORROSION INHIBITIONS FOR 1045 AND 1080 CARBON STEELS IMMERSED IN H<sub>2</sub>SO<sub>4</sub> UNDER DIFFERENT HYDRODYNAMIC CONDITIONS**

**E. Rodríguez-Clemente<sup>1</sup>, A.M. Ramírez-Arteaga<sup>1</sup>, M. Palomar-Pardave<sup>2</sup>, J. G. Chacón-Nava<sup>3</sup>, J.G. Gonzalez-Rodriguez<sup>1</sup>, M. G. Valladares-Cisneros<sup>4</sup>**

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas (CIICAP); Universidad Autónoma del Estado de Morelos, México. <sup>2</sup>Departamento Materiales. Universidad Autónoma

Metropolitana-Azcapotzalco, México. <sup>3</sup>Departamento de Integridad y Diseño de Materiales Compuestos. Centro de Investigación en Materiales Avanzados. S.C. CIMAV, México. <sup>4</sup>Facultad de Ciencias Químicas e Ingeniería (FCQ e I); Universidad Autónoma del Estado de Morelos, México.

- **S6J-P019 THE USE OF NANOCLAY IN PREPARATION OF EPOXY ANTICORROSIVE COATINGS ON CARBÓN STEEL**

**M.A. Juárez Estrada<sup>1</sup>, J. L. Varela Caselis<sup>2</sup>, M.A. Morales<sup>3</sup>, E. Rubio Rosas<sup>4</sup>**

<sup>1,3</sup>Benemérita Universidad Autónoma de Puebla, México, Facultad de Ingeniería Química, <sup>2,4</sup>Benemérita Universidad Autónoma de Puebla, México, Centro de Vinculación Y Transferencia de Tecnología (CUVYTT),

- **S6J-P020 INSTRUMENTED SYSTEM FOR ANALYSIS OF CONCRETE RESISTIVITY**

**Karen Sarai Chan Blanco<sup>1</sup>, Víctor Manuel Jesús Moo Yam<sup>1</sup>, José Ruben Lagunas Jiménez<sup>2</sup>, Tezozomoc Pérez López<sup>1</sup>**

<sup>1</sup>Centro de Investigación en Corrosión, México, <sup>2</sup>Facultad de Ingeniería, México.

- **S6J-P021 MICROSTRUCTURAL AND ELECTROCHEMICAL CHARACTERIZATION OF ANODIC OXIDE FILMS FORMED ON SPRAY-DEPOSITED Al-Si ALLOYS**

**Héctor Herrera Hernández<sup>1</sup>, Florian Mansfeld<sup>2</sup>**

<sup>1</sup>Universidad Autónoma del Estado de México, Ing. Industrial, área de Electroquímica y Corrosión de Materiales Edo. de México, Mexico. <sup>2</sup>The Mork Family Department of Chemical Engineering and Materials Science, Corrosion and Environmental Effects Laboratory (CEEL), University of Southern California. USA.

- **S6J-P022 STUDY OF FORCED IMIBIBICION OIL IN SILICA CORE TYPE**

**Aguilar Olea Guadalupe<sup>1</sup>**

<sup>1</sup>Student Engineering Materials, Benemérita Universidad Autónoma de Puebla. México.

■ **S6J-P023 EVALUATION OF ELECTROCHEMICAL PROPERTIES OF A SERIES OF STAINLESS STEELS IN NATURAL SEAWATER AT TROPICAL ENVIRONMENT**

S. Can-Uicab<sup>1</sup>, J. Reyes<sup>1</sup>, T. Pérez-López<sup>1</sup>, H. Castañeda<sup>2</sup>

<sup>1</sup>Centro de Investigación en Corrosión. Universidad Autónoma de Campeche. México. <sup>2</sup>Texas A & M University.

■ **S6J-P024 MEDICAGO SATIVA AS GREEN CORROSION INHIBITOR OF CARBON STEEL 1018 IN ACID MEDIUM**

A. Rodríguez-Torres<sup>1</sup>, J. G. González-Rodríguez<sup>1</sup>, M. G. Valladares-Cisneros<sup>2</sup>

<sup>1</sup>Centro de Investigaciones en Ingeniería y Ciencias Aplicadas, Universidad Autónoma del Estado de Morelos, México. <sup>2</sup>Facultad de Ciencias Químicas e Ingeniería. Universidad Autónoma del Estado de Morelos, México

■ **S6J-P025 SPEED INCREASE OF LOCALIZED CORROSION IN AQUEOUS MEDIUM. TO API5L X56 STEEL BY THE PRESENCE OF SOLID PARTICLES OF SILICON OXIDE (SiO<sub>2</sub>) EMBEDDED IN THE INNER WALL OF THE MATERIAL**

Sergio García<sup>1</sup>, Jorge González, Ana Perez<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería Metalúrgica y de Materiales, E.S.I.Q.I.E. Instituto Politécnico Nacional (IPN). México D.F.

■ **S6J-P026 TRIOCTYL METHYL AMMONIUM METHYLSULFATE AS CORROSION INHIBITOR OF CARBON STEEL API-X52 IN HYDROCHLORIC ACID**

J. M. Mora Hernández<sup>1</sup>, P. Arellanes Lozada<sup>1</sup>, E. M. Arce Estrada<sup>1</sup>, O. Olivares Xometl<sup>2</sup>, N. V. Likhanova<sup>3</sup>

<sup>1</sup>Depto. Ingeniería Metalúrgica y Materiales, ESIQIE, Instituto Politécnico Nacional, México. <sup>2</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, México. <sup>3</sup>Programa de Investigación y Posgrado, Instituto Mexicano del Petróleo, México.

■ **S6J-P027 SYNTHESIS OF Sr<sup>2+</sup> DOPED SnO<sub>2</sub> COATINGS APPLIED FOR CORROSION PROTECTION**

A. K. Acero-Gutiérrez<sup>1</sup>, J. G. Godínez-Salcedo<sup>2</sup>, A. J. Morales-Ramírez<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional – CIITEC Azcapotzalco, México. <sup>2</sup>Instituto Politécnico Nacional – ESIQIE Zacatenco, México.

■ **S6J-P028 CORROSION BEHAVIOR OF Ti/Cu COMPOSITES IN SYNTHETIC SEAWATER BY ELECTROCHEMICAL NOISE**

D. Cabrera-de la Cruz<sup>1</sup>, C. A. León Patiño<sup>1</sup>, R. Galván-Martínez<sup>2</sup>

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo México. <sup>2</sup>Unidad Anticorrosión, Instituto de Ingeniería, Universidad Veracruzana México.

■ **S6J-P029 DETERMINATION OF THE CORROSION RATE OF CAST IRON IN IMMERSION CONDITIONS IN MARINE ENVIRONMENT BY RP AND MASS LOSS**

L. Dzib-Pérez<sup>1</sup>, A. León Gerónimo<sup>1</sup>, J. González-Sánchez<sup>1</sup>

<sup>1</sup>Centro de Investigación en Corrosión, Universidad Autónoma de Campeche, México.

■ **S6J-P030 A STUDY ON ACCELERATED CORROSION TESTING OF A FATTY AMIDE-BASED INHIBITOR ON CARBON STEEL**

Edna Vázquez Vélez<sup>1</sup>, J. Porcayo-Calderón<sup>1,2</sup>, M.E. Escalante-Pérez<sup>2</sup>, D. M. Ortega-Toledo<sup>1,3</sup>, Adrián Cristobal-Neri<sup>1</sup>, M. Casales-Díaz<sup>1</sup>, L. Martínez-Gómez<sup>1,3</sup>

<sup>1</sup>Instituto de Ciencias Físicas, UNAM, México, <sup>2</sup> Universidad Autónoma del Estado de Morelos, CIICap, Morelos, <sup>3</sup> Corrosión y Protección, México

■ **S6J-P031 EFFECT OF THE ELECTROLYTE THICKNESS FILM ON THE ATMOSPHERIC CORROSION OF CARBON STEEL**

M.E. Escalante-Pérez<sup>1</sup>, J. Porcayo-Calderón<sup>1,2</sup>, E. Vazquez-Velez<sup>2</sup>, M. Casales-Díaz<sup>2</sup>, J.G. Gonzalez-Rodriguez<sup>1</sup>, L. Martinez-Gomez<sup>2,3</sup>

<sup>1</sup>Universidad Autónoma del Estado de Morelos, CIICap, México, <sup>2</sup>Universidad Nacional Autónoma de México, Instituto de Ciencias Físicas, México, <sup>3</sup>Corrosión y Protección, México

■ **S6J-P032 USE OF THREE DYES WITH DIVERSE CHROMOPHORES GROUPS SUCH AS: (PHTHALOCYANINE BLUE: PHTHALOCYANINE), (DISPERSE YELLOW: QUINONE), (RED HISPASOL: AZO), IN CONTACT WITH AN ORGANOCLAY (MONTMORILLONITE TYPE) AT DIFFERENT RETENTION TIMES, AS CORROSION INHIBITORS OF CARBON STEEL 1018 INMERSED IN H<sub>2</sub>SO<sub>4</sub>**

J.C. Valle Quintana<sup>1</sup>, Gonzalo Gonzalez R.<sup>2</sup>, Gloria Dominguez P.<sup>3</sup>

<sup>1</sup>Centro De Investigacion En Ingenieria Y Ciencias Aplicadas, UAEM, Cuernavaca, Morelos. <sup>2</sup>Centro De Investigacion en Ingenieria y Ciencias Aplicadas, UAEM, Cuernavaca, Morelos. <sup>3</sup>Facultad de Ciencias Químicas e Ingeniería, UAEM, Cuernavaca, Morelos.



■ **S6J-P033 ESQUISETUM ARVENSE IS A GREEN CORROSION INHIBITOR FOR CARBON STEEL IN ACID MEDIUM**

G. Ramírez<sup>1</sup>, M. E. Nicho<sup>1</sup>, U. L. Silva<sup>2</sup> and M. G. Valladares-Cisneros<sup>3</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas (CIICAp); Universidad Autónoma del Estado de Morelos, México. <sup>2</sup>Instituto de Investigaciones Eléctricas; México. <sup>3</sup>Facultad de Ciencias Químicas e Ingeniería (FCQ e I); Universidad Autónoma del Estado de Morelos, México.

■ **S6J-P034 HIGH TEMPERATURE ISOTHERMAL AND CYCLIC OXIDATION BEHAVIOUR OF PURE TITANIUM**

Omar A. Valdés-Saucedo<sup>1</sup>, Liliana Vázquez-Rodríguez<sup>1</sup>, Brenda López-Zarate<sup>1</sup>, Francisco A. Perez-Gonzalez<sup>1</sup>, R.Colás<sup>1</sup> and N.F. Garza-Montes-de-Oca<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, Mexico.

■ **S6J-P035 USE OF SALVIA HISPANICA LIKE CORROSION INHIBITOR IN THE CARBON STEEL 1018 IN H<sub>2</sub>SO<sub>4</sub> AT DIFFERENT pH'S**

E. A. Flores-Frías<sup>1</sup>, J. G. González-Rodríguez<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas de la Universidad Autónoma del Estado de Morelos (CIICAp-UAEM), México.

■ **S6J-P036 EFFECT OF THE INTERELECTRODE DISTANCE ON THE ALUMINUM HYDROXIDES GENERATED IN EC REACTOR**

O. Muñoz<sup>1</sup>, C. Montero<sup>2</sup>, N. Rodríguez<sup>3</sup>, R. Muñoz<sup>1</sup>, J. Ortiz<sup>1</sup>, J. Martinez<sup>1</sup> and J. Luna<sup>1</sup>

<sup>1</sup>Facultad de Ingeniería, Universidad Autónoma de Coahuila, México. <sup>2</sup>CINVESTAV Unidad Saltillo, México. <sup>3</sup>Instituto Tecnológico de Saltillo, México.

■ **S6J-P037 FIELD METALLOGRAPHY AND HARDNESS CHARACTERIZATION OF CRACKS IN WELDS OF THE AMINE STRIPPING TOWER**

D. Meléndez-Morales<sup>1</sup>, S. Lopez-Amador<sup>1</sup>, K. Narce-Ramón<sup>1</sup>  
Corporación Mexicana de Investigación en Materiales S.A. de C.V., Campeche

■ **S6J-P038 EFFICIENCY OF EPOXY COATINGS APPLIED IN PLANT**

L.M. González Mora, Eleazar Salinas Rodríguez and Ventura Rodríguez Lugo

Instituto de Ciencias Básicas e Ingeniería, Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, México.

■ **S6J-P039 EVALUATION OF REINFORCED CONCRETE WITH RECYCLED PET BY ELECTROCHEMICAL AND MECHANICAL TECHNIQUES**

Y. Díaz Blanco<sup>1</sup>, J. Uruchurtu Chavarín<sup>1</sup>, C. Menchaca Campos<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas-UAEM, México

■ **S6J-P040 ELECTROCHEMICAL CHARACTERIZATION OF MAGNESIUM ALLOYS EXPOSED IN SIMULATED SOIL SOLUTION**

B. Hernández<sup>1</sup>, J. G. Euán<sup>2</sup>, T. Pérez-López<sup>2</sup>, E. Juárez<sup>3</sup>

<sup>1</sup>Instituto Tecnológico de Campeche. Camp. <sup>2</sup>Centro de Investigación en Corrosión. Universidad Autónoma de Campeche. México. <sup>3</sup>Universidad del Papaloapan Campus Tuxtepec. Oax.

■ **S6J-P041 INFLUENCE OF BIOETHANOL ON CORROSION AND STRESS CORROSION CRACKING IN A CARBON STEEL FOR PIPELINES**

M. Rangel-Ayala<sup>1</sup>, J.G. González-Rodríguez<sup>1</sup>, S. Serna<sup>1</sup>, A. Torres-Islas<sup>2</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas (CIICAP)- Universidad Autónoma del Estado de Morelos (UAEM), México. <sup>2</sup> Facultad de Ciencias Químicas e Ingeniería (FCQel)-UAEM, México.

■ **S6J-P042 DIAGNOSIS OF THE STATE OF AN AQUEDUCT OF 84", MECHANICAL COATING**

L.M. González Mora, Eleazar Salinas Rodríguez and Ventura Rodríguez Lugo

Instituto de Ciencias Básicas e Ingeniería, Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, México.

■ **S6J-P043 CORROSION INHIBITORY EVALUATION OF Anacyclus Pyrethrum L. EXTRACTS ON THE CORROSION OF MILD STEEL IN ACIDIC MEDIUM**

C. Selles<sup>1</sup>, O. Benali<sup>2</sup>, B.Tabti<sup>1</sup>

<sup>1</sup>Laboratoire des substances naturelles et bioactives (LASNABIO), Université Abou Bekr Belkaid, Tlemcen, Algérie. <sup>2</sup>Département de Biologie, Faculté des sciences et de la technologie, Université Dr. Tahar Moulay, Saïda, Algérie

■ **S6J-P044 METALLURGICAL AND CHEMICAL CHARACTERIZATION OF HISTORIC BELLS FROM THE XVIIITH AND XVIIIITH CENTURY**

David Enrique Arceo Gómez<sup>1</sup>, Javier Reyes Trujeque<sup>1</sup>, Tezozomoc Pérez López<sup>1</sup>, Jorge Antonio González Sanchez<sup>1</sup>, Ricardo Orozco Cruz<sup>2</sup>, Pascual Bartolo-Pérez<sup>3</sup>

<sup>1</sup>Centro de Investigación en Corrosión-Universidad Autónoma de Campeche, Campus 6 de Investigaciones, México. <sup>2</sup>Instituto de Ingeniería-Universidad Veracruzana, México. <sup>3</sup>Centro de Investigación y Estudios Avanzados, México.

■ **S6J-P045 MONITORING OF CORROSION PROCESS OF EMBEDDED STEEL REINFORCED BY USING SPECTRAL METHODS**

Rafael de Jesús Camacho-Chab<sup>1</sup>, José Manuel Chi Poot<sup>2</sup>, Tezozomoc Pérez López<sup>2</sup>

<sup>1</sup>Instituto Tecnológico de Campeche, Carretera Campeche-Escárcega, Lerma Campeche, México. <sup>2</sup>Centro de Investigación en Corrosión (CICORR) de la Universidad Autónoma de Campeche, México.

■ **S6J-P046 PERFORMANCE OF ACRYLIC AND VINYL COATINGS UNDER CONDICITON OF ACCELERATED CARBONATION OF A CEMENT MORTAR**

H.N. Flores Cortez<sup>1</sup>, C.P. Barrios-Durstewitz<sup>1</sup>, R.E. Nuñez-Jaquez<sup>1</sup>, J.H. Castorena González<sup>1</sup>, M.S. Flores Cortez<sup>1</sup>, J.M. Pellegrini<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Sinaloa, Facultad de Ingeniería Mochis, México.



## Symposium 6K

# SOFT CHEMISTRY TOWARD FUNCTIONAL MATERIALS

**Amanda Carrillo Castillo** / MEXICO / Universidad Autónoma de Ciudad Juárez

**Santos Jesús Castillo** / MEXICO / Universidad de Sonora

**Mijung Lee** / KOREA / School of Advanced Materials Engineering at Kookmin University

**Donghwan Ahn** / KOREA / School of Advanced Materials Engineering at Kookmin University

ROOM: UXMAL I  
WEDNESDAY, AUGUST 19

 Session Chair: **AMANDA CARRILLO CASTILLO**  
**AUTONOMOUS UNIVERSITY OF JUAREZ, MÉXICO**

▶ **09:00 - 09:30 S6K-0001 Invited Talk**  
**NANOCOMPOSITE LEAD-FREE SOL-GEL FILMS AND POWDERS FOR PIEZOELECTRIC APPLICATIONS**

T. Richardot<sup>1</sup>, P. Boy<sup>1</sup>, F. Levassort<sup>2</sup>, P. Belleville<sup>1</sup>

<sup>1</sup>CEA, DAM, France, <sup>2</sup>Université François Rabelais, GREMAN, France

■ **09:30 - 09:45 S6K-0002 DESIGN OF EXFOLIATED SI/GE TANDEM SOLAR CELL**

Z. Kiaee<sup>1</sup>, S. K. Joo<sup>1</sup>, D. Ahn<sup>2</sup>

<sup>1</sup>Research Institute of Advanced Materials (RIAM), Department of Materials Science and Engineering, Seoul National University, South Korea, <sup>2</sup>School of Advanced Materials Engineering, Kookmin University, South Korea

■ **09:45 - 10:00 S6K-0003 PROCESSING OF PEDOT:PSS FILMS AND DEVICES FOR ORGANIC BIOELECTRONICS**

Prajwal Kumar, Shiming Zhang, Zhihui Yi, Irina Valitoo, Olga Berezhetska, Fabio Cicoira  
Polytechnique Montreal

■ **10:00 - 10:15 S6K-0004 THERMAL AND SPECTROSCOPIC STUDIES OF POLYVINYL ALCOHOL, POLYVINYL ALCOHOL/TETRAETHYL ORTHOSILICATE AND POLYVINYL ALCOHOL/TETRAETHYL ORTHOSILICATE/GLUTARALDEHYDE BLENDS**

J. M. Guerrero<sup>1</sup>, R. Ambrosio<sup>1</sup>, A. Carrillo<sup>1</sup> and M. A. Quevedo-López<sup>2</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Chihuahua, México. <sup>2</sup>Department of Materials Science and Engineering, University of Texas at Dallas, Richardson, Texas, USA.

▶ **10:15 - 10:45 S6K-0005 Invited Talk CHARGE TRANSPORT IN SEMICRYSTALLINE POLYMER SEMICONDUCTORS**

R. Di Pietro<sup>1</sup>

<sup>1</sup>Hitachi Cambridge Laboratory, Cavendish Laboratory, J. J. Thomson Avenue, United Kingdom

■ **10:45 - 11:00 S6K-0006 NEW SYNTHESIS STRATEGIES OF LUMINESCENT YVO<sub>4</sub>Eu NANOPARTICLES WITH H<sub>2</sub>O<sub>2</sub> SELECTIVE SENSING PROPERTIES**

N. Duée<sup>1,2,3,4</sup>, C. Ambard<sup>1</sup>, F. Pereira<sup>1</sup>, D. Portehault<sup>2,3,4</sup>, B. Viana<sup>3</sup>, K. Vallé<sup>1</sup>, D. Autissier<sup>1</sup>, C. Sanchez<sup>2,3,4</sup>

<sup>1</sup>CEA, DAM, France, <sup>2</sup>Sorbonne Universités, UPMC Univ Paris, Chimie de la Matière Condensée de Paris, Paris, France, <sup>3</sup>CNRS, Chimie de la Matière Condensée de Paris, Paris, France, <sup>4</sup>Collège de France, Chimie de la Matière Condensée de Paris, Paris Cedex, France, Institut de Recherche de Chimie Paris, CNRS – Chimie ParisTech, Paris, France.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **DONGHWAN AHN**  
**KOOKMIN UNIVERSITY, KOREA**

▶ **12:30 - 13:00 S6K-0007 Invited Talk FUNCTIONAL NANOSTRUCTURES BASED ON WELL-DEFINED CONJUGATED POLYMERS**

Sven Huettner

Macromolecular Chemistry, University Bayreuth, Germany

▶ **13:00 - 13:30 S6K-0008 Invited Talk SOL-GEL HYBRID DIELECTRIC LAYERS AND THEIR APPLICATIONS TO THIN FILM TRANSISTOR**

R. Ramirez-Bon

Centro de Investigación y Estudios Avanzados del IPN. Unidad Queretaro, Mexico.

■ **13:30 - 13:45 S6K-0009 SYNTHESIS OF BIMETALLIC AND CERAMIC NANOMATERIALS IN SELF-ASSEMBLING SYSTEMS FOR ENVIRONMENTAL APPLICATIONS**

J. Tanori<sup>1</sup>, E. Martínez Barbosa<sup>1</sup>, D. Vargas Hernández<sup>1a</sup>, A. García-Bórquez<sup>3</sup>, R. Borja Urby<sup>4</sup>, J. Arenas Alatorre<sup>5</sup>, A. Maldonado<sup>2</sup>

<sup>1</sup>Departamento de Investigación en Polímeros y Materiales, <sup>1DIPM-Cátedra CONACYT</sup>, <sup>2</sup> Departamento de Física, Universidad de Sonora, México; <sup>3</sup>Arturo García Bórquez, Escuela Superior de Física y Matemáticas, <sup>4</sup>Centro de Nanociencias y Micro y Nanotecnologías, Instituto Politécnico Nacional, México; <sup>5</sup>Instituto de Física, Universidad Nacional Autónoma de México, México.

■ **13:45 - 14:00 S6K-0010 SYNTHESIS AND CHARACTERIZATION OF PENTACENE AS SEMICONDUCTOR CANDIDATE FOR FLEXIBLE ELECTRONICS**

B. Rodríguez García<sup>1</sup>, M. A. Quevedo López<sup>2</sup>, Ma. de la Luz Mota González<sup>1</sup>, E. C. de la Cruz Terrazas<sup>3</sup>, A. Carrillo Castillo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. México. <sup>2</sup>Universidad de Sonora. Hermosillo, Sonora, México. <sup>3</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, Unidad Altamira, Tamaulipas, México.

✕ **14:00- 16:00 LUNCH**

👤 Session Chair: **MIJUNG LEE**  
KOOKMIN UNIVERSITY, KOREA

■ **16:00 - 16:15 S6K-0011 SYNTHESIS OF DIELECTRIC CORE/SHELL COMPOSITES FROM CACU3TI4O12 MATERIAL**

S. De Almeida-Didry<sup>1</sup>, N.R. Camara<sup>1</sup>, C. Autret<sup>1</sup>, A. Lucas<sup>2</sup>, F. Pacreau<sup>2</sup>, F. Gervais<sup>1</sup>

<sup>1</sup> Research Group Materials, Microelectronics, Acoustics, Nanotechnologies (GREMAN), Faculty of Sciences and Techniques, France, <sup>2</sup> SRT Microcéramique, France

■ **16:15 - 16:30 S6K-0012 NON-ISOTHERMAL CRYSTALLIZATION AND MORPHOLOGY OF PEN-GRAPHENE NANOCOMPOSITES**

A.B. Espinoza-Martínez<sup>1</sup>, L.F. Ramos-de Valle<sup>1</sup>, J. Ruiz-Montoya<sup>2</sup>, F. Avalos-Belmontes<sup>2</sup>, C. Avila-Orta<sup>3</sup>

<sup>1</sup>Departamento de Procesos de Transformación, Centro de Investigación en Química Aplicada (CIQA), México. <sup>2</sup>Departamento de Polímeros, Facultad de Ciencias Químicas (FCQ), Universidad Autónoma de Coahuila (UAdeC), México <sup>3</sup>Departamento de Materiales Avanzados, Centro de Investigación en Química Aplicada (CIQA), México.

■ **16:30 - 16:45 S6K-0013 A STUDY ON THE GROWTH MECHANISM FOR INORGANIC-ORGANIC HYBRID PEROVSKITE AND ITS APPLICATION FOR PHOTODIODES**

Rahim Abdul<sup>1</sup>, Md. Abdul Kuddus Sheikh<sup>1</sup>, Jaegab Lee<sup>1</sup>

<sup>1</sup>School of Advanced Material Engineering, Kookmin University, Seoul, South Korea

▶ **16:45 - 17:15 S6K-0014 Invited Talk EFFECT OF SUBSTRATE SURFACE ACTIVATION AND Cu-COMPLEX STABILITY ON THE DEPOSITION OF CuS BY SILAR METHOD**

F.S. Aguirre-Tostado<sup>1</sup>, O.Y. Ramírez-Esquivel<sup>1</sup>, R. Garza-Hernández<sup>1</sup>, E. Martínez-Guerra<sup>1</sup>

<sup>1</sup>CIMAV-Monterrey, Apodaca, N.L. Mexico

■ **17:15 - 17:30 S6K-0015 CuS THIN FILMS BY CHEMICAL BATH DEPOSITION: EFFECT OF COPPER SOURCE AND TIME DEPOSITION**

E. M. Lira-Ojeda<sup>1</sup>, M. de la L. Mota-González<sup>1</sup>, R. C. Ambrosio-Lázaro<sup>2</sup>, C. Chapa González<sup>1</sup>, S. Jesús Castillo<sup>3</sup>, A. Carrillo-Castillo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. Cd. Juárez Chihuahua, México. <sup>2</sup>Benemérita Universidad Autónoma de Puebla, México. <sup>3</sup>Universidad de Sonora. Hermosillo, Sonora, México.

▶ **17:30 - 18:00 S6K-0016 Invited Talk DEVELOPING DEVICES AND CIRCUITS USING SOLUTION-BASED SEMICONDUCTORS, DIELECTRICS AND METALS FOR LOW-COST ELECTRONICS**



**Israel Mejia<sup>1</sup>, Lindsey Smith<sup>1</sup>, Jesus Avila-Avendano<sup>1</sup>, Shaki Mohammed<sup>1</sup>, Yuanning Chen<sup>2</sup>, Gerardo Contreras-Puente<sup>3</sup>, Bruce Gnade<sup>1</sup> and Manuel Quevedo-Lopez<sup>1</sup>**

<sup>1</sup> Department of Materials Science and Engineering, University of Texas at Dallas, USA. <sup>2</sup> Microsol Technologies, USA, <sup>3</sup> Escuela Superior de Fisica y Matematicas, Instituto Politecnico Nacional, Mexico

**ROOM: TERRACE  
WEDNESDAY, AUGUST 19**

**▶ 18:30 -20:30 POSTER SESSION & COFFEE BREAK**

**■ S6K-P001 IMPROVEMENT IN THE ELECTRICAL PROPERTIES OF TRANSPARENT CONDUCTIVE OXIDES BASED ON ZnO-Ga AND ZnO-AI FOR THEIR POTENTIAL APPLICATION IN FLEXIBLE ELECTRONICS**

**J. R. Reyes Moya<sup>1</sup>, P. A. Luque<sup>2</sup>, F. S. Aguirre Tostado<sup>3</sup>, A. Saucedo Carvajal<sup>1</sup>, A. Carrillo Castillo<sup>1</sup>, N. V. Sáenz Martínez<sup>1</sup>, I. A. Flores Urquizo<sup>1</sup>**

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. Cd. Juárez Chihuahua, México. <sup>2</sup>Facultad de Ingeniería, Arquitectura y Diseño, Ensenada, B.C., México. <sup>3</sup>Centro de Investigación en Materiales Avanzados, S. C., Unidad Monterrey, Parque de Investigación e Innovación Tecnológica, Apodaca, Nuevo León, México.

**■ S6K-P002 LUMINESCENT PROPERTIES OF SILICON RICH OXIDE (SRO) SYNTHESIZED BY SOL-GEL METHOD**

**H. J. Higuera-Valenzuela<sup>1</sup>, M. Aceves-Mijares<sup>2</sup>, R. Rosas-Burgos<sup>1</sup>, C. F. Ruiz-Valdez<sup>1</sup>, A. Ramos-Carrasco<sup>3,4</sup>, C. J. Pérez-Martínez<sup>5</sup>, D. Berman-Mendoza<sup>1,3</sup>**

<sup>1</sup>Departamento de Física, Universidad de Sonora (UNISON), México. <sup>2</sup>Departamento de Electrónica, Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), Puebla, México. <sup>3</sup>Departamento de Investigación en Física, Universidad de Sonora (UNISON), Sonora, México. <sup>4</sup>Centro de Investigación en Materiales Avanzados (CIMA), 9 Chihuahua, México. <sup>5</sup>Departamento de Ciencias Químico Biológicas, Universidad de Sonora, Hermosillo, Sonora, México

**■ S6K-P003 MORPHOLOGICAL, OPTICAL AND ELECTRICAL PROPERTIES OF INDIUM TIN OXIDE THIN FILMS BY A SOL-GEL PROCESS ASSISTED BY SPIN COATING**

**F. A. García Rodríguez<sup>1</sup>, P. A. Luque<sup>2</sup>, F. S. Aguirre Tostado<sup>3</sup>, A. Saucedo Carvajal<sup>1</sup>, A. Carrillo Castillo<sup>1</sup>**

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. Cd. Juárez Chihuahua, México. <sup>2</sup>Facultad de Ingeniería, Arquitectura y Diseño, Ensenada, B.C., México. <sup>3</sup>Centro de Investigación en Materiales Avanzados, S. C., Unidad Monterrey, Parque de Investigación e Innovación Tecnológica, Apodaca, Nuevo León, México.

**■ S6K-P004 ORGANIC LIGHT-EMITTING DIODES WITH UV/OZONE TREATED TRANSITION METAL DICHALCOGENIDES AS HOLE INJECTION LAYER**

**Cheolmin Kim, Thang Phan Nguyen, Quyet Van Le, and Soo Young Kim**

School of Chemical Engineering and Materials Science, Chung-Ang University, Republic of Korea

**■ S6K-P005 ENHANCED PERFORMANCE OF SOLUTION PROCESSED METAL OXIDE SEMICONDUCTOR TRANSISTORS USING INTERLAYER WITH IMINE FUNCTIONAL GROUP**

**Jinwoo Park, Eunmi Jang, Mi Jung Lee**

School of advanced materials engineering, Kookmin University, Seoul, Korea

**■ S6K-P006 PENTACENE ON p-TERPHENYLENE AS THIN FILM FOR BIOSENSORS GASES APLICATIONS**

**M. Valdes<sup>1</sup>, B. Rodríguez-García<sup>2</sup>, P. A. Luque<sup>4</sup>, A. Carrillo Castillo<sup>2</sup>, M. Mota-González<sup>2,3</sup>**

<sup>1</sup>Centro de investigación en Química Aplicada. <sup>2</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, México. <sup>3</sup>Cátedras CONACYT, <sup>4</sup>Facultad de Ingeniería, Arquitectura y Diseño, UABC, B.C., México.

**■ S6K-P007 SYNTHESIS AND CHARACTERIZATION OF TIO<sub>2</sub> AND PHTHALOCYANINE-SENSITIZED TIO<sub>2</sub> BY SOFT CHEMICAL METHOD**

**J. Robles-Águila<sup>1</sup>, A. Luna-Flores, J. L. Sosa Sánchez<sup>1</sup>, G. Juárez-Díaz<sup>2</sup>, J. Martínez Juárez<sup>1</sup>**

<sup>1</sup>Centro de investigaciones y Dispositivos Semiconductores, ICUAP, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Facultad de Ciencias de la Computación, Benemérita Universidad Autónoma de Puebla, México.

**■ S6K-P008 NUMERICAL SIMULATION OF OPTOELECTRONICS DEVICES**

**E. Troyo-Vega<sup>1</sup>, S. J. Castillo<sup>1</sup>, D. Berman-Mendoza<sup>1</sup>, L. P. Ramírez-Rodríguez<sup>2</sup>, T. Mendivil-Reynoso<sup>1,2</sup>**

<sup>1</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Sonora, México. <sup>2</sup>Departamento de Física, Universidad de Sonora, Hermosillo, Sonora, México.

■ **S6K-P009 CuS NANOPARTICLES BY SOFT CHEMISTRY PROCESS AS SEMICONDUCTOR IN ELECTRONIC DEVICES**

Sandra Arreola<sup>1</sup>, María de la Luz Mota-González<sup>1</sup>, María de Jesús Pérez López<sup>2</sup>, Amanda Carrillo-Castillo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. Cd. Juárez Chihuahua, México. <sup>2</sup>Instituto Tecnológico de Saltillo, Saltillo, Coahuila., México

■ **S6K-P010 SMALL METAL PARTICLES WITH OPTICAL APPLICATIONS OBTAINED BY GREEN SYNTHESIS (OPUNTIA FICUS-INDICA)**

M. Cortez-Valadez, R. Britto-Hurtado, Ramón A. B. Alvarez, H. Arizpe-Chavez and M. Flores-Acosta

Centro de Investigación en Física Universidad de Sonora.

■ **S6K-P011 SYNTHESIS AND CHARACTERIZATION OF COBALT DOPED MAGNETITE NANOPARTICLES AS HEAT MEDIATORS IN HYPERTHERMIA**

C. Chapa-González<sup>1</sup>, I. Flores-Urquiza<sup>1</sup>, J. Navarro-Arriaga<sup>1</sup>, J. R. Reyes-Moya<sup>1</sup>, K. J. Castrejón Parga<sup>1</sup>, A. Carrillo-Castillo<sup>1</sup>, P. García-Casillas<sup>1</sup>

<sup>1</sup>Universidad Autónoma de Ciudad Juárez. Instituto de Ingeniería y Tecnología. México

■ **S6K-P012 INTERLAYERED MnS NANOCLUSTERS WITHIN A HIGH-CHARGE SYNTHETIC SODIUM MICA (Na-2-MICA)**

L. Ruiz<sup>1</sup>, M.C. Pazos<sup>2</sup>, L.A. Galeano<sup>1</sup>

<sup>1</sup>Research Group of Functional Materials and Catalysis. Department of Chemistry, Nariño University. Colombia. <sup>2</sup>School of Chemical Sciences, Pedagogical and Technical University of Colombia (UPTC), Tunja - Colombia.

■ **S6K-P013 A SIMPLE SOFT CHEMISTRY METHOD FOR THE SYNTHESIS OF CDS NANOPARTICLES**

Brenda Sarai Guzmán García<sup>1</sup>, Christian Chapa-González<sup>1</sup>, Manuel Ángel Quevedo López<sup>2</sup>, Francisco Servando Aguirre Tostado<sup>3</sup>, Amanda Carrillo Castillo<sup>1</sup>

<sup>1</sup> Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. CD. Juárez Chihuahua, México. <sup>2</sup> Universidad de Sonora. Hermosa lllorar, Sonora, México. <sup>3</sup>Centro de Investigación en Materiales Avanzados, S. C., Unidad Monterrey, México.

■ **S6K-P014 SYNTHESIS OF ZNO NANOPARTICLES FROM WASTE ALKALINE BATTERIES FOR PHOTOCATALYTIC APPLICATIONS**

J.R. Abenuz Acuña<sup>a</sup>, C. López Díaz de León<sup>a</sup>, I. Olivas Armendáriz<sup>a</sup>, P.E. García Casillas<sup>a</sup>, H. Camacho Montes<sup>a</sup>, C.A. Rodríguez González<sup>a</sup>, J.F. Hernández Paz<sup>a</sup>

<sup>a</sup> Engineering and Technology Institute, University of Ciudad Juárez, México.

■ **S6K-P015 ZnS and CuS NANOPARTICLES BY PRECIPITATION METHOD FOR BIOMEDICAL APPLICATIONS: EFFECT OF COMPLEXING AGENT AND METAL SOURCE CONCENTRATION**

E. Lizette Morales Morales<sup>1</sup>, A. García Gallardo<sup>1</sup>, C. Chapa-González<sup>1</sup>, F. Servando Aguirre Tostado<sup>2</sup>, A. Carrillo Castillo<sup>1</sup>

■ **S6K-P016 EFFECT OF pH IN THE PREPARATION OF CHITOSAN-MAGNETITE NANOPARTICLES**

C. Chapa-González<sup>1</sup>, J. U. Navarro-Arriaga<sup>1</sup>, I. A. Flores-Urquiza<sup>1</sup>, M. Mota-González<sup>1</sup>, P. E. García-Casillas<sup>1</sup>

<sup>1</sup> Universidad Autónoma de Ciudad Juárez. Instituto de Ingeniería y Tecnología. México.

■ **S6K-P017 PRECIPITATION METHOD FOR THE SYNTHESIS OF Pbs NANOPARTICLES USING A NOVEL COMPLEXING AGENT AT ROOM TEMPERATURE**

Elisa Iveth Pérez López<sup>1</sup>, Santos Jesús Castillo<sup>2</sup>, Amanda Carrillo Castillo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. Cd. Juárez Chihuahua, México. <sup>2</sup>Universidad de Sonora. Hermosillo, Sonora, México.

■ **S6K-P018 MOLYBDENUM TELLURIDE NANOPARTICLES PREPARED BY SOFT CHEMICAL METHOD**

H. A. Pineda-León<sup>1</sup>, A. Carrillo-Castillo<sup>2</sup>, R. Ochoa-Landín<sup>3</sup>, G. Gutierrez-Heredia<sup>4</sup>, R. Ramirez-Bon<sup>5</sup>, S. J. Castillo<sup>1</sup>

<sup>1</sup>Departamento de Investigación en Física, Universidad de Sonora, México. <sup>2</sup>Departamento de Ingeniería Eléctrica Universidad Autónoma de Ciudad Juárez. <sup>3</sup>Departamento de Física, Universidad de Sonora. <sup>4</sup>Department of Material Science & Engineering, University of Texas of Dalla, Richardson, USA. <sup>5</sup>Centro de Investigación y Estudios Avanzados del IPN, Unidad Queretaro, Queretaro, Qro. Mex.

■ **S6K-P019 SYNTHESIS AND CHARACTERIZATION OF METAL SULFIDE NANOSTRUCTURES BY SIMPLE SOLID VAPOR REACTIONS**

S. Sánchez Rangel<sup>a</sup>, M. Ortiz Diaz<sup>a</sup>, A. Carrillo Castillo<sup>a</sup>, M.A. Ramos Murillo<sup>a</sup>, J.F. Hernández Paz<sup>a</sup>, C.A. Rodríguez González<sup>a</sup>



<sup>a</sup>Engineering and Technology Institute, University of Ciudad Juárez, México.

■ **S6K-P020 AN EASY WAY TO OBTAIN POWDERS OF STRONTIUM TELLURITE BY CHEMICAL MEANS, AT ENVIRONMENTAL CONDITIONS**

O. Arellano-Tánori<sup>1,2</sup>, A. G. Rojas-Hernández<sup>3</sup>, R. Gómez-Fuentes<sup>3</sup>, R. Ochoa-Landín<sup>4</sup>, D. Berman-Mendoza<sup>3</sup>, T. Mendivil-Reynoso<sup>3,4</sup>, M. C. Acosta-Enríquez<sup>2</sup>, L. P. Ramírez-Rodríguez<sup>4</sup>, S. J. Castillo<sup>3</sup>.

<sup>1</sup>Instituto Tecnológico y de Estudios Superiores de Monterrey, México, <sup>2</sup>Tecnológico Nacional de México, Instituto Tecnológico de Hermosillo, México.

<sup>3</sup>Departamento de Investigación en Física, Universidad de Sonora, México, <sup>4</sup>Departamento de Física, Universidad de Sonora, México.

■ **S6K-P021 SYNTHESIS AND CHARACTERIZATION OF CADMIUM SULFIDE NANOPARTICLES USING POLYETHYLENIMINE AS COMPLEXING AGENT**

E. Troyo Vega<sup>2</sup>, K.J. Mendoza Peña<sup>1</sup>, C.G. Perez Hernandez<sup>1</sup>, S. Munguía Rodríguez<sup>1</sup>, R. Ochoa Landín<sup>1</sup>, S.J. Castillo<sup>2</sup> L.P. Ramírez-Rodríguez<sup>1</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, Mexico,

<sup>2</sup> Departamento de Investigación en Física, Universidad de Sonora, Mexico

■ **S6K-P022 EFFECTS OF COMPLEXING AGENTS, ANNEALING AND DEPOSITION TIME ON THE CHEMICAL BATH-DEPOSITED CuS THIN FILMS OBTAINED AT LOW TEMPERATURE**

R. Ambrosio<sup>1</sup>, A. Carrillo<sup>2</sup>, C. Chapa<sup>2</sup>, M. Moreno<sup>3</sup>, E. Lira<sup>2</sup>, M. Mota<sup>2</sup>, K. Monfil<sup>1</sup>

<sup>1</sup>BUAP, FCE-Electronics department, Mexico, <sup>2</sup>UACJ, Electrical and computing, Ciudad Juarez, Mexico, <sup>3</sup>INAOE, Electronics department, Puebla, Mexico

■ **S6K-P023 SYNTHESIS OF TWO TIN CHALCOGENIDES, TIN SELENIDE AND TIN SULFIDE, BY SOFT CHEMICAL METHOD**

Rodolfo Godoy Rosas<sup>1</sup>, R. Leyva-Ontiveros<sup>1</sup>, S. Barraza-Félix<sup>1</sup>, R. Ochoa-Landín<sup>2</sup>, M. C. Acosta-Enríquez<sup>1</sup>, M. Flores-Acosta<sup>1</sup>, M. E. Trujillo-Camacho<sup>3</sup>, J. C. Tanori-Cordova<sup>4</sup> & S. Jesús-Castillo<sup>1</sup>

<sup>1</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Sonora, México, <sup>2</sup>Departamento de Física, Universidad de Sonora Hermosillo, Sonora, Mex. <sup>3</sup>Ingeniería Química, División de Ingeniería Unidad Regional Centro Universidad de Sonora Hermosillo, Sonora, Mex. <sup>4</sup>Departamento de Investigación en

Polímeros y Materiales de la Universidad de Sonora. México.

■ **S6K-P024 PREPARATION AND CHARACTERIZATION OF LEAD OXIHYDROXYCARBONATE THIN FILMS BY THE CHEMICAL BATH DEPOSITION TECHNIQUE**

K.H. Gutiérrez-Acosta<sup>1</sup>, M. C. Acosta Enríquez<sup>1</sup>, D. Berman-Mendoza<sup>1</sup>, A. Apolinar-Irribé<sup>2</sup>, R. Gamez-Corrales<sup>2</sup> and S. J. Castillo<sup>1</sup>

<sup>1</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Son., México, <sup>2</sup>Departamento de Física, Universidad de Sonora, Hermosillo, Son., México.

■ **S6K-P025 SOME OPTOELECTRONIC PROPERTIES OF SEVERAL CHALCOGENIDES OBTAINED WITH CHROMIUM, COBALT AND SULFUR**

R. Leyva Ontiveros<sup>1</sup>, H. A. Pineda-León<sup>1</sup>, R. Godoy-Rosas<sup>1</sup>, S. J. Castillo<sup>1</sup>

Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Sonora, México.

■ **S6K-P026 COPPER OXIDE THIN FILMS AS SEMICONDUCTOR BY SOL-GEL PROCESS FOR ELECTRONIC DEVICES APPLICATIONS**

A. E. Hernández-Chávez<sup>1</sup>, M. de la L. Mota-González<sup>1</sup>, R. C. Ambrosio-Lázaro<sup>2</sup>, Á. Saucedo-Carvajal<sup>1</sup>, A. Carrillo-Castillo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. México. <sup>2</sup> Benemérita Universidad Autónoma de Puebla, México

■ **S6K-P027 SYNTHESIS OF ZINC SULFIDE NANOPARTICLES USING POLYETHYLENIMINE AS COMPLEXING AGENT AND CHARACTERIZATION**

K.J. Mendoza Peña<sup>1</sup>, E. Troyo Vega<sup>2</sup>, C.G. Perez Hernandez<sup>1</sup>, S. Munguía Rodríguez<sup>1</sup>, S.J. Castillo<sup>2</sup>, R. Ochoa Landín<sup>1</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, Mexico, <sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, Mexico

■ **S6K-P028 ZnS:Cu THIN FILMS BY CHEMICAL BATH DEPOSITION FOR ELECTRONIC DEVICES APPLICATIONS**

M. Mota-González<sup>1,2</sup>, P. A. Luque<sup>3</sup>, M. Á. Quevedo-López<sup>4</sup>, A. Carrillo-Castillo<sup>1</sup>

■ **S6K-P029 CdS/PbS THIN FILMS DEPOSITED BY CHEMICAL BATH DEPOSITION FOR PHOTOVOLTAIC APPLICATIONS**

D. A. Muro Rivera<sup>1</sup>, M.A. Quevedo López<sup>2</sup>, A. Carrillo-Castillo<sup>1</sup>



<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. Juárez Chihuahua, México. <sup>2</sup>Universidad de Sonora. Hermosillo, Sonora, México.

■ **S6K-P030 SOLAR CELL OF LEAD SULFIDE/CADMIUM SULFIDE BY THE METHOD OF CHEMICAL BATH**

M. Anahi. Soto-Brizuela<sup>1</sup>, M.C Acosta-Enriquez<sup>2</sup>, A. Carrillo-Castillo<sup>3</sup>, S.J Castillo<sup>4</sup>

<sup>1,2,4</sup>Departamento de Investigación en Física, Universidad de Sonora, México. <sup>3</sup>Departamento de Ingeniería Eléctrica y Computación, Universidad Autónoma de Ciudad Juárez, México

■ **S6K-P031 SYNTHESIS AND CHARACTERIZATION OF SnO<sub>2</sub> THIN FILMS BY SOL-GEL PROCESS**

J.A. Terrazas-Aguirre<sup>1</sup>, M. de L Mota-González<sup>1</sup>, R.C. Ambrosio-Lázaro<sup>2</sup>, P.A. Luque<sup>3</sup>, A. Carrillo-Castillo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, México. <sup>2</sup>Benemérita Universidad Autónoma de Puebla, México. <sup>3</sup>Facultad de Ingeniería, Arquitectura y Diseño, UABC, B.C., México.

■ **S6K-P032 SYNTHESIS AND CHARACTERIZATION OF WS<sub>2</sub> THIN FILMS BY CHEMICAL BATH DEPOSITION**

P.A. Luque<sup>1</sup>, Claudia M. Gómez-Gutiérrez<sup>1</sup>, María Cosío-León<sup>1</sup>, Rubén C. Villarreal S.<sup>1</sup>, A.R. Vilchis-Nestor<sup>2</sup>, A. Castro Beltrán<sup>3</sup>, A. Carrillo-Castillo<sup>4</sup>, M.A. Quevedo-Lopez<sup>5</sup> and A. Olivas<sup>6</sup>

<sup>1</sup>Facultad de Ingeniería, Arquitectura y Diseño, UABC, Ensenada, B.C., México. <sup>2</sup>Centro Conjunto de Investigación en Química Sustentable UAEM-UNAM, Toluca, México. <sup>3</sup>Facultad de Ingeniería Mochis, UAS, Los Mochis, Sinaloa, México. <sup>4</sup>Instituto de Ingeniería y Tecnología, UACJ, Cd. Juárez, Chih. México. <sup>5</sup>Department of Materials Science and Engineering, UT at Dallas, Richardson, Texas. <sup>6</sup>Centro de Nanociencias y Nanotecnología - UNAM, Ensenada, B.C. México.

■ **S6K-P033 SYNTHESIS BY SOL-GEL PROCESS OF A TRANSPARENT SUBSTRATE FOR FLEXIBLE ELECTRONICS APPLICATIONS**

B. Rodríguez García<sup>1</sup>, F. S. Aguirre Tostado<sup>2</sup>. A- Carrillo Castillo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. México. <sup>2</sup>Centro de Investigación en Materiales Avanzados, S. C., Unidad Monterrey, Parque de Investigación e Innovación Tecnológica, Apodaca, Nuevo León, México.

■ **S6K-P034 PENTACENE DOPED WITH PbS NANOPARTICLES FOR BIOSENSORS APPLICATIONS**

M. Luz Mota-González<sup>1,2</sup>, H. L. Espinoza Castellanos<sup>1</sup>, E. Ibeth-Pérez<sup>1</sup>, M. García-Zamora<sup>3</sup>, A. Carrillo-Castillo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, México. <sup>2</sup>Cátedras CONACYT, Avenida <sup>3</sup>Centro de investigación en Química Aplicada.

■ **S6K-P035 CHARACTERIZATION OF SYLVER HYDROXIDE THIN FILM SYNTHETIZED BY CHEMICAL BATH DEPOSITION METHOD**

E. Fernandez-Díaz<sup>1</sup>, K.J. Mendoza Peña<sup>2</sup>, J.A. Heredia Cancino<sup>3</sup>, T. Mendivil-Reynoso<sup>4</sup>, R. Ochoa Landín<sup>5</sup>, S.J. Castillo<sup>6</sup>

<sup>1,3,4,6</sup>Departamento de Investigación en Física, Universidad de Sonora, Mexico. <sup>2,5</sup>Departamento de Física, Universidad de Sonora, Mexico

■ **S6K-P036 SYNTHESIS AND CHARACTERIZATION OF HYBRYD MATERIAL BASED ON EPOXY RESIN FOR APPLICATION AN PERMEATION BARRIERS FOR FLEXIBLE DEVICES**

A. García Gallardo<sup>1</sup>, M. Ángel Quevedo López<sup>2</sup>, M. de la Luz Mota González<sup>1</sup>, A. Carrillo Castillo<sup>1</sup>

Universidad Autónoma de Ciudad Juárez, México

■ **S6K-P037 SYNTHESIS AND CHARACTERIZATION OF HYDROXYAPATITE OBTAINED BY SOFT CHEMICAL METHOD**

<sup>1</sup>J.A. Reyes-Avendaño, <sup>2</sup>M.J. Robles-Águila and <sup>3</sup>M.E. Mendoza

<sup>1</sup>Facultad de Ingeniería Química, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Centro de Investigaciones en Dispositivos Semiconductores, ICUAP, Benemérita Universidad Autónoma de Puebla, México. <sup>3</sup>Instituto de Física, Benemérita Universidad Autónoma de Puebla, México.

■ **S6K-P038 Ag NPs WITH POTENTIAL APPLICATION IN THE FLEXIBLE ELECTRONICS**

Jose L. Carreon<sup>1</sup>, María de la Luz Mota-González<sup>2</sup>, María de Jesús Pérez López<sup>3</sup>, Amanda Carrillo-Castillo<sup>4</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez. Cd. Juárez Chihuahua, México. <sup>2</sup>Instituto Tecnológico de Saltillo, Saltillo, Coahuila, México

## Symposium 7A

# ADVANCES IN FUNCTIONAL SEMICONDUCTING MATERIALS

**Velumani Subramaniam** / MEXICO / CINVESTAV-IPN

**Vijay Singh** / USA / University of Kentucky

**Abdelhadi Kassiba** / FRANCE / CNRS, University of Maine

**Alex Freundlich** / USA / University of Houston

ROOM: COZUMEL  
MONDAY, AUGUST 17

Session Chair: **ABDEL HADI KASSIBA**  
UNIVERSITE DU MAINE, FRANCE

Co-Chair: **VIJAY SINGH, UNIVERSITY OF KENTUCKY**

■ **08:30 - 09:00 S7A-0001 *Invited Talk* PROGRESS ON MULTI-JUNCTION SOLAR CELLS LATTICE-MATCHED TO InP WITH InAlAsSb TOP CELL**

M. González<sup>1,2</sup>, M. P. Lumb<sup>2,3</sup>, L. C. Hirst<sup>4</sup>, S. Tomasulo<sup>4</sup>, J. G. Tischler<sup>2</sup>, J. Abell<sup>2</sup>, J. R. Meyer<sup>2</sup> and R. J. Walters<sup>2</sup>

<sup>1</sup>Sotera Defense Solutions, USA, <sup>2</sup>Naval Research Laboratory, USA, <sup>3</sup>The George Washington University, USA, <sup>4</sup>NRC residing at Naval Research Laboratory USA

■ **09:00 - 09:15 S7A-0002 SPRAY PYROLYSIS/ CO-EVAPORATION HYBRID GROWTH OF Cu(In,Ga)Se<sub>2</sub> THIN FILMS OBTAINED FROM In<sub>2</sub>Se<sub>3</sub> PRECURSOR FILMS**

P. Reyes-Figueroa<sup>1,2</sup>, T. Painchaud<sup>2</sup>, L. Arzel<sup>2</sup>, N. Barreau<sup>2</sup>, S. Velumani<sup>1</sup>

<sup>1</sup>Department of Electrical Engineering, Cinvestav-Zacatenco, Mexico, <sup>2</sup>Institut des Matériaux Jean Rouxel, Université de Nantes, Nantes, France

■ **09:15 - 09:30 S7A-0003 NEAR SINGLE CRYSTALLINE GERMANIUM ON GLASS BY ALUMINUM INDUCED CRYSTALLIZATION OF AMORPHOUS-Ge**

Kaveh Shervin, Khim Kharel and Alex Freundlich

Center for Advanced Materials, University of Houston, USA

■ **09:30 - 09:45 S7A-0004 SYNTHESIS OF CuIn<sub>1-x</sub>GaxSe<sub>2</sub> NANOSTRUCTURES BY THERMAL DECOMPOSITION METHOD WITH TUNABLE OPTICAL PROPERTIES**

M. Latha<sup>1</sup>, R. Aruna Devi<sup>1</sup>, P. Reyes-Figueroa<sup>2</sup>, M. Rohini<sup>2</sup>, Goldie Oza<sup>2</sup> and S. Velumani<sup>1,2</sup>

<sup>1</sup>Program on Nanoscience and Nanotechnology, <sup>2</sup>Department of Electrical Engineering (SEES), CINVESTAV-IPN, Mexico

■ **09:45 - 10:00 S7A-0005 THE ROLE OF SE CONTENT ON THE GRAIN GROWTH OF SELENIZED Cu(In,Ga)Se<sub>2</sub> THIN FILMS**

M. Rohini<sup>1</sup>, P. Reyes<sup>1</sup>, M. Latha<sup>2</sup>, Goldie Oza<sup>1</sup>, S. Velumani<sup>1</sup>

<sup>1</sup>Department of Electrical Engineering-SEES, CINVESTAV-IPN, Mexico D.F. <sup>2</sup>Program on Nanoscience and Nanotechnology, CINVESTAV-IPN, Mexico D.F.

▶ **10:00 - 10:30 S7A-0006 *Invited Talk* ESSENCE AND MECHANISM FOR RHOMBOHEDRAL HYBRID BANDGAP ENGINEERING**

Sang H. Choi<sup>1</sup> and Adam J. Duzik<sup>2</sup>

<sup>1</sup>Advanced Materials and Processing Branch, NASA Langley Research Center, Hampton, Virginia. <sup>2</sup>National Institute of Aerospace, Hampton, Virginia

■ **10:30 - 10:45 S7A-0007 ANNEALING IMPACT ON QUANTUM WELL STRUCTURE AND EMISSION OF INAS QUANTUM DOT WITH ALGAINAS CAPPING LAYER**

T.V. Torchynska<sup>1</sup>, R. Cisneros Tamayo<sup>2</sup>, I.J. Guerrero Moreno<sup>2</sup> and Escobosa-Echavarria<sup>3</sup>

<sup>1</sup>Instituto Politécnico Nacional, ESFM, <sup>2</sup>Instituto Politécnico Nacional, ESIME-IPN, <sup>3</sup>Electrical Engineer Department-SEES, CINVESTAV-IPN, Mexico

■ **10:45 - 11:00 S7A-0008 DESIGN OF A DISINFECTION PROCESS IN A WATER TREATMENT PLANT USING TITANIA-ALUMINA FILMS**

Edgar Barajas Ledesma<sup>1</sup>, Luis Alfredo Padilla Godínez<sup>2</sup>, María Eugenia Contreras García<sup>3</sup>, Ma. Ilya Espitia Cabrera<sup>4</sup>

<sup>1</sup>Universidad de La Ciénega del Estado de Michoacán de Ocampo, Sahuayo, Michoacán, México, <sup>2</sup>ARS Ingeniería Mexicana S. A. de C. V., Tuxtla Gutiérrez Chiapas, México. <sup>3</sup>Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México.

☒ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **ALEX FREUNDLICH**  
UNIVERSITY OF HOUSTON, USA

👤 Co-Chair: **MARIA GONZALEZ, U.S. NAVAL**  
RESEARCH LABORATORY, WASHINGTON, DC.

▶ **13:00 - 13:30 S7A-0009 Invited Talk PHOTOVOLTAIC PROPERTIES OF CdSe/CdS AND CdS/CdSe CORE-SHELL PARTICLES SYNTHESIZED BY ONE-STEP SOLUTION PRECIPITATION PROCESSES**

Selene Coria-Monroy<sup>1</sup>, M. Sotelo-Lerma<sup>2</sup>, Claudia Martínez-Alonso<sup>1</sup>, Paola M. Moreno-Romero<sup>1</sup>, Carlos A. Rodríguez-Castañeda<sup>1</sup>, Israel Corona-Corona<sup>2</sup>, and Hailin Hu<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México, México, <sup>2</sup>Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora, Hermosillo, Sonora, México.

■ **13:30 - 13:45 S7A-0010 COMPARATIVE ACCOUNT OF PLASMONIC PHOTOCATALYSIS UNDER VISIBLE LIGHT IRRADIATION**

T. Pal, J. Pal

Department of Chemistry, Indian Institute of Technology, Kharagpur, India.

✂ **14:00- 16:00 LUNCH**

👤 Session Chair: **SANG H. CHOI,**  
NASA LANGLEY RESEARCH CENTER, USA

👤 Co-Chair: **VELUMANI SUBRAMANIAM**  
CINVESTAV, MEXICO

▶ **16:00 - 16:30 S7A-0011 Invited Talk EXPERIMENTALLY VALIDATED MOLECULAR DYNAMICS FOR SIMULATION OF CdTe/CdS-BASED SOLAR CELL STACKS**

D. Zubia, J. J. Chavez, S. F. Almeida, and X. Zhou

<sup>1</sup>University of Texas at El Paso, Electrical and Computer Engineering Department, USA. <sup>2</sup>Sandia National Laboratories, Mechanics of Materials Department, Livermore, CA, USA

■ **16:30 - 16:45 S7A-0012 EFFECTS OF METALLIC DOPING (CU, AG, EU) ON THE ELECTRONIC AND OPTICAL FEATURES OF TiO<sub>2</sub> NANOPARTICLES**

J. Vargas Hernández<sup>1,2</sup>, S. Coste<sup>2</sup>, A. García Murillo<sup>1</sup>, F. Carrillo Romo<sup>1</sup>, A. Kassiba<sup>2</sup>

<sup>1</sup>Instituto Politécnico Nacional – CIITEC Azcapotzalco, México, D.F. <sup>2</sup>Institute of Molecules & Materials of Le Mans (IMMM), Université du Maine, Le Mans, France

■ **16:45 - 17:00 S7A-0013 RF SPUTTERING SYNTHESIS OF CU AND MO DOPED BiVO<sub>4</sub> THIN FILMS AND INVESTIGATIONS OF RELATED FEATURES FOR EFFICIENT PHOTOCATALYSIS**

M. Victor Ishrayelu<sup>1,2</sup>, S. Velumani<sup>1</sup> and A. Kassiba<sup>2</sup>

<sup>1</sup>Department of Electrical Engineering- SEES, CINVESTAV – IPN<sup>1</sup>, Mexico. <sup>2</sup>Institute of Molecules & Materials of Le Mans (IMMM) Université du Maine, France.

■ **17:00 - 17:15 S7A-0014 STUDY AND CARATERIZATION OF SINGLE AND DUAL ELECTROCHROMIC DEVICES BASED ON POLYANILINE AND POLYTHIOPHENES FILMS**

E. Nicho-Díaz<sup>1</sup>, A. Medrano-Solís<sup>1</sup>, H. Zhao-Hu<sup>2</sup>, G. Cadenas-Pliego<sup>3</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas, Universidad Autónoma del Estado de Morelos, México. <sup>2</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México. <sup>3</sup>Centro de Investigación en Química Aplicada, Saltillo, Coahuila, México.

■ **17:15 - 17:30 S7A-0015 OPTOELECTRONIC PROPERTIES OF ANNEALED CdO FILMS OBTAINED BY CHEMICAL BATH FOR SOLAR CELLS**

Ernesto García-Angeles and Arturo Morales-Acevedo

Centro de Investigación y de Estudios Avanzados del IPN, México.

■ **17:30 - 17:45 S7A-0016 STRAIN MODELING IN GaAs /In<sub>0.15</sub>Ga<sub>0.75</sub>As/GaAs QUANTUM WELLS WITH**



### InAs QUANTUM DOT STRUCTURES PREPARED AT DIFFERENT QD'S GROWTH TEMPERATURES

L.G. Vega Macotela<sup>1</sup>, T.V. Torchynska<sup>2</sup>, and G. Polupan<sup>1</sup>

<sup>1</sup>E.S.I.M.E, National Polytechnic Institute, Mexico, <sup>2</sup>E.S.F.M., National Polytechnic Institute, Mexico

### 17:45 - 18:00 S7A-0017 SOL-GEL SYNTHESIS OF ILLMENITE NiTiO<sub>3</sub> NANOPARTICLES AT LOW TEMPERATURE

Marco Ruiz-Preciado<sup>1,2,3</sup>, Arturo Morales-Acevedo<sup>1</sup>, Alain Gibaud<sup>2</sup>, Malgorzata Makowska<sup>3</sup> and A. Kassiba<sup>2</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN, Electrical Engineering Department, México, D. F. <sup>2</sup>Institute of Molecules and Materials of Le Mans, Université du Maine, France. <sup>3</sup>Institute of Physics, Jan Dlugosz University in Czestochowa, Czestochowa, Poland

ROOM: TERRACE  
MONDAY, AUGUST 17

### ▶ 18:30 -20:30 POSTER SESSION & COFFEE BREAK

### ■ S7A-P001 DONOR IMPURITY-RELATED NONLINEAR OPTICAL ABSORPTION IN GaAs/Ga<sub>x</sub>Al<sub>1-x</sub>As CONCENTRIC DOUBLE QUANTUM RINGS

R. L. Restrepo<sup>1</sup>, A. L. Morales<sup>2</sup>, C. A. Duque<sup>2</sup>

<sup>1</sup>Escuela de Ingeniería de Antioquia –EIA-, Envigado, Colombia, <sup>2</sup>Grupo de Materia Condensada-UdeA, Instituto de Física, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia UdeA, Medellín, Colombia

### ■ S7A-P002 SYNTHESIS OF HIGHLY LUMINESCENT InPZnS QUANTUM DOTS: THE INFLUENCE OF TEMPERATURE

M. P. González-Araoz<sup>1</sup>, L. Nolasco-Hernández<sup>2</sup>, S. F. Arvizu-Amador<sup>3</sup>, J. Díaz-Reyes<sup>4</sup>, J. L. Herrera-Pérez<sup>3</sup>, J. Mendoza-Álvarez<sup>5</sup>, J. F. Sánchez-Ramírez<sup>2</sup>.

<sup>1</sup>Facultad de Ingeniería, Universidad Autónoma de Puebla, Puebla, Pue., México, <sup>2</sup>CICATA-Legaria – Instituto Politécnico Nacional, México D.F., <sup>3</sup>UPIITA-Instituto Politécnico Nacional, México D.F., <sup>4</sup>CIBA-Instituto Politécnico Nacional, Tlaxcala, México, <sup>5</sup>Departamento de Física, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, México, D.F.

### ■ S7A-P003 RESISTANCE SWITCHING IN OXIDE THIN FILMS WITH BROWNMILLERITE STRUCTURE FOR LOW TEMPERATURE AND VOLTAGE OPERATION

Chang Uk Jung<sup>1</sup> and Susant Kumar Acharya<sup>1</sup>, Vu Bin Nahm<sup>1</sup>, Octolia Togibasa Tambunan<sup>1</sup>, Bae Ho Park<sup>2</sup>, Myung Rae Cho<sup>3</sup>, Suyoun Lee<sup>4</sup>, Miyoung Kim<sup>5</sup>, Cheol Seong Hwang<sup>5</sup>

<sup>1</sup>Department of Physics, Hankuk University of Foreign Studies, South Korea. <sup>2</sup>Department of Physics and Division of Quantum Phases and Devices, Konkuk University, South Korea. <sup>3</sup>Department of Physics and Astronomy and Center for Subwavelength, Seoul National University, South Korea. <sup>4</sup>Electronic Materials Research Center, Korea Institute of Science and Technology, South Korea. <sup>5</sup>Department of Material Science and Engineering, Seoul National University, South Korea.

### ■ S7A-P004 STUDIES ON ELECTROCHEMICALLY GROWN COPPER OXIDE THIN FILMS

Sethuramachandran Thanikaikarasan<sup>1</sup>, Kandasamy Sankaranarayanan<sup>2</sup>, Thaiyan Mahalingam<sup>3</sup>, Subramaniam Velumani<sup>4</sup>

<sup>1</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tamil Nadu, India. <sup>2</sup>School of Physics, Alagappa University, Tamil Nadu, India. <sup>3</sup>Department of Electrical and Computer Engineering, Republic of Korea. <sup>4</sup>Centro de Investigación y de Estudios Avanzados del I.P.N.(CINVESTAV), Mexico D.F.

### ■ S7A-P005 ELECTROCHEMICAL GROWTH AND CHARACTERIZATION OF COPPER TELLURIDE THIN FILMS

Paulraj Jeyakumar<sup>1</sup>, Sethuramachandran Thanikaikarasan<sup>2</sup>, Balan Natarajan<sup>1</sup>, Thaiyan Mahalingam<sup>3</sup>, Subramaniam Velumani<sup>4</sup>

<sup>1</sup>Post Graduate and Research Department of Physics, Raja Dorai Singam Government Arts College, Tamil Nadu, India. <sup>2</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tamil Nadu, India. <sup>3</sup>Department of Electrical and Computer Engineering, Ajou University, Republic of Korea. <sup>4</sup>Centro de Investigación y de Estudios Avanzados del I.P.N.(CINVESTAV),

### ■ S7A-P006 OPTOELECTRONIC AUTO-SYNC PASS FILTER BY EMPLOYING AN ERBIUM DOPED CdS THIN FILM

J. Dávila-Pintle<sup>1</sup> and E. Reynoso-Lara<sup>1</sup>

<sup>1</sup>Benemérita Universidad Autónoma de Puebla, México.

### ■ S7A-P007 ELECTROCHEMICAL GROWTH AND MICROSTRUCTURAL CHARACTERIZATION OF

### ANTIMONY SELENIDE THIN FILMS ON DIFFERENT SUBSTRATES

Sethuramachandran Thanikaikarasan<sup>1</sup>, Thaiyan Mahalingam<sup>2</sup>, Subramaniam Velumani<sup>3</sup>

<sup>1</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tamil Nadu, India. <sup>2</sup>Department of Electrical and Computer Engineering, Republic of Korea. <sup>3</sup>Centro de Investigación y de Estudios Avanzados del I.P.N.(CINVESTAV), Mexico D.F.

### ■ 57A-P008 COMPARATIVE STUDY DEFECT RELATED PHOTOLUMINESCENCE IN ZNO AND ZNO-CU NANOCRYSTALS OBTAINED BY SPRAY PYROLYSIS

B. El Filali<sup>1</sup>, A.I. Diaz Cano<sup>1</sup> and A. Mosqueda Jaramillo<sup>1</sup>

<sup>1</sup>UPIITA-Instituto Politécnico Nacional, México

### ■ 57A-P009 HEAVY - AND LIGHT-HOLE MAGNETO-EXCITON COMPLEXES IN TYPE II GALLIUM ANTIMONIDE QUANTUM RING

S. Zambrano-Rojas<sup>1,2</sup>, G. E. Escorcía-Salas<sup>1</sup>, and J. Sierra-Ortega<sup>1</sup>

<sup>1</sup>Grupo de investigación en Teoría de la Materia Condensada, Universidad del Magdalena, Santa Marta, Colombia. <sup>2</sup>Universidad de la Guajira, Riohacha, Colombia

### ■ 57A-P010 FABRICATION AND CHARACTERIZATION OF Pd/SnO<sub>2</sub> AND ITS USE AS GAS SENSOR

A.L. Paredes-Doig<sup>1</sup>, M. R. Sun Kou<sup>1</sup>, E. Doig-Camino<sup>2</sup> and G. Comina-Bellido<sup>3</sup>

<sup>1</sup>Sección Química. Departamento de Ciencias. Pontificia Universidad Católica del Perú, Perú. <sup>2</sup>Sección Matemáticas. Departamento de Ciencias. Pontificia Universidad Católica del Perú, Perú. <sup>3</sup>Facultad de Ciencias. Universidad Nacional de Ingeniería. Perú.

### ■ 57A-P011 ELECTROCHEMICAL SYNTHESIZE AND CHARACTERISATION OF INDIUM DOPED CADMIUM SELENIDE THIN FILMS

Sethuramachandran Thanikaikarasan<sup>1</sup>, Thaiyan Mahalingam<sup>2</sup>, Subramaniam Velumani<sup>3</sup>

<sup>1</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tamil Nadu, India. <sup>2</sup>Department of Electrical and Computer Engineering, Republic of Korea. <sup>3</sup>Centro de Investigación y de Estudios Avanzados del I.P.N.(CINVESTAV), Mexico D.F.

### ■ 57A-P012 EFFECTS OF ANNEALING ON THE OPTICAL PROPERTIES OF SRO FILMS PREPARED BY RF MAGNETRON CO-SPUTTERING

A. Coyopol<sup>1</sup>, A. Morales Sánchez<sup>1</sup>, T. Díaz Becerri<sup>2</sup>, G. Escalante<sup>3</sup>, and M. A. Cardona<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados SC, Unidad Monterrey-PIIT, México. <sup>2</sup>Centro de Investigación en Dispositivos Semiconductores, Universidad Autónoma de Puebla, México. <sup>3</sup>Depto. de Físicas de Materiales, Facultad de Físicas, Univ. Complutense, España.

### ■ 57A-P013 METAL OXIDE LAYERS AS INTERFACIAL MODIFIERS FOR INVERSED CdS:P3HT HYBRID SOLAR CELLS.

Hugo J. Cortina-Marrero, D. Mateos Torres<sup>1</sup>, Claudia Martínez-Alonso, Germán Alvarado-Tenorio, Carlos A. Rodríguez-Castañeda, Paola M. Moreno-Romero, Hailin Hu. Instituto de Energías Renovables, Universidad Nacional Autónoma de México, Temixco, Morelos, México

### ■ 57A-P014 STRUCTURE AND OPTICAL PROPERTIES OF VAPOR GROWN Ga-DOPED In<sub>2</sub>O<sub>3</sub> NANO AND MICROCRYSTALS

J. A. Ramos Ramón<sup>1</sup>, D. León Sánchez<sup>2</sup>, M. Herrera Zaldívar<sup>3</sup>, U. Pal<sup>1</sup>, E. Rubio Rosas<sup>4</sup>

<sup>1</sup>Instituto de Física, Universidad Autónoma de Puebla, Mexico. <sup>2</sup>Facultad de Ciencias de la Electrónica, Universidad Autónoma de Puebla, Puebla, Mexico. <sup>3</sup>Centro de Nanociencia y Nanotecnología, Universidad Nacional Autónoma de México. <sup>4</sup>Centro Universitario de Vinculación y Transferencia de Tecnología (CUVyTT), Universidad Autónoma de Puebla, México.

### ■ 57A-P015 EMISSION AND STRUCTURE TRANSFORMATION IN MIXTURE OF ZnO AND CARBON NANOPARTICLES AT MECHANICAL PROCESSING

E. Velázquez-Lozada<sup>1</sup>, T. Torchynska<sup>2</sup>, B. Pérez-Millán<sup>3</sup>, M. Kakazey<sup>4</sup> and M. Vlasova<sup>4</sup>

<sup>1</sup>SEPI – ESIME – Instituto Politécnico Nacional, México, <sup>2</sup>ESFM – Instituto Politécnico Nacional, México, <sup>3</sup>UPIITA – Instituto Politécnico Nacional, México, <sup>4</sup>CICAp – Universidad Autónoma del Estado de Morelos, México

### ■ 57A-P016 HYBRID SINGLE WALLED CARBON NANOTUBE - QUANTUM DOT PHOTOSENSORS

Simas Rackauskas<sup>1</sup>, Andrei V. Alaferdov<sup>1</sup>, Yulia A. Gromova<sup>2</sup>, Raluca Savu<sup>1</sup>, Tatiana Rackauskas<sup>1</sup>, Esko I. Kauppinen<sup>3</sup>, Albert G. Nasibulin<sup>3,4</sup>, Stanislav A. Moshkalev<sup>1</sup>





<sup>1</sup>CCS - UNICAMP, Campinas, SP, Brazil, <sup>2</sup>ITMO University, Saint Petersburg, Russia, <sup>3</sup>Aalto University School of Science, Finland, <sup>4</sup>Skolkovo Institute of Science and Technology,

■ **57A-P017 PHOTOCATALYTIC PROPERTIES OF CHEMICALLY SPRAYED NANOSTRUCTURED ZINC OXIDE THIN FILMS: EFFECT OF PRECURSOR MILLING IN THE STARTING SOLUTION**

V. Mata<sup>1</sup>, A. Maldonado<sup>1,2</sup> and M. de la L. Olvera<sup>1,2</sup>

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, México, D. F. <sup>2</sup>Departamento de Ingeniería Eléctrica-SEES, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, México, D. F.

■ **57A-P018 EFFECT OF DIELECTRIC CONSTANT ON THE EMISSION OF CdSe QUANTUM DOTS**

J. L. Casas Espinola<sup>1</sup>, X. A. Hernández Contreras<sup>2</sup>, A. I. Díaz Cano<sup>2</sup>

<sup>1</sup>ESFM-Instituto Politécnico Nacional, México D. F, México. <sup>2</sup>UPIITA-Instituto Politécnico Nacional, México D. F. México.

■ **57A-P019 SYNTHESIS AND ELABORATION OF BISMUTH SULFIDE THIN FILMS BY CHEMICAL BATH DEPOSITION**

E. Chavez-Mendiola<sup>1,2</sup>, A. Carrillo-Castillo<sup>3</sup>, Milka C. Acosta-Enriquez<sup>1</sup>, S.J. Castillo<sup>1</sup>

<sup>1</sup> Departamento de Investigación en Física, Universidad de Sonora, México. <sup>2</sup>Instituto Tecnológico de Hermosillo, México. <sup>3</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Chihuahua, México.

■ **57A-P020 PHOTOCATALYTIC AND GAS SENSING APPLICATION OF TiO<sub>2</sub> NANOPARTICLES**

J. Morales<sup>1</sup>, Olvera, M. de la L.<sup>1,2</sup>, and Maldonado and A. Maldonado<sup>1,2</sup>

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, CINVESTAV-IPN, México, <sup>2</sup>Departamento de Ingeniería Eléctrica-Sección de Electrónica del Estado Sólido, CINVESTAV-IPN, México.

■ **57A-P021 SYNTHESIS AND CHARACTERIZATION OF NANOCOMPOSITE (GRAPHENE OXIDE / CHITOSAN)**

E. Bravo González<sup>1</sup>, Y. A. León Nataret<sup>1</sup>, A. I. Díaz Cano<sup>1</sup>, E. Rubio<sup>2</sup> and Carlos A. Camacho. <sup>3</sup>

<sup>1</sup> Instituto Politécnico Nacional, UPIITA, Gustavo A. Madero, México. <sup>2</sup> Benemérita Universidad Autónoma de Puebla,

México. <sup>3</sup> Universidad Politécnica del Valle de México, Tultitlan, México.

■ **57A-P022 SYNTHESIS AND CHARACTERIZATION OF ZnO NANOPARTICLES**

Xochitl Andrea Hernández Contreras<sup>1</sup>, José Luis Casas Espinola<sup>2</sup>, Aarón Israel Díaz Cano<sup>1</sup>, Edgar Hernandez Ramirez<sup>3</sup>

<sup>1</sup>UPIITA – Instituto Politécnico Nacional, México D. F, México <sup>2</sup>ESFM– Instituto Politécnico Nacional, México D. F, México <sup>3</sup>ESIQIE– Instituto Politécnico Nacional, Av. Politécnico s/n, México D. F, México

■ **57A-P023 SYNTHESIS AND CHARACTERIZATION OF QUANTUM DOTS CORE/SHELL CdTe/CdSe AND CdTe/CdS**

Xochitl Andrea Hernández Contreras<sup>1</sup>, José Luis Casas Espinola<sup>2</sup>, Aarón Israel Díaz Cano<sup>1</sup>

<sup>1</sup>UPIITA – Instituto Politécnico Nacional, México D. F. México <sup>2</sup>ESFM– Instituto Politécnico Nacional, México D. F, México

■ **57A-P024 STUDY ON THE EFFECT OF SILVER DOPING OFF CADMIUM SULFIDE THIN FILMS FOR THE DEVELOPMENT OF OPTOELECTRONIC DEVICES**

S.R. Ferra-Gonzalez<sup>1</sup>, A. Gallegos-Tabanico<sup>1</sup>, C. J. Pérez-Martínez<sup>2</sup>, A. Ramos-Carrasco<sup>2</sup>, D. Berman-Mendoza<sup>2</sup>, M.A. Quevedo-Lopez<sup>4</sup>, B.E. Gnade<sup>4</sup>

<sup>1</sup> Departamento de Física, Universidad de Sonora, México. <sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, México. <sup>3</sup>Departamento de Ciencias Químico Biológicas, Universidad de Sonora, México. <sup>4</sup> Department of Materials Science and Engineering, The University of Texas at Dallas, Richardson, United States

■ **57A-P025 OPTICAL PROPERTIES OF LAYERS GaAs AND InGaAs DEPOSITED ON TRANSPARENT SUBSTRATES**

R Bernal-Correa<sup>1,2</sup>, A Morales Acevedo<sup>3</sup>, M Lopez-Lopez<sup>4</sup>, and A Pulzara-Mora<sup>1</sup>

<sup>1</sup>Laboratorio de Nanoestructuras Semiconductoras, Grupo Magnetismo y Materiales Avanzados, Universidad Nacional de Colombia, Colombia. <sup>2</sup>Escuela de Materiales, Facultad de Minas, Universidad Nacional de Colombia, sede Medellín, Colombia. <sup>3</sup>Departamento de Ingeniería Eléctrica, Centro de Investigación y de Estudios Avanzados del I.P.N, México D.F, México. <sup>4</sup>Departamento de Física, Centro de Investigación y de Estudios Avanzados del I.P.N, México.

■ **57A-P026 MESOPOROUS METAL DOPED TiO<sub>2</sub> THIN FILMS: SYNTHESIS AND CHARACTERIZATIONS OF RELATED FEATURES**

J. Vargas Hernández<sup>1,2</sup>, S. Coste<sup>2</sup>, A. García Murillo<sup>1</sup>, F. Carrillo Romo<sup>1</sup>, A. Kassiba<sup>2</sup>.

<sup>1</sup>Instituto Politécnico Nacional – CIITEC Azcapotzalco, México, D.F. <sup>2</sup>Institute of Molecules & Materials of Le Mans (IMMM) UMR, Le Mans, France

■ **57A-P027 SUNLIGHT AND UV PHOTOCATALYSIS OF BISMUTH CODOPED Sr<sub>4</sub>Al<sub>14</sub>O<sub>25</sub>:Eu<sup>2+</sup>, Dy<sup>3+</sup> LONG AFTERGLOW PHOSPHORS**

Carlos R. García<sup>1,2</sup>, D. Chavez<sup>1</sup>, L. A. Diaz-Torres<sup>2</sup>, J. Oliva<sup>2</sup>, M.T. Romero<sup>1</sup>

<sup>1</sup>Facultad de Ciencias Físico-Matemáticas, Universidad Autónoma de Coahuila, México. <sup>2</sup>Grupo de Espectroscopia de Materiales Avanzados y Nanoestructurados (GEMANA), Centro de Investigaciones en Óptica, México

■ **57A-P028 METALLIC NANOPARTICLES WITH SURFACE PLASMON RESONANCE: SYNTHESIS, CHARACTERISATIONS AND EFFECTS ON PHOTOCATALYST EFFICIENCY**

Mina IDER<sup>1,2</sup>, Said Ouaskit<sup>1</sup>, and Abdel Hadi Kassiba<sup>2</sup>

<sup>1</sup>Laboratoire de Physique de la Matière Condensée LPMC, Unité de recherche associée au CNRS. Université Hassan II- Mohammedia. Faculté des Sciences Ben M'Sik, Casablanca, Morocco. <sup>2</sup>Institut Molécules & Matériaux Le Mans, Université du Maine Département de Physique de l'Université du Maine Avenue Olivier Messiaen, France

■ **57A-P029 CDTE/CDS DEVICES WITH CDTE ABSORBER LAYER GROWN BY CSS TECHNIQUE UNDER HIGH PRESSURE**

G. I. García Alvarado<sup>1</sup>, S. A. Mayén Hernández<sup>2</sup>, F. de Moure Flores<sup>2</sup>, E. M. Rivera Muñoz<sup>1</sup>, J. Santos Cruz<sup>2</sup>

<sup>1</sup>Centro de Física Aplicada y Tecnología Avanzada (CFATA), UNAM Campus Juriquilla, México. <sup>2</sup>Facultad de Química, Universidad Autónoma de Querétaro (UAQ), México.

■ **57A-P030 STUDY OF THE CHANGE OF PHYSICAL PROPERTIES OF MAGNETITE WITH NANODOTS OF GOLD AND SILVER ON SURFACE**

A. Rodríguez<sup>1,2</sup>, O.F. Odio<sup>2,3</sup>, A. Lemus<sup>2</sup>, E. Reguera<sup>2</sup>

<sup>1</sup>Centro de Aplicaciones Tecnológicas y Desarrollo Nuclear (CEADEN), Cuba. <sup>2</sup>Centro de Investigación en Ciencia Aplicada y Tecnología de Avanzada, IPN, México,

DF. <sup>3</sup>Centro de Investigación en Ciencia y Tecnología de Materiales (IMRE), Cuba.

■ **57A-P031 PROCESSING OF MESOPOROUS STRUCTURES OF ZnO**

Herrera, Rosario<sup>1</sup>, Olvera, M. de la L.<sup>1,2</sup>, and Maldonado, Arturo<sup>1,2</sup>

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, CINVESTAV-IPN, México. <sup>2</sup>Departamento de Ingeniería Eléctrica-Sección de Electrónica del Estado Sólido, CINVESTAV-IPN, México.

■ **57A-P032 OPTIMIZATION OF PROCESS FOR THE SYNTHESIS OF ZINC OXIDE NANOPOWDERS BY TAGUCHI DESIGN**

Herrera, Rosario<sup>1</sup>, Pineda, Ana María<sup>1</sup>, Olvera, M. de la L.<sup>1,2</sup>, and Maldonado, Arturo<sup>1,2</sup>

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, CINVESTAV-IPN, México. <sup>2</sup>Departamento de Ingeniería Eléctrica-Sección de Electrónica del Estado Sólido, CINVESTAV-IPN, México.

■ **57A-P033 CHARACTERIZATION OF N (P)-TYPE**

Ga<sub>0.86</sub>In<sub>0.14</sub>As<sub>0.13</sub>Sb<sub>0.87</sub>

Joel Diaz-Reyes<sup>1</sup>, Julio G. Mendoza-Álvarez<sup>2</sup>, Patricia Rodríguez-Fragoso<sup>2</sup>, José Luis Herrera-Pérez<sup>3</sup>

<sup>1</sup>CIBA, Instituto Politécnico Nacional, México, <sup>2</sup>Depto. de Física, CINVESTAV-IPN, México, <sup>3</sup>UPIITA, Instituto Politécnico Nacional

■ **57A-P034 NEW HOMO AND COPOLYMERS OF N-ARYL ACRYLAMIDES**

V. Pozzoli and M. A. Martins Alho

LabMOR-INTECIN. Facultad de Ingeniería, Universidad de Buenos Aires, Argentina

■ **57A-P035 CHARACTERIZATING MICROELECTRONIC SUBSTRATES FOR FABRICATING TERAHERTZ METAMATERIAL STRUCTURES**

C. H., Kodama<sup>1</sup> and R. A., Coutu, Jr., Ph.D.<sup>1</sup>

<sup>1</sup>Air Force Institute of Technology, USA

■ **57A-P036 CHARACTERIZING REACTIVE ION ETCHING OF GERMANIUM TELLURIDE WITH INDUCTIVELY COUPLED BCL3 PLASMA**

R. A., Lake<sup>1</sup>, T. V., Laurvick<sup>1</sup>, and R. A., Coutu, Jr., Ph.D.<sup>1</sup>

<sup>1</sup>Air Force Institute of Technology, USA



■ **S7A-P037 CHARACTERIZATION OF ZnTe GROWN BY ATOMIC-LAYER-EPITAXY REGIME ON GaAs AND GaSb (100) ORIENTED SUBSTRATES**

Roberto S. Castillo-Ojeda<sup>1</sup>, Francisco de Anda-Salazar<sup>2</sup>, Joel Díaz-Reyes<sup>3</sup>, María de la Cruz Peralta-Clara<sup>4</sup>, Julieta Salomé Veloz-Rendón<sup>5</sup>, José Francisco Sánchez-Ramírez<sup>6</sup>

<sup>1</sup>Universidad Politécnica de Pachuca, México, <sup>2</sup>Universidad Autónoma de San Luis Potosí, México, <sup>3</sup>Instituto Politécnico Nacional, México, <sup>4</sup>Instituto Politécnico Nacional, México, <sup>5</sup>Instituto Politécnico Nacional, México, <sup>6</sup>Instituto Politécnico Nacional, México

■ **S7A-P038 DEVELOPMENT OF CZIS NON-TOXIC MATERIAL FOR SOLAR CELL APPLICATION**

R. Olvera Rivas<sup>1</sup>, S.H. Turrén Cruz<sup>2</sup>, S.A. Mayén Hernández<sup>1</sup>, E. Ramírez Morales<sup>3</sup>, F.J. DeMoure Flores<sup>1</sup>, O.I. Arillo Flores<sup>1</sup> and J. Santos Cruz<sup>1</sup>

<sup>1</sup>Facultad de Química, Materiales-Energía, Universidad Autónoma de Querétaro, México. <sup>2</sup>Universidad Politécnica de Chiapas, Área Energía, México. <sup>3</sup>DAIA, Universidad Juárez Autónoma de Tabasco, México

■ **S7A-P039 HIGH-K DIELECTRICS BASED ON  $Ti_{(x)}Al_{(1-x)}O_{(y)}$  THIN FILMS AND ITS APPLICATIONS**

N. Hernandez-Como<sup>1</sup>, L. Paz-Resendiz<sup>2</sup>, L. Olmos-Vargas<sup>2</sup>, G. Rivas-Montes<sup>2</sup>, F.J. Hernandez-Cuevas<sup>1</sup>, R. Baca-Arroyo<sup>2</sup> and M. Aleman<sup>1</sup>

<sup>1</sup> Centro de Nanociencias y Micro y Nanotecnologías, Instituto Politécnico Nacional, México. <sup>2</sup> Escuela Superior de Ingeniería Mecánica y Eléctrica, Instituto Politécnico Nacional, México.

■ **S7A-P040 SULFIDING EFFECTS IN ZnS THIN FILMS OBTAINED BY EVAPORATION TECHNIQUE**

S. Martínez Martínez<sup>1</sup>, S.A. Mayén Hernández<sup>1</sup>, J.J. Coronel Hernández<sup>1</sup>, F.J. DeMoure Flores<sup>1</sup>, Ma. Concepción Arenas<sup>2</sup> and J. Santos Cruz

<sup>1</sup>Universidad Autónoma de Querétaro, Facultad de Química-Materiales, México. <sup>2</sup>Escuela Nacional de Estudios Superiores Unidad León, UNAM, León Guanajuato, México

■ **S7A-P041 ENGINEERING OF THE SILICON AND OXYGEN CONTENT OF TWO SILICON-RICH OXIDE (SRO) THIN FILMS AND THEIR APPLICATION IN RERAM DEVICES**

Joel Molina<sup>1</sup>, Rene Valderrama<sup>1</sup>, Carlos Zuniga<sup>1</sup>, Wilfrido Calleja<sup>1</sup>, F. Javier Wade<sup>1</sup>, and Mariano Aceves<sup>1</sup>

<sup>1</sup>National Institute for Astrophysics, Optics and electronics (INAOE), Tonantzintla, Puebla, Mexico

■ **S7A-P042 THE STRUCTURAL AND OPTICAL PROPERTIES OF INDIUM ZINC OXIDE DEPOSITED BY RF MAGNETRON SPUTTERING**

Marco Polo González Arroyo<sup>1</sup>, Jesús Alarcón Salazar<sup>1</sup>, Marco Antonio Vásquez Agustín<sup>1</sup>, José Alberto Andraca Adame<sup>4</sup>, Ramón Peña Sierra<sup>3</sup>, Ciro Falcony<sup>2</sup>, Mariano Aceves Mijares<sup>1</sup>

<sup>1</sup>Departamento de Electrónica, Instituto Nacional de Astrofísica, Óptica y Electrónica, México. <sup>2</sup>Departamento de Física, Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional campus Zacatenco, México. <sup>3</sup>Departamento de Ingeniería Eléctrica, Sección de Electrónica del Estado Sólido, Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional campus Zacatenco, México. <sup>4</sup>Centro de Nanociencias y Micro y Nanotecnologías (CNMN) del Instituto Politécnico Nacional (IPN), México.

■ **S7A-P043 STRUCTURAL AND OPTICAL PROPERTIES OF THERMAL NITRIDATION PROCESS OF GAP (001) SUBSTRATES**

J.S. Arias-Cerón<sup>1</sup>, H. Vilchis<sup>2</sup>, V.M. Sánchez-R<sup>1</sup>

<sup>1</sup>Sección de Electrónica del Estado Sólido, Departamento de Ingeniería Eléctrica, Centro de Investigación y de Estudios Avanzados del I.P.N. México. <sup>2</sup>Coordinación para la Innovación y Aplicación de la Ciencia y la Tecnología, Universidad Autónoma de San Luis Potosí.

■ **S7A-P044 FABRICATION AND CHARACTERIZATION OF A MISFET WITH A 2-PROPANOL POLYMERIC THIN FILM AS ISOLATOR**

G. Romero-Paredes<sup>1</sup>, A. Ávila Garcia<sup>1</sup>, R. Peña Sierra<sup>1</sup>

<sup>1</sup>CINVESTAV-IPN, Departamento de Ingeniería Eléctrica- Sección de Electrónica del Estado Sólido.

■ **S7A-P045 GROWTH AND CHARACTERIZATION OF POLYMERIC FILMS FROM BENZENE BY PECVD**

G. Romero-Paredes<sup>1</sup>, R. Peña Sierra<sup>1</sup>, A. Ávila Garcia<sup>1</sup>

<sup>1</sup>CINVESTAV-IPN, Departamento de Ingeniería Eléctrica- Sección de Electrónica del Estado Sólido.

■ **S7A-P046 ZNO THIN FILM DEPOSITED BY ULTRASONIC SPRAY PYROLYSIS TECHNIQUE: THE EFFECT OF MOLARITY PRECURSOR SOLUTION ON THE PHOTOCATALYTIC ACTIVITY**

V.Mata<sup>1</sup>, A.Maldonado<sup>1,2</sup> and M. de la L. Olvera<sup>1,2</sup>

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, México, D. F. <sup>2</sup>Departamento de Ingeniería Eléctrica-

SEES, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, México, D. F.

**ROOM: COZUMEL  
TUESDAY, AUGUST 18**

**Session Chair: UMAPADA PAL, BUAP, PUEBLA, MEXICO**

**Co-Chair: ABDEL HADI KASSIBA, UNIVERSITE DU MAINE, FRANCE**

**08:30 - 09:00 S7A-0018 *Invited Talk* INTEGRATION OF TPVS WITH CVD DIAMOND HEAT SPREADERS FOR HIGH TEMPERATURE OPERATION**

Emma Rentería<sup>1</sup>, Sadvhikas Addamane<sup>1</sup>, Ahmad Mansoori<sup>1</sup>, Darryl Shima<sup>1</sup>, Christopher Hains<sup>1</sup>, Ganesh Balakrishnan<sup>1</sup>

<sup>1</sup>Center for High Technology Materials, University of New Mexico, USA

**09:00 - 09:30 S7A-0019 *Invited Talk* EXTRACTION OF THE EMITTER AND BASE BAND GAPS ENERGIES AND MAIN RECOMBINATION CENTER ENERGY OF A TECHNOLOGICALLY FINISHED (PACKAGED) BIPOLAR TRANSISTOR**

J. Mimila-Arroyo

Cinvestav-Zacatenco, México

**09:30 - 09:45 S7A-0020 LASER-ANNEAL SEEDED SOLID-PHASE CRYSTALLIZATION FOR ULTRA-LOW TEMPERATURE GROWTH OF GERMANIUM-TIN**

R. Matsumura<sup>1,2</sup>, K. Moto<sup>1</sup>, H. Chikita<sup>1</sup>, T. Sadoh<sup>1</sup>, H. Ikenoue<sup>1</sup>, and M. Miyao<sup>1</sup>

<sup>1</sup> Dept. of Electronics, Kyushu University, Nishi-ku, Japan.

<sup>2</sup>JSPS Research Fellow, Japan

**09:45 - 10:00 S7A-0021 NEW METHOD TO EXTRACT THE OHMIC CONTACT SPECIFIC RESISTANCE THROUGH THE TRANSMISSION LINE METHOD SET OF OHMIC COCONTACTS**

J. Mimila-Arroyo, M. Herrera Bernal

Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Dpto. de Ing. Eléctrica-SEES,

**10:00 - 10:30 S7A-0022 *Invited Talk* PHOTOELECTROCHEMICAL PROPERTIES OF ZnO-ZnS CORE-SHELL NANOWIRES PREPARED BY TANDEM ELECTRODEPOSITION AND SURFACE SULFURIZATION**

A. Brayek,<sup>1,2</sup> M. Ghoul,<sup>2</sup> S. Chaguetmi,<sup>1,3</sup> I. Ben Assaker,<sup>2</sup> A. Souissi,<sup>2</sup> R. Chtourou,<sup>2</sup> P. Decorse,<sup>1</sup> H. Lecoq,<sup>1</sup> L. Mouton,<sup>1</sup> S. Nowak,<sup>1</sup> F. Mammeri<sup>1</sup> and S. Ammar<sup>1</sup>

<sup>1</sup>ITODYS, Université de Paris-Diderot, Sorbonne Paris Cité, France. <sup>2</sup>Laboratoire Photovoltaïque, Centre de Recherches et des Technologies de l'Energie - Technopole Borj Cedria, Tunisia. <sup>3</sup>Laboratoire de Céramiques, Université Mentouri, Algeria.

**10:30 - 10:45 S7A-0023 EFFECT OF In<sub>2</sub>O<sub>3</sub> DOPANT ON THE GRAIN MORPHOLOGY AND ELECTRICAL PROPERTIES OF SnO<sub>2</sub> - Co304 - Ta2O<sub>5</sub> BASED VARISTOR CERAMICS**

R.A. Zapata Martínez<sup>1</sup>, M. Olvera-Sánchez<sup>1</sup>, P. Zambrano-Robledo<sup>1</sup>, E. Rodríguez<sup>1</sup>, M.B. Hernández<sup>1</sup>, A.N. Bondarchuk<sup>2</sup> and J.A. Aguilar-Martínez<sup>3</sup>

<sup>1</sup>Universidad Autónoma de Nuevo León (UANL), Facultad de Ingeniería Mecánica y Eléctrica (FIME), Mexico, <sup>2</sup>Universidad Tecnológica de la Mixteca, Departamento de Posgrado; Mexico, <sup>3</sup>Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica, Centro de Investigación e Innovación en Ingeniería Aeronáutica (CIIA); Mexico

**10:45 - 11:00 S7A-0024 ENHANCEMENT OF PM-SI:H FILMS PROPERTIES FOR PHOTOVOLTAIC APPLICATIONS AS SILANE FLUX IS VARIED**

L. Hamui<sup>1,2</sup>, B. M. Monroy<sup>1</sup>, G. Santana<sup>1</sup>, M. López-López<sup>2</sup>

<sup>1</sup> Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México <sup>2</sup> Departamento de Física, Centro de Investigación y Estudios Avanzados del IPN, México DF.

**11:00 - 11:30 COFFEE BREAK**

**11:30 - 12:30 PLENARY LECTURE**

**Session Chair: AMMAR SOUD, UNIVERSITÉ PARIS DIDEROT, FRANCE**

**Co-Chair: JAIME MIMILA, CINVESTAV, MEXICO**

**13:00 - 13:30 S7A-0025 *Invited Talk* SEGREGATION-CONTROLLED RAPID-MELTING GROWTH FOR SIGE-ON-INSULATOR WITH UNIFORM LATERAL COMPOSITION**

R. Matsumura<sup>1,2</sup> T. Sadoh<sup>1</sup>, and M. Miyao<sup>1</sup>

<sup>1</sup> Dept. of Electronics, Kyushu University, Japan, <sup>2</sup> JSPS Research Fellow, Japan



■ **13:30 - 13:45 S7A-0026 DEFECT RELATED PHOTOLUMINESCENCE IN ZNO AND ZNO CU NANOCRYSTALS**

*T.V. Torchynska*<sup>2</sup>, B. El Filali<sup>1</sup> and J.L. Casas Espinola<sup>2</sup>

<sup>1</sup>UPIITA-Instituto Politécnico Nacional, México. <sup>2</sup>ESFM-Instituto Politécnico Nacional, México.

■ **13:45 - 14:00 S7A-0027 APPROACHES TO FIND OUT THE ORIGIN OF WHITE LUMINESCENCE FROM NANOCRYSTALLINE-SILICON**

*A. Dutt*<sup>1</sup>, *Y. Matsumoto*<sup>1,2</sup>, *G. Santana-Rodríguez*<sup>3</sup>, *J Santoyo Salazar*<sup>4</sup>, *S. Godavarthi*<sup>5</sup>

<sup>1</sup>SEES, Electrical Engineering Department, Centro de Investigación y de Estudios Avanzados del IPN, Mexico.



**14:00 - 16:00 LUNCH**



Session Chair: **VIJAY SINGH**  
**UNIVERSITY OF KENTUCKY, USA**



Co-Chair: **ALEX FREUNDLICH**  
**UNIVERSITY OF HOUSTON, USA**

▶ **16:00 - 16:30 S7A-0028 Invited Talk SELF-ASSEMBLY OF PLASMONIC NANOSTRUCTURES FOR APPLICATION AS SERS SUBSTRATES**

*U. Pal*, *D.N. Castillo López*

Instituto de Física, Universidad Autónoma de Puebla, Mexico.

■ **16:30 - 16:45 S7A-0029 THERMAL ANNEALING IMPACT ON STRUCTURAL AND OPTICAL PROPERTIES OF ZNO FILMS GROWN BY ELECTROCHEMICAL TECHNIQUE**

*A.I. Díaz Cano*<sup>1</sup> and *Brahim El Filali*<sup>1</sup>

<sup>1</sup>UPIITA-Instituto Politécnico Nacional, México.

■ **16:45 - 17:00 S7A-0030 ELECTRICAL AND ELECTROLUMINESCENT CHARACTERIZATION OF NON-NORMAL EMISSION OF MULTILAYER SiOX/SiOY OBTAINED BY LPCVD**

*J. Alarcón-Salazar*, *I. E. Zaldívar-Huerta* and *M. Aceves-Mijares*

Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), México

■ **17:00 - 17:15 S7A-0031 OPTICAL AND STRUCTURAL PROPERTIES IN ZNO NANOSTRUCTURES DUE TO CTAB SURFACTANT CONCENTRATIONS**

*Y.A. León-Nataret*<sup>1</sup>, *A. I. Díaz-Cano*<sup>1</sup>, *E. Bravo-González*<sup>1</sup>, *E. Rubio*<sup>2</sup> and *Carlos. A. Camacho O.*<sup>3</sup>

<sup>1</sup>Instituto Politécnico Nacional, UPIITA, México, <sup>2</sup>Benemérita Universidad Autónoma de Puebla, México, <sup>3</sup>Universidad Politécnica del Valle de México, México

■ **17:15 - 17:30 S7A-0032 THE FUNDAMENTAL MECHANISM OF MOLECULAR DOPING FOR ORGANIC SEMICONDUCTORS: INTEGER CHARGE TRANSFER VS HYBRID CHARGE TRANSFER MODEL**

*H. Méndez*<sup>1</sup>, *G. Heime*<sup>5</sup>, *A. Opitz*<sup>5</sup>, *K. Sauer*<sup>5</sup>, *P. Barkowski*<sup>5</sup>, *M. Oehzelt*<sup>2,5</sup>, *J. Soeda*<sup>3</sup>, *T. Okamoto*<sup>3</sup>, *J. Takeya*<sup>3</sup>, *J.B. Arlin*<sup>4</sup>, *J.Y. Balandier*<sup>4</sup>, *Y. Geerts*<sup>4</sup>, *N. Koch*<sup>2,5</sup>, and *I. Salzmänn*<sup>5</sup>

<sup>1</sup>Pontificia Universidad Javeriana, Departamento de Física, (Colombia). <sup>2</sup>Helmholtz Zentrum Berlin für Materialien und Energie – BESSY II, Berlin (Germany). <sup>3</sup>Osaka University, Institute of Scientific and Industrial Research (ISIR), (Japan). <sup>4</sup>Université Libre de Bruxelles (ULB), Chimie des Polymères (Belgium). <sup>5</sup>Humboldt Universität zu Berlin, Institut für Physik, (Germany)

■ **17:30 - 17:45 S7A-0033 CORRELATION OF THE RESISTIVE SWITCHING CHARACTERISTICS OF SILICON-RICH OXIDE (SRO) THIN FILMS AFTER ANNEALING IN N<sub>2</sub> OR N<sub>2</sub>/H<sub>2</sub> ATMOSPHERES**

*Joel Molina*<sup>1</sup>, *Rene Valderrama*<sup>1</sup>, *Carlos Zuniga*<sup>1</sup>, *Wilfrido Calleja*<sup>1</sup>, *F. Javier Wade*<sup>1</sup>, and *Mariano Aceves*<sup>1</sup>

<sup>1</sup>National Institute for Astrophysics, Optics and electronics (INAOE), Mexico

■ **18:30 - 18:45 S7A-0034 CHANGING THE ELECTRICAL CONDUCTIVITY FROM P-TYPE TO N-TYPE WITH THE CONCENTRATION OF ANTIMONY FROM 1.5 TO 0.5 OF THE Bi<sub>2</sub>-XSbTe<sub>3</sub>, THERMOELECTRIC MATERIAL**

*A. Flores*<sup>1</sup>, *M. Ortega-López*<sup>1</sup>, *Y. Matsumoto*<sup>1</sup> and *T. M. Tritt*<sup>2</sup>

<sup>1</sup>Electrical Engineer, Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico <sup>2</sup>Department of Physics and Astronomy Clemson University Clemson



ROOM: TERRACE  
TUESDAY, AUGUST 18

## ▶ 18:30 -20:30 POSTER SESSION &amp; COFFEE BREAK

■ **57A-P047 SYNTHESIS OF Ag-TiO<sub>2</sub> THIN FILMS BY SOL-GEL METHOD FOR APPLICATIONS IN PHOTOCATALYSIS**

S. Rodríguez-Cordova<sup>1</sup>, L.Rojas-Blanco<sup>1</sup>, G. Pérez-Hernández<sup>1</sup>, Omar S. Martínez<sup>2</sup>, L.P. Ramírez-Rodríguez<sup>3</sup>, Erik R. Morales<sup>1</sup>.

<sup>1</sup> Universidad Juárez Autónoma de Tabasco, <sup>2</sup> Centro del Cambio Global y la Sustentabilidad en el Sureste, Villahermosa, Mexico; <sup>3</sup> Departamento de Investigación en Física, Universidad de Sonora, México.

■ **57A-P048 TRANSFORMATION OF PHOTOLUMINESCENCE SPECTRA AT THE LIPOSOMAL ENCAPSULATION OF QUANTUM DOTS**

J. Douda<sup>1</sup>, C.R. González Vargas<sup>1</sup>, A.A Vallejo Cardona<sup>2</sup>, and J.L. Casas Espinola<sup>3</sup>

<sup>1</sup>UPIITA – Instituto Politécnico Nacional, México D. F., México; <sup>2</sup>CIATEJ - Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco, México; <sup>3</sup>ESFM – Instituto Politécnico Nacional, México

■ **57A-P049 SYNTHESIS AND CHARACTERIZATION OF ZnS:Eu NANOPARTICLES FOR PHOTOCATALYSIS APPLICATION**

J.A. Concha-Hernandez<sup>1</sup>, G. Perez-Hernandez<sup>1</sup>, L. Rojas-Blanco<sup>1</sup>, O. Sarracino-Martinez<sup>1</sup>, Erik R. Morales<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, México; <sup>2</sup>Centro del Cambio Global y la Sustentabilidad en el Sureste, Villahermosa, Mexico.

■ **57A-P050 ELECTRICAL AND OPTICAL CHARACTERIZATION OF HETEROJUNCTION IZO/SRO/Si/Al**

Marco Polo González Arroyo<sup>1</sup>, Jesús Alarcón Salazar<sup>1</sup>, Marco Antonio Vásquez Agustín<sup>1</sup>, José Alberto Andraca Adame<sup>4</sup>, Ramón Peña Sierra<sup>3</sup>, Ciro Falcony<sup>2</sup>, Mariano Aceves Mijares<sup>1</sup>

<sup>1</sup> Departamento de Electrónica, Instituto Nacional de Astrofísica, Óptica y Electrónica, México. <sup>2</sup> Departamento de Física, Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional campus Zacatenco, México. <sup>3</sup> Departamento de Ingeniería Eléctrica, Sección de Electrónica del Estado Sólido, Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional campus Zacatenco, México. <sup>4</sup> Centro de Nanociencias y

Micro y Nanotecnologías (CNMN) del Instituto Politécnico Nacional (IPN), México.

■ **57A-P051 PHOTOLUMINESCENCE AND STRUCTURAL PROPERTIES OF Si-RICH SILICON NITRIDE FILMS GROWN BY PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION**

J. A. Bentosa Gutiérrez<sup>1</sup>, J. L. Casas Espinola<sup>2</sup>, A. I. Díaz Cano<sup>1</sup>

<sup>1</sup>UPIITA – Instituto Politécnico Nacional, <sup>2</sup>ESFM – Instituto Politécnico Nacional, México.

■ **57A-P052 STRUCTURAL AND PHOTOLUMINESCENCE PROPERTIES OF ZnO:Er FILMS ON POROUS SILICON CARBIDE**

I. Ch. Ballardo Rodríguez<sup>1</sup>, A. I. Diaz Cano<sup>1</sup>, T.V. Torchynska<sup>2</sup>

<sup>1</sup>UPIITA – Instituto Politécnico Nacional, México. <sup>2</sup>ESFM – Instituto Politécnico Nacional, México

■ **57A-P053 SELF-ASSEMBLED FERROMAGNETIC SEMICONDUCTOR GaMnAs NANOSTRUCTURES GROWN BY MBE**

A. Del Rio-De Santiago<sup>1</sup>, V.H. Méndez-García<sup>1</sup>, C.F. Sánchez-Valdés<sup>2,3</sup>, J.L. Sánchez Llamazares<sup>2</sup>, S. Gallardo-Hernández<sup>4</sup>, J.M. Gutiérrez Hernandez<sup>1</sup>, I. Martínez-Veliz<sup>4</sup>, M. López-López<sup>4</sup>, E. Cruz-Hernández<sup>1</sup>

<sup>1</sup>Laboratorio Nacional-CIACyT, Universidad Autónoma de San Luis Potosí, <sup>2</sup>Instituto Potosino de Investigación Científica y Tecnológica México. <sup>3</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, México. <sup>4</sup>Physics Department, Centro de Investigación y de Estudios Avanzados del IPN, México.

■ **57A-P054 PROPERTIES OF A ZNO/CU2O HETEROJUNCTION FOR PHOTOVOLTAIC DEVICES**

R. Peña Sierra<sup>1</sup>, A.I. Díaz Cano<sup>2</sup>, J. A. Vergara Orozco<sup>2</sup>

<sup>1</sup>Ing. Eléctrica, SEES, Centro de Investigación y Estudios Avanzados, IPN, México, <sup>2</sup>UPIITA-Instituto Politécnico Nacional, México

■ **57A-P055 INFLUENCE OF THE HBr, HI AND H<sub>2</sub>F6Si IN THE SYNTHESIS OF TiO<sub>2</sub> THIN FILMS**

K.E. Morales Flores<sup>1</sup>, J. Santos Cruz<sup>1</sup>, M.C. Arenas Arrocena<sup>2</sup>, F.J. de Moure Flores<sup>1</sup>, Víctor Herrano Badillo<sup>1</sup>, A. Maldonado Alvarez<sup>3</sup> and S.A. Mayén Hernández<sup>1</sup>

<sup>1</sup>Facultad de Química-Materiales, Universidad Autónoma de Querétaro. México. <sup>2</sup>Escuela Nacional de Estudios Superiores Unidad León, UNAM, León Guanajuato, México <sup>3</sup>Departamento de Ingeniería Eléctrica-SEES, Centro de Investigación y de Estudios Avanzados del IPN, México



■ **57A-P056 ENGINEERING THE ELECTRICAL CONDUCTANCE AT NANOSCALE: THE U-SHAPED APPROACH**

J. A. León-Gil<sup>a</sup>, L. Licea-Jiménez<sup>a,b</sup>, S. A. Pérez-García<sup>a,b</sup>, J. Alvarez-Quintana<sup>a,b</sup>

<sup>a</sup>Centro de Investigación en Materiales Avanzados S.C. <sup>b</sup>Genes-Group of Embedded Nanomaterials for Energy Scavenging, CIMAV Unidad Monterrey, México

■ **57A-P057 EFFECTS OF THE ANNEALING ATMOSPHERE AND TEMPERATURE ON THE OPTICAL, STRUCTURAL AND ELECTRICAL PROPERTIES OF SiO<sub>x</sub> THIN FILMS**

M.A. Curriel<sup>1</sup>, N. Nedev<sup>1</sup>, D. Nesheva<sup>2</sup>, E. Manolov<sup>2</sup>, B. Valdez<sup>1</sup>, A. Lizarraga<sup>1</sup>, O.M. Perez<sup>1</sup>, D. Mateos<sup>1</sup>, A. Arias<sup>1</sup>, R. Herrera<sup>1</sup>, O.E. Contreras<sup>3</sup> and J.M. Siqueiros<sup>3</sup>

<sup>1</sup>Instituto de Ingeniería, Universidad Autónoma de Baja California, Mexicali, Baja California, México, <sup>2</sup>Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria, <sup>3</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, Baja California, México.

■ **57A-P058 NEXT GENERATION POLLUTION DETECTION SENSOR**

J. Vinoth Kumar, Y. Matsumoto, A. Maldonado, M. Olvera

Departamento de Ingeniería Eléctrica-Sección de Electrónica del Estado Sólido, CINVESTAV-IPN, México.

■ **57A-P059 COMPARATIVE STUDY OF THE OPTICAL AND STRUCTURAL PROPERTIES OF SILICON RICH OXIDE FILMS OBTAINED BY CVD TECHNIQUES**

K. Monfil-Leyva<sup>1</sup>, E. Ojeda-Durán<sup>1</sup>, A. Benítez<sup>1</sup>, J. Carrillo-López<sup>1</sup>, A.L. Muñoz-Zurita<sup>2</sup>, J.A. Luna-López<sup>1</sup>

<sup>1</sup>IC-CIDS Benemérita Universidad Autónoma de Puebla, México, <sup>2</sup>Universidad Politécnica Metropolitana de Puebla,

■ **57A-P060 ULTRASOUND ASSISTED PREPARATION OF NICKEL SULFIDE NANOPARTICLES IN IONIC LIQUID/WATER**

M.C. García de León<sup>1</sup>, S.M. de la Parra-Arciniega<sup>1</sup>, N.A. García-Gómez<sup>1</sup>, E.M. Sánchez-Cervantes<sup>1</sup>

<sup>1</sup>Laboratorio de Materiales para el Almacenamiento y Conversión de Energía, Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, N.L., México

■ **57A-P061 NANOSTRUCTURED VO<sub>2</sub>-POROUS SILICON COMPOSITE: STRUCTURAL, THERMOCHROMIC AND OPTICAL PROPERTIES**

E.E. Antunez<sup>1</sup>, U. Kuri<sup>1</sup>, J.O. Estevez<sup>1</sup>, J. Campos<sup>2</sup>, M.A. Basurto<sup>1</sup>, V. Agarwal<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas, UAEM, México, <sup>2</sup>Instituto de Energías Renovables, UNAM, México.

■ **57A-P062 PHYSICAL CHARACTERISTICS IN CHEMICALLY SPRAYED ZnO:Al THIN SOLID FILMS**

E. Velázquez-Lozada<sup>1</sup>, L. Castañeda<sup>2</sup>, E. Austria-Aguilar<sup>2</sup>, M. Camacho-González<sup>3</sup>

<sup>1</sup>SEPI – ESIME – Instituto Politécnico Nacional, México, <sup>2</sup>ESIME Ticomán – Instituto Politécnico Nacional, México, <sup>3</sup>ESIME – Instituto Politécnico Nacional, México

■ **57A-P063 EFFECT OF HYDROTHERMAL CONDITIONS ON THE SEMICONDUCTOR PROPERTIES OF Dy- and Ho-BiFeO<sub>3</sub> MULTIFERROICS**

C. Ostos<sup>1</sup>, O. Raymond<sup>2</sup>, J.G. García-Posada<sup>1</sup>, A. Santacruz<sup>1</sup>, O. Arnache<sup>3</sup>, O. Jaime-Acuña<sup>2</sup>, J. M. Siqueiros<sup>2</sup>

<sup>1</sup>Grupo CATALAD, Instituto de Química, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia, Medellín, Colombia. <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, Mexico. <sup>3</sup>Grupo GES, Instituto de Física, Facultad de Ciencias Exactas y Naturales, Universidad de Antioquia, Medellín, Colombia.

■ **57A-P064 SYNTHESIS OF A GLASS CERAMIC MATERIAL IN THE BaO-TiO<sub>2</sub>-Ta<sub>2</sub>O<sub>5</sub>-B<sub>2</sub>O<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub> SYSTEM BY THE FUSION-FORMING-CRYSTALLIZING TECHNIQUE**

Sánchez-Vázquez, A.I.<sup>1</sup>, Ruiz-Valdés, J.J.<sup>1,2</sup>, Álvarez-Méndez, A.<sup>1</sup>, De la Parra Arciniega, S. M.<sup>1</sup>, Ibarra-Rodríguez, J.<sup>1</sup>

<sup>1</sup>Facultad de Ciencias Químicas, Laboratorio de Materiales III, Universidad Autónoma de Nuevo León. México. <sup>2</sup>Centro de Investigación, Innovación y Desarrollo en Ingeniería y Tecnología CIIDIT – Universidad Autónoma de Nuevo León, México.

■ **57A-P065 EFFECTS OF MICROWAVES IN THE POLYMERIZATION OF POLYPYRROLE NANOPARTICLES**

C. H. García-Escobar<sup>1</sup>, M. E. Nicho-Díaz<sup>1</sup>, J. Escalante-García<sup>2</sup> and P.Altuzar-Coello<sup>2</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias Aplicadas y <sup>2</sup>Centro de Investigaciones Químicas (CIQ) de la Universidad Autónoma del Estado de Morelos (UAEM)

■ **57A-P066 ENHANCED FIGURE OF MERIT OF (Al, In) CODOPED ZnO THIN FILMS FOR TCO APPLICATIONS**

**J. Vinoth Kumar, Y. Matsumoto, A. Maldonado, M. de la L. Olvera**

Departamento de Ingeniería Eléctrica-Sección de Electrónica del Estado Sólido, CINVESTAV-IPN, México.

■ **S7A-P067 PHOTOCATALYTIC AND GAS SENSING APPLICATION OF TiO<sub>2</sub> FILMS PREPARED BY DOCTOR BLADE METHOD**

**J. Morales<sup>1</sup>, A. Maldonado<sup>1,2</sup>, and Olvera, M. de la L.<sup>1,2</sup>**

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, CINVESTAV-IPN, México. <sup>2</sup>Departamento de Ingeniería Eléctrica-Sección de Electrónica del Estado Sólido, CINVESTAV-IPN, México.

■ **S7A-P068 EXCITATION OF SURFACE PLASMONS ON GRAPHENE VIA ATR TECHNIQUE AND OPTICAL RESPONSE OF GRAPHENE-BASED MULTILAYER STRUCTURES FOR BOTH TM AND TE POLARIZATION**

**J. Alejandro Hernández-López<sup>1</sup>, Martha A. Palomino-Ovando<sup>1</sup> and Felipe Ramos-Mendieta<sup>2</sup>**

<sup>1</sup>Facultad de Ciencias Físico-Matemáticas, Benemérita Universidad Autónoma de Puebla, México. <sup>2</sup>Centro de investigación en Física, Universidad de Sonora, México.

■ **S7A-P069 CHEMICAL BATH DEPOSITION OF ZNO THIN FILMS AND THEIR APPLICATION IN FIELD EFFECT TRANSISTORS**

**C. Camacho-Alcántar<sup>1</sup>; R. Bernal<sup>2</sup>; D. Berman-Mendoza<sup>2</sup>; C. Cruz-Vázquez<sup>1</sup>; V.M. Castaño<sup>3</sup>**

<sup>1</sup> Departamento de Investigación en Polímeros y Materiales, Universidad de Sonora, México. <sup>2</sup> Departamento de Investigación en Física, Universidad de Sonora, México. <sup>3</sup> Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México,

■ **S7A-P070 ELECTROCHEMICAL DEPOSITION AND CHARACTERIZATION OF IRON DISELENIDE THIN FILMS**

**Sethuramachandran Thanikaikarasan<sup>1</sup>, Muthu Raja<sup>2</sup>, Thaiyan Mahalingam<sup>3</sup>, Subramaniam Velumani<sup>4</sup>**

<sup>1</sup>Centre for Scientific and Applied Research, School of Basic Engineering and Sciences, PSN College of Engineering and Technology, India. <sup>2</sup>Department of Physics, Kalasalingam University, India. <sup>3</sup>Department of Electrical and Computer Engineering, Republic of Korea. <sup>4</sup>Centro de Investigación y de Estudios Avanzados del I.P.N.(CINVESTAV), Mexico D.F.

■ **S7A-P071 STRUCTURAL AND MORPHOLOGICAL PROPERTIES OF COPPER, PLATINUM AND PALLADIUM DOPED TIN OXIDE (SnO<sub>2</sub>) PELLETS**

**T.V.K. Karthik<sup>1</sup>, M. de la L. Olvera<sup>1</sup>**

<sup>1</sup>Departamento de Ingeniería Eléctrica-SEES, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, México.

■ **S7A-P072 DETERMINATION OF AL CONCENTRATION IN ZnO:Al THIN FILMS PREPARED BY SOL-GEL METHOD BY USING UV-VIS SPECTROSCOPY AND CHEMOMETRICS**

**C.A. Mercado-Ornelas<sup>1</sup>, J.J. Araiza<sup>1</sup>, J.J. Ortega-Cigala<sup>1</sup>, F. Puch<sup>1</sup>, C. Araujo-Andrade<sup>1</sup> and H. Tototzintle-Huitle<sup>1</sup>**

<sup>1</sup>Unidad Académica de Física, Universidad Autónoma de Zacatecas, México

■ **S7A-P073 PREPARATION OF ZINC OXIDE NANOPARTICLES IN W/O MICROEMULSIONS**

**Ana María Pineda Reyes<sup>1</sup>, M. de la L. Olvera<sup>1,2</sup>**

<sup>1</sup>Programa de Doctorado en Nanociencias y Nanotecnología, Centro de Investigación y de Estudios Avanzados del IPN, CINVESTAV-IPN, México. <sup>2</sup>Departamento de Ingeniería Eléctrica-SEES, Centro de Investigación y de Estudios Avanzados del IPN, CINVESTAV-IPN, México.

■ **S7A-P074 GAS SENSING AND PHOTOCATALYTIC PROPERTIES OF DOPED-ZINC OXIDE FILMS**

**M. de la L. Olvera, A. Maldonado**

Departamento de Ingeniería Eléctrica-SEES, Centro de Investigación y de Estudios Avanzados del IPN, CINVESTAV-IPN, México.

■ **S7A-P075 FREQUENCY MODULATOR BY EMPLOYING AN INDIUM DOPED CdS THIN FILM**

**José Antonio Dávila Pintle<sup>1</sup> and Edmundo Reynoso Lara<sup>1</sup>**

<sup>1</sup>Benemérita Universidad Autónoma de Puebla Facultad de Ciencias de la Electrónica, México.

■ **S7A-P076 BIOLOGICAL SYNTHESIS OF SEMI-CONDUCTING BISMUTH VANADATE (BIVO<sub>4</sub>) PHOTOCATALYSTS**

**Goldie Oza<sup>1</sup>, Victor-Ishrayelu Merupo<sup>1,3</sup>, M. Ravichandran<sup>2</sup>, A. Kassiba<sup>3</sup>, S. Velumani<sup>1,2</sup>**

<sup>1</sup>Department of Electrical Engineering-SEES, <sup>2</sup>Program on Nanoscience & Nanotechnology, CINVESTAV-IPN, Zacatenco, Mexico D.F. <sup>3</sup>Institute of Molecules & Materials of Le Mans, Université du Maine, Le Mans, France.

■ **S7A-P077 GREEN SYNTHESIS OF METAL SULFIDE SEMI-CONDUCTING NANOCRYSTALS**

**M. Ravichandran<sup>1</sup>, Goldie Oza<sup>2</sup>, Jose Tapia Ramirez<sup>3</sup>, S. Velumani<sup>1,2</sup>**



<sup>1</sup>Program on Nanoscience & Nanotechnology,  
<sup>2</sup>Department of Electrical Engineering-SEES, <sup>3</sup>Department  
of Genetics & Molecular Biology, CINVESTAV-IPN,  
Zacatenco, Mexico D.F.

■ **S7A-P078 ONE-POT SYNTHESIS OF CuInSe2  
NANOSTRUCTURES FOR SOLAR CELL APPLICATIONS**

M. Latha<sup>1</sup>, R. Aruna Devi<sup>1</sup>, P. Reyes-Figueroa<sup>2</sup>, M. Rohini<sup>2</sup>,  
Goldie Oza<sup>2</sup> and S. Velumani<sup>1,2</sup>

<sup>1</sup>Program on Nanoscience and  
Nanotechnology, <sup>2</sup>Department of Electrical Engineering  
(SEES), CINVESTAV-IPN, Mexico D.F.

■ **S7A-P079 FABRICATION OF OHMIC CONTACTS ON  
P-TYPE GaN**

Y. Kudriavtsev<sup>1</sup>, E. Mota<sup>2</sup>, G. Ramirez<sup>1</sup>, M. Avendaño<sup>1</sup>,  
C. Hernandez<sup>1</sup>

<sup>1</sup> Departamento Ingeniería Eléctrica - SEES, Cinvestav - IPN,  
México. <sup>2</sup> Departamento de Comunicaciones y Electrónica,  
ESIME, IPN, México

■ **S7A-P080 PHYSICAL AND PHYSICO-CHEMICAL  
PROPERTIES OF (TlGaS2)1-x(TlInSe2)x**

S.N. Mustafaeva<sup>1</sup>, M.M. Asadov<sup>2</sup>

<sup>1</sup>Institute of Physics, National Academy of Sciences of  
Azerbaijan; <sup>2</sup>Institute of Catalysis and Inorganic Chemistry,  
National Academy of Sciences of Azerbaijan,

■ **S7A-P081 QUANTUM WELL HETEROSTRUCTURES  
DOPED WITH SINGLE MANGANESE-BASED δ-LAYER**

K. Moiseev<sup>1</sup>, V. Nevedomsky<sup>1</sup>, R. Zolotareva<sup>1</sup>, Yu.  
Kudriavtsev<sup>2</sup>, A. Escobosa<sup>2</sup>, S. Gallardo<sup>2</sup>, M. Lopez-Lopez<sup>2</sup>

<sup>1</sup>Ioffe Institute, Russia, <sup>2</sup>CINVESTAV-IPN, Mexico D.F., Mexico

■ **S7A-P082 TIME DEPENDENT CZTS NANOCRYSTAL  
SYNTHESIS BY THERMAL DECOMPOSITION METHOD**

R. Aruna Devi<sup>1,3</sup>, M. Latha<sup>1</sup>, Minha Kim<sup>3</sup>, Donguk Kim<sup>3</sup>,  
Wonkyu Chae<sup>3</sup>, Jae-Hyeong Lee<sup>3</sup>, Goldie Oza<sup>2</sup>, Junsin Yi<sup>4</sup>  
and S. Velumani<sup>1,2</sup>

<sup>1</sup>Program on Nanoscience and Nanotechnology,  
<sup>2</sup>Department of Electrical Engineering (SEES), CINVESTAV-  
IPN, Mexico D.F. <sup>3</sup>Energy & Nano Photovoltaics Lab,  
School of Electronic and Electrical Engineering, <sup>4</sup>School  
of Information and Communication Engineering,  
Sungkyunkwan University, Cheoncheon-dong, Jangan-gu,  
Suwon, Kyeonggi-do, South Korea.

■ **S7A-P083 SYNTHESIS AND CHARACTERIZATION OF  
CZTS NANOCRYSTALS BY THERMAL DECOMPOSITION  
METHOD**

R. Aruna Devi<sup>1,3</sup>, M. Latha<sup>1</sup>, Minha Kim<sup>3</sup>, Donguk Kim<sup>3</sup>,  
Wonkyu Chae<sup>3</sup>, Jae-Hyeong Lee<sup>3</sup>, Goldie Oza<sup>2</sup>, Junsin Yi<sup>4</sup>  
and S. Velumani<sup>1,2</sup>

<sup>1</sup>Program on Nanoscience and Nanotechnology,  
<sup>2</sup>Department of Electrical Engineering (SEES), CINVESTAV-  
IPN, Mexico D.F. <sup>3</sup>Energy & Nano Photovoltaics Lab, School  
of Electronic and Electrical Engineering, <sup>4</sup>School  
of Information and Communication Engineering,  
Sungkyunkwan University, Cheoncheon-dong, Jangan-gu,  
Suwon, South Korea.

■ **S7A-P084 COMBINED RAMAN CONFOCAL AND AFM  
MICROSCOPY STUDIES OF SILICON IMPLANTED ON  
GERMANIUM CRYSTALS**

A.G. Hernández, E. Mota, Yu. Kudriavtsev

Departamento de Ingeniería Eléctrica-SEES, Centro  
de Investigación y de Estudios Avanzados del Instituto  
Politécnico Nacional, CINVESTAV-IPN, D. F., México.

■ **S7A-P085 DFT COMPUTER SIMULATION OF ORGANIC  
SEMICONDUCTORS**

O.J. Hernández-Ortiz<sup>1</sup>, K. Alemán-Ayala<sup>1</sup>, A.I. Martínez-  
Pérez<sup>2</sup>, O. Coreño-Alonso<sup>3</sup>, A. Espinosa-Roa<sup>4</sup>, J.M. Vásquez-  
Pérez<sup>1</sup>, J. Cruz-Borbolla<sup>1</sup>, R.A. Vázquez-García<sup>1</sup>

<sup>1</sup>Universidad Autónoma del Estado de Hidalgo. Área  
Académica de Ciencias de la Tierra y Materiales, Área  
Académica de Computación y Electrónica y Área  
Académica de Química. Cd. Universitaria, Pachuca,  
Hgo., México. <sup>2</sup>Universidad Politécnica de Pachuca,  
México. <sup>3</sup>Universidad de Guanajuato, Departamento de  
Ing. Civil, Guanajuato, Guanajuato, México. <sup>4</sup>Centro de  
Investigaciones en Óptica México

■ **S7A-P086 VANADIUM DIOXIDE NANOCRYSTALS  
NUCLEATED IN SQUARE SHAPED MACRO-POROUS  
SILICON STRUCTURES**

E.E. Antunez<sup>1</sup>, U. Kuri<sup>1</sup>, J.O. Estevez<sup>1</sup>, R. Silva<sup>2</sup>, V. Agarwal<sup>1</sup>

<sup>1</sup>Centro de Investigación en Ingeniería y Ciencias  
Aplicadas, UAEM, México. <sup>2</sup>Instituto de Física Luis Rivera  
Terrazas, BUAP, México

■ **S7A-P087 OPTICAL AND ELECTROCHEMICAL  
PROPERTIES OF OLIGOPHENYLIMINES**

R. A. Vázquez García<sup>1</sup>, A. I. Martínez Pérez<sup>2</sup>, O. Coreño-  
Alonso<sup>3</sup>, J. Coreño-Alonso<sup>1</sup>, A. M. Herrera-González<sup>1</sup>, K.  
Alemán-Ayala<sup>1</sup>, G. Luna-Bárceñas<sup>4</sup>, I. Moggio<sup>5</sup>, E. Arias<sup>5</sup>, B.  
Romero<sup>6</sup>.

<sup>1</sup>Universidad Autónoma del Estado de Hidalgo. Área  
Académica de Ciencias de la Tierra y Materiales, Área  
Académica de Computación y Electrónica, Pachuca,

Hgo., México, <sup>2</sup>Universidad Politécnica de Pachuca, México, <sup>3</sup>Depto. Ing. Civil, Universidad de Guanajuato, México, <sup>4</sup>Centro de Investigación y de Estudios Avanzados del I. P. N. México, <sup>5</sup> Centro de Investigación en Química Aplicada, México. <sup>6</sup> Universidad Rey Juan Carlos, Madrid, España.

■ **S7A-P088 SIMS DEPTH PROFILING WITH THE ULTIMATE DEPTH RESOLUTION**

Y. Kudriavtsev, A. Hernandez, R. Asomoza

Departamento Ingeniería Eléctrica - SEES, Cinvestav- IPN, México

■ **S7A-P089 ZNO:IN HEXAGONAL SLICES BY CONTROLLED HYDROLYSIS**

R.R. Biswal<sup>1</sup>, A. Maldonado<sup>2</sup>, M. de la L. Olvera<sup>2</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México, México. <sup>2</sup>Departamento de Ingeniería Eléctrica, CINVESTAV-IPN, México D.F

■ **S7A-P090 ELECTROCHROMIC PROPERTIES OF WO<sub>3</sub> THIN FILMS DEPOSITED BY RF MAGNETRON SPUTTERING**

E.J. Hernández-Rubio<sup>1</sup>, M. Morales-Luna<sup>1</sup>, G.A. Ayala-Sanchez<sup>2</sup>, V. Cruz-San Martín<sup>2</sup>, M. Pérez-González<sup>1</sup>, M.A. Arvizu<sup>1</sup>, J. Santoyo-Salazar<sup>1</sup>, S.A. Tomás<sup>1</sup>

<sup>1</sup>Departamento de Física, Centro de Investigación y de Estudios Avanzados del I.P.N., México. <sup>2</sup>ESFM- IPN, Av. Instituto Politécnico Nacional México.



## Symposium 7B

# FUNCTIONAL MAGNETIC MATERIALS FOR ELECTRICAL MACHINES AND POWER ELECTRONICS

**William McCallum** / USA / AMES Laboratory

**Jun Cui** / USA / Pacific Northwest National Laboratory

**Ichiro Takeuchi** / USA / University of Maryland

**José Andrés Matutes Aquino** / MEXICO / Physics Department, Advanced Materials Research Center, S.C. (CIMAV)

ROOM: TIKAL  
TUESDAY, AUGUST 18

 Session Chair: **JUN CUI** (AMES LAB/IOWA STATE UNIVERSITY)

■ **09:30 - 09:45 S7B-0001 Elements-Strategic Research toward New Permanent Magnets**

Satoshi Hirose

Elements Strategy Initiative Center for Magnetic Materials, National Institute for Materials Science

▶ **10:00 - 10:30 I S7B-0002 Invited Talk ANISOTROPY IN PERMANENT-MAGNET MATERIALS**


R. Skomski<sup>1</sup>, P. Manchanda<sup>1</sup>, B. Balamurugan<sup>1</sup>, and D. J. Sellmyer<sup>1</sup>

<sup>1</sup>Department of Physics and Astronomy and Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln.

▶ **10:30 - 11:00 S7B-0003 Invited Talk PRACTICAL CONSIDERATIONS FOR ACHIEVING HIGH DEGREE OF ALIGNMENT IN ANISOTROPIC BONDED MAGNETS**

I.C. Nlebedim<sup>1</sup>, H. Ucar<sup>2</sup>, M. P. Paranthaman<sup>2</sup>, and R. W. McCallum<sup>1</sup>

<sup>1</sup>Critical Materials Institute, Ames Laboratory, Ames, USA, <sup>2</sup>Oak Ridge National Laboratory, Oak Ridge, USA.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **ICHIRO TAKEUCHI** (UNIVERSITY OF MARYLAND)

▶ **12:30 - 13:00 S7B-0004 Invited Talk DISCOVERING NEW HARD MAGNETS BY BULK HIGH-THROUGHPUT EXPERIMENTATION**

G. Schneider<sup>1</sup>, D. Goll<sup>1</sup>, J. Herbst<sup>1</sup>, R. Karimi<sup>1</sup>, R. Loeffler<sup>1</sup>, U. Pflanz<sup>1</sup>, R. Stein<sup>1</sup>

<sup>1</sup>Aalen University, Materials Research Institute, Germany

▶ **13:00 - 13:30 S7B-0005 Invited Talk A THEORETICAL SEARCH FOR NEW PERMANENT MAGNETS**

V.P. Antropov<sup>1</sup>, K.D. Belashchenko<sup>2</sup>, L. Ke<sup>1</sup>, V.N. Antonov<sup>1</sup>

<sup>1</sup>Ames Laboratory, Ames, IA, USA, <sup>2</sup>University of Nebraska, Lincoln, NE, USA

▶ **13:30 - 14:00 S7B-0006 Invited Talk COMBINATORIAL SEARCH FOR RARE-EARTH-FREE PERMANENT MAGNETS: COMPARISON OF THIN FILM TO BULK FE-CO-V VICALLOYS**

S. W. Fackler<sup>1</sup>, V. Alexandrakis<sup>2</sup>, T. Gao<sup>1</sup>, G. A. Kusne<sup>3</sup>, L. Fang<sup>1</sup>, D. Stasak<sup>1</sup>, A. Ludwig<sup>2</sup>, I. Takeuchi<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, University of Maryland, College Park, USA, <sup>2</sup>Institut für Werkstoffe, Ruhr-Universität Bochum, Germany, <sup>3</sup>National Institute of Standards and Technology, Gaithersburg, USA.

 **14:00 - 16:00 LUNCH**

 Session Chair: **VLADIMIR ANTROPOV** (AMES LAB)

▶ **16:00 - 16:30 S7B-0007 *Invited Talk* DEMANDS AND TRENDS ON MAGNETIC MATERIALS IN ELECTRICAL MOTORS AND GENERATORS AN INDUSTRIAL PERSPECTIVE**

Darren D. Tremelling<sup>1</sup>

<sup>1</sup>ABB Corporate Research,

▶ **16:30 - 17:00 S7B-0008 *Invited Talk* MAGNETIC SUBLATTICES IN Sc-SUBSTITUTED BARIUM HEXAFERRITE INVESTIGATED BY FERROMAGNETIC SPIN RESONANCE**

R. Díaz-Pardo<sup>1</sup>, S. Bierlich<sup>2</sup>, G. Vázquez-Victorio<sup>1</sup>, J. Töpfer<sup>2</sup> and R. Valenzuela<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México D.F., México. <sup>2</sup>Ernst-Abbe-Hochschule Jena, University of Applied Sciences Jena, Germany

▶ **17:00 - 17:30 S7B-0009 *Invited Talk* IRON BORON NITRIDE - NOVEL MAGNETIC NANOCERAMIC FOR HIGH FREQUENCY APPLICATION**

K. Oganisian<sup>1</sup>, P. Gluchowski<sup>1</sup>, K. Orzechowski<sup>2</sup>, A. Vogt<sup>2</sup> and W. Strek<sup>1</sup>

<sup>1</sup>Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Poland. <sup>2</sup>Faculty of Chemistry, Wrocław University, Poland.

Department of Energy, USA, <sup>3</sup> Electron Energy Corporation, Landisville, USA, <sup>4</sup> Department of Materials Science and Engineering, University of Maryland, College Park, USA, <sup>5</sup> Department of Physics, University of Texas at Arlington, USA

▶ **10:30 - 11:00 S7B-0012 *Invited Talk* SUBMICRON R2Fe14B PARTICLES**

O. Koylu-Alkan<sup>1</sup>, J. M. Barandiaran<sup>2,3</sup>, D. Salazar<sup>2</sup>, G. C. Hadjipanayis<sup>1</sup>

<sup>1</sup>Department of Physics and Astronomy, University of Delaware, Newark, DE, USA, <sup>2</sup>BCMaterials, Technology Park of Biscay Derio, Spain, <sup>3</sup>Dept. Electricity & Electronics, Univ. Basque Country (UPV/EHU) Bilbao, Spain.

☐ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

👤 Session Chair: **BILL MCCALLUM (AMES LAB)**

▶ **12:30 - 13:00 S7B-0013 *Invited Talk* PREDICTING THE STRUCTURES OF NON RARE EARTH MAGNETIC MATERIALS BY COMPUTATIONAL APPROACHES**

C. Z. Wang<sup>1,2</sup>, X. Zhao<sup>1,2</sup>, M. C. Nguyen<sup>1,2</sup>, L. Q. Ke<sup>1</sup>, M. J. Kramer<sup>1</sup>, D. J. Sellmyer<sup>1</sup>, V. P. Antropov<sup>1</sup>, I. Takeuchi<sup>1</sup>, and K. M. Ho<sup>1,2</sup>

<sup>1</sup>Ames Laboratory – US Department of Energy, Ames, USA. <sup>2</sup> Department of Physics and Astronomy, Iowa State University, Ames, USA. <sup>3</sup>Nebraska Center for Materials and Nanoscience and Department of Physics and Astronomy, University of Nebraska, Lincoln, USA. <sup>4</sup> Department of Materials Science and Engineering, University of Maryland, College Park, USA

▶ **13:00 - 13:30 S7B-0014 *Invited Talk* MICROSTRUCTURAL EVOLUTION IN ALNICO ALLOYS**

L. Zhou<sup>1</sup>, W. Tang<sup>1</sup>, R.W. McCallum<sup>1</sup>, I. E. Anderson<sup>1</sup>, and M. J. Kramer<sup>1</sup>

<sup>1</sup>Ames Lab, Ames.

▶ **13:30 - 14:00 S7B-0015 *Invited Talk* MAGNETO-OPTICAL KERR EFFECT (MOKE) INVESTIGATION OF MICRO-SCALE MAGNETIC PINNING IN ALNICO MAGNETS**

A. Palasyuk<sup>1</sup>, R. Prozorov<sup>1</sup>, R.W. McCallum<sup>1</sup>, and I.E. Anderson<sup>1</sup>

<sup>1</sup>Ames Laboratory (USDOE) Wilhelm Hall, Iowa State University, DMSE, Ames, USA.

✕ **14:00- 16:00 LUNCH**

ROOM: TIKAL  
WEDNESDAY, AUGUST 19

👤 Session Chair: **RALPH SKOMSKI (UNIVERSITY OF NEBRASKA)**

▶ **09:30 - 10:00 S7B-0010 *Invited Talk* MAGNETIC ANISOTROPY IN IRON-DOPED LITHIUM NITRIDE - 3d STRONGER THAN 4f**

A. Jesche<sup>1</sup>, S. Thimmaiah S<sup>1</sup>, R.W. McCallum<sup>1</sup>

<sup>1</sup>The Ames Laboratory, Iowa State University, USA

▶ **10:00 - 10:30 I S7B-0011 *Invited Talk* DEVELOPMENT OF MNBI BASED PERMANENT MAGNET**

J Cui<sup>2</sup>, E Polikarpov<sup>1</sup>, M J Kramer<sup>2</sup>, D D Johnson<sup>2</sup>, M Marinescu<sup>3</sup>, I Takeuchi<sup>4</sup>, and J P Liu<sup>5</sup>

<sup>1</sup> Energy and Environment Directorate, Pacific Northwest National Laboratory, Richland, USA, <sup>2</sup> Division of Materials Science and Engineering, Ames Laboratory/U.S.



ROOM: TERRACE  
WEDNESDAY, AUGUST 19

▶ 18:30 -20:30 POSTER SESSION & COFFEE BREAK

■ **S7B-P001 DENSITY FUNCTIONAL THEORY ANALYSIS OF MAGNETIC, STRUCTURAL AND ELECTRONIC PROPERTIES OF THE Ba<sub>2</sub>TiMnO<sub>6</sub> COMPLEX PEROVSKITE**

C.E. Deluque Toro<sup>1</sup>, D.A. Landínez Téllez<sup>2</sup> and J. Roa-Rojas<sup>2</sup>

<sup>1</sup>Grupo de Nuevos Materiales, Facultad de Ingeniería, Universidad de la Guajira, Riohacha, Colombia. <sup>2</sup>Grupo de Física de Nuevos Materiales, Departamento de Física, Universidad Nacional de Colombia, Colombia.

■ **S7B-P002 MAGNETIC CHARACTERIZATION OF Mn<sub>3-x</sub>Ga MELT-SPUN RIBBONS AND BULK ALLOYS**

C. F. Sánchez-Valdés<sup>1,2</sup>, R. San Juan-Farfán<sup>1</sup>, M. Morales-Cruz<sup>1</sup>, D. Ríos-Jara<sup>1</sup>, H. Flores-Zúñiga<sup>1</sup>, J. L. Sánchez Llamazares<sup>1</sup>

<sup>1</sup>Instituto Potosino de Investigación Científica y Tecnológica A.C., México. <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, México.

■ **S7B-P003 STUDY OF THE ELASTIC PROPERTIES, ELECTRONIC STRUCTURE AND MAGNETIC, OF THE Ba<sub>2</sub>NiMoO<sub>6</sub> COMPLEX PEROVSKITE BY MEANS OF FIRST-PRINCIPLES CALCULATIONS**

C.E. Deluque Toro<sup>1</sup>, S. Zambrano Rojas<sup>2</sup>, D.A. Landínez Téllez<sup>3</sup> and J. Roa-Rojas<sup>3</sup>

<sup>1</sup>Grupo de Nuevos Materiales, Departamento de Física, Universidad de la Guajira, Riohacha, Colombia. <sup>2</sup>Grupo de Investigación en Física del estado sólido, Universidad de la Guajira, Riohacha, Colombia. <sup>3</sup>Grupo de Física de Nuevos Materiales, Departamento de Física, Universidad Nacional de Colombia, Colombia.

■ **S7B-P004 COERCIVE GLOBAL MODEL AND ACTIVATION VOLUMES IN HEXAFERRITES**

J. C. Faloh-Gandarilla<sup>1</sup>, S. Díaz-Castañón<sup>1,2</sup>, B. E. Watts<sup>3</sup>

<sup>1</sup>Lab. Magnetismo, Facultad Física- IMRE, Universidad de La Habana, Cuba. <sup>2</sup>División Materiales Avanzados, IPICyT, México. <sup>3</sup>IMEM-CNR, Italy.

## Symposium 7C

# MAGNETISM AND SUPERCONDUCTIVITY IN NEW MATERIALS

Ivan K. Schulle / USA / UCSD

Roberto Escudero / MEXICO / Universidad Nacional Autónoma de México

E. Dan Dahlberg / USA / School of Physics and Astronomy, University of Minnesota

ROOM: UXMAL I  
MONDAY, AUGUST 17

► **09:00 - 09:15 S7C-0001 *Invited Talk* SUPERCONDUCTING MULTILAYERS AND THEIR APPLICATION TO RF ACCELERATOR CAVITIES**

R. A. Lukaszew<sup>1</sup>, M C. Burton<sup>1</sup>, L. Phillips<sup>2</sup>, C. Reece<sup>2</sup>

<sup>1</sup>Physics Department, College of William and Mary, Williamsburg, USA, <sup>2</sup>SRF Institute, Thomas Jefferson National Accelerator Facility,

■ **09:15 - 09:30 S7C-0002 EXCHANGE BIAS IN FERRITE-OXIDE NANOPARTICLES**

N. Flores-Martínez<sup>1,2</sup>, T. Gaudisson<sup>2</sup>, S. Nowak<sup>2</sup>, S. Ammar<sup>2</sup> and R. Valenzuela<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México. <sup>2</sup>ITODYS, Université de Paris-Diderot, PRES Sorbonne Paris Cité, France.

► **09:30 - 09:45 S7C-0003 *Invited Talk* ELECTRONIC AND CRYSTALLINE STRUCTURE OF Co- AND Se-SUBSTITUTED FeSe**

I. Perez<sup>1</sup>, J. Mcleod<sup>2</sup>, A. Moewes<sup>2</sup>, R. Green<sup>2</sup>, R. Escamilla<sup>3</sup>, V. Ortíz<sup>3</sup> and J. E. Trinidad-Galindo<sup>1</sup>

<sup>1</sup>Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, <sup>2</sup>Universidad de Saskatchewan, Department of Physics and Engineering Physics, <sup>3</sup>Universidad Nacional Autónoma de México, Instituto de Investigaciones en Materiales

■ **09:45 - 10:00 S7C-0004 GIANT MAGNETO-IMPEDANCE IN COMPLEX SYSTEMS**

R. T. Ribeiro<sup>1</sup>, F. L. A. Machado<sup>1</sup> and E. Dan Dahlberg<sup>2</sup>

<sup>1</sup>Departamento de Física, Universidade Federal de Pernambuco, Brazil. <sup>2</sup>School of Physics and Astronomy, University of Minnesota, Minneapolis, USA

► **10:00 - 10:15 S7C-0005 *Invited Talk* INCREASING THE CRITICAL TEMPERATURE OF SC MOLIBDOPURATES IN THE UNDERDOPED REGIME:  $\text{Mo}_x\text{Cu}_{1-x}\text{Sr}_2\text{RECu}_2\text{O}_y$  (RE = Y, Er and Tm)**

M.Á. Alario-Franco<sup>1</sup>, S. Marik<sup>1,2</sup>, E. Morán<sup>1</sup> & O. Toulemonde<sup>2</sup>

<sup>1</sup>Laboratorio Complutense de Altas Presiones, Facultad de Ciencias Químicas, Universidad Complutense de Madrid, Ciudad Universitaria, SPAIN. <sup>2</sup>CNRS, Université de Bordeaux, ICMCB, France

► **10:15 - 10:30 S7C-0006 *Invited Talk* SEARCHING NEW TOPOLOGICAL SUPERCONDUCTORS SUPPORTING MAJORANA FERMIONS BY STRUCTURAL SEARCH METHODS**

Aldo H. Romero<sup>1</sup>, Sobhit Singh<sup>1</sup>, A. C. Garcia-Castro<sup>2,3</sup>, F. Muñoz<sup>4</sup> and I. Valencia<sup>3</sup>

<sup>1</sup>Physics Department, West Virginia Univ., USA. <sup>2</sup>Physics Department, Université de Liège, Sart-Tilman, Belgium. <sup>3</sup>Materials Department, CINVESTAV, Queretaro-Qro, Mexico. <sup>4</sup>Departamento de Física, Facultad de Ciencias, Universidad de Chile, Chile

► **10:30 - 10:45 S7C-0007 *Invited Talk* INFORMATION STORAGE IN BUNDLES OF MAGNETIC NANOWIRES**

J. Faúndez<sup>1</sup>, E. Cisternas<sup>1</sup>, E.E. Vogel<sup>1</sup>

<sup>1</sup>Department of Physics, Universidad de La Frontera, Temuco, Chile



▶ **10:45 - 11:15 S7C-0008 Invited Talk VORTEX PHYSICS IN MULTIBAND SUPERCONDUCTORS**

F.M. Peeters<sup>1</sup>, M.V. Milosevic<sup>1</sup>, R.M. da Silva<sup>2</sup>, A.A. Shanenko<sup>2</sup>, and J.A. Aguiar<sup>2</sup>

<sup>1</sup>Departement Fysica, Universiteit Antwerpen, Belgium, <sup>2</sup>Departamento de Física, Universidade Federal de Pernambuco, Brazil.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

▶ **12:30 - 12:45 S7C-0009 Invited Talk EMERGENT TRANSPORT PROPERTIES OF COMPLEX OXIDES UNDER SPATIAL CONFINEMENT**

Jian Shen<sup>1</sup>

<sup>1</sup>Department of Physics, Fudan University, China

▶ **12:45 - 13:00 S7C-0010 Invited Talk LOW FREQUENCY NOISE IN MESOSCOPIC MAGNETIC DOTS**

Daniel E. Endean<sup>1</sup>, C. T. Weigelt<sup>2</sup>, R. H. Victora<sup>2</sup>, and E. Dan Dahlberg<sup>1</sup>

<sup>1</sup>School of Physics and Astronomy, University of Minnesota, Minneapolis, Minnesota, USA, <sup>2</sup>Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, USA.

■ **13:00 - 13:15 S7C-0011 SIMULATION OF MAGNETIC FLOW PHASES ON A SUPERCONDUCTING MATERIALS TYPES 1 AND 2 BY MEANS OF THE EQUATION SWIFT-HOHENBERG**

H. Vázquez-Montiel<sup>1</sup>, M. A. Morales<sup>2</sup>, E. Rubio<sup>3</sup>, J. Varela<sup>4</sup>

<sup>1,2</sup>Benemérita Universidad Autónoma de Puebla, México, Facultad de Ingeniería Química. <sup>3,4</sup>Benemérita Universidad Autónoma de Puebla, México, Centro de Vinculación Y Transferencia de Tecnología (CUVYT)

■ **13:15 - 13:30 S7C-0012 DETAILED STUDY OF THE MAGNETIC BEHAVIOR AT LOW SCALE IN La<sub>2</sub>/3Sr<sub>1</sub>/3MnO<sub>3</sub>**

Isabel Cristina Arango<sup>1</sup>, Sebastián Arevalo<sup>2</sup>, Alba Avila<sup>2</sup>, Gabriel Ramirez<sup>2</sup>, María Elena Gomez<sup>1,4</sup>

<sup>1</sup>Thin Film Group, Department of Physics, Universidad del Valle, Colombia, <sup>2</sup>Department of Electrical and Electronic Engineering, Universidad de Los Andes, Bogotá, Colombia, <sup>3</sup>Nanoscience Group, Department of Physics, University of California, USA, <sup>4</sup>Center of Excellence for Novel Materials - CENM, Universidad del Valle, Colombia.



**14:00- 16:00 LUNCH**

**ROOM: TERRACE  
MONDAY, AUGUST 17**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S7C-P001 PHASE TRANSITION SUPERCONDUCTING THIN FILMS OF TL SYSTEM DEPOSITED BY SPRAY PYROLYSIS**

J.Rosas<sup>1,2</sup>, M. Aguilar<sup>1</sup>, C. Falcony<sup>3</sup>, A Vazquez<sup>1</sup>, Q Alvarado<sup>1</sup>, A Rosas<sup>1</sup>

<sup>1</sup>CICATA-IPN, México. <sup>2</sup>UPIBI-IPN. <sup>3</sup>CINVESTAV, Depto. de Física, México.

■ **S7C-P002 MÖSSBAUER EFFECT AND X-RAY DIFFRACTION STUDY OF Fe- Nd- Gd POWDERS PREPARED BY MECHANICAL ALLOYING**

Y.A. Rojas Martínez<sup>1</sup>, D. Oyola Lozano<sup>1</sup>, H. Bustos Rodríguez<sup>1</sup>

<sup>1</sup>Department of Physics, University of Tolima, Colombia

■ **S7C-P003 MAGNETIC PROPERTIES OF MANGANESE NITRIDE NANOPARTICLES**

Jessica Arlette Porcallo Rojas<sup>a</sup>, Arturo Hernández-Hernández<sup>a</sup>, María Cecilia Salcedo Luna<sup>b</sup> and María del Pilar Gutiérrez Amador<sup>a</sup>

<sup>a</sup>Escuela Superior de Apan, UAEM. <sup>b</sup>USAI, Facultad de Química, UNAM. Ciudad Universitaria, México, D. F.

■ **S7C-P004 LOCAL ATOMIC STRUCTURE OF Nb<sub>3</sub>Sn DEPENDENT OF THE TEMPERATURE USING EXAFS**

Acosta-Alejandro<sup>1</sup>, J. C. Rodríguez-López<sup>1</sup>, J. S. Lezama-Pacheco<sup>1</sup>, R. Falconi<sup>1</sup>, R. Escudero<sup>1</sup>, J. Mustre de León<sup>1</sup>

<sup>1</sup> Universidad Juárez Autónoma de Tabasco, Mexico.

■ **S7C-P005 EVOLUTION OF THE STRUCTURAL, THERMAL, MAGNETIC AND ELECTRONIC PROPERTIES OF PEROVSKITE (La,Ba)3Fe3O8+x AS A FUNCTION OF OXYGEN CONTENT AND La/Ba INTERMIXING**

Q. Camacho-Pérez<sup>1</sup>, M. ElMassalami<sup>2</sup>, R. Falconi-Calderón<sup>1</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco, DACB, Laboratorio de Síntesis y Propiedades Electrónicas en Materiales, México. <sup>2</sup> Universidade Federal do Rio de Janeiro, Instituto de Física, Brasil.



■ **57C-P006 RESCALED UNIVERSAL CURVES, BANERJEE AND MEAN FIELD THEORY CRITERIA APPLIED TO MAGNETOCALORIC MATERIALS**

A. Burrola-Gándara<sup>1</sup>, C. R. Santillan-Rodriguez<sup>1</sup>, F. J. Rivera-Gomez<sup>1</sup>, R. J. Saénz-Hernández, M.E. Botello-Zubiate<sup>1</sup>, J.A. Matutes-Aquino<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados, México.

■ **57C-P007 STUDY OF THE SUPERCONDUCTING COMPOUND  $Zr_{0.97}V_{0.03}B_2$  WITH POINT CONTACT SPECTROSCOPY**

Rodolfo Ezequiel López Romero<sup>1</sup>, Roberto Escudero Derat<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. México.

■ **57C-P008 STUDIES OF THE SUPERCONDUCTING PROPERTIES OF SYSTEM Pd-Ti**

C. Reyes<sup>1</sup>, E. Martínez<sup>1</sup>, R. Escudero<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. México, D. F.

■ **57C-P009 PHYSICAL PROPERTIES OF SUPERCONDUCTING COMPOUNDS: HYDROGENATED BiPd, Bi<sub>2</sub>Pd AND BiPdAg**

A. Bobadilla-Valencia<sup>1</sup>, C. Aguilar<sup>1</sup>, R. López<sup>1</sup>, y R. Escudero<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. México, D. F.

■ **57C-P010 STRUCTURAL AND ELECTRONIC BEHAVIOR OF THE DyCo<sub>2</sub>B<sub>2</sub>C AT HIGH PRESSURES: AB INITIO CALCULATIONS**

W. De la Cruz<sup>1</sup>, R. Falconi-Calderón<sup>1</sup>, J. A. Díaz-Celaya<sup>1</sup>

<sup>1</sup>Universidad Juaréz Autónoma de Tabasco, División Académica de Ciencias Básicas (Ujat-Dacb) México.

■ **57C-P011 EFFECT OF Zn CONCENTRATION ON THE MAGNETIC PROPERTIES OF COBALT - ZINC MAGNETIC NANOPARTICLES IN FERROFLUIDS**

J. López<sup>1,2</sup>, G. Zambrano<sup>1</sup> and M. E. Gómez<sup>1</sup>

<sup>1</sup>Grupo de Películas Delgadas, Departamento de Física, Universidad de Valle, Cali, Colombia, <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada – B.C. México.

■ **57C-P012 SUPERCONDUCTING PROPERTIES OF FeSe<sub>0.5</sub>Te<sub>0.5</sub> ANALYZED UNDER HIGH PRESSURE**

E. Martínez-Piñero<sup>1</sup>, R. Escudero<sup>1</sup>

<sup>1</sup>IIM, UNAM, Ciudad Universitaria, México, D.F.

■ **57C-P013 SYNTHESIS AND CHARACTERIZATION OF Ta<sub>2</sub>Pd(Se<sub>1-x</sub>Te<sub>x</sub>)**

M. A. Juárez-Rosete<sup>1</sup>, R. Escudero<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, UNAM, México, D.F.

ROOM: UXMAL I  
TUESDAY, AUGUST 18

► **09:00 - 09:15 57C-0013 Invited Talk MAGNETISM AND SUPERCONDUCTIVITY IN NEW MATERIALS: COMPETITION AND COOPERATION IN HYBRID MATERIALS AT THE NANOSCALE**

J. del Valle<sup>1</sup>, A. Gomez<sup>1</sup>, E. M. Gonzalez<sup>1,2</sup> and J. L. Vicent<sup>1,2</sup>

<sup>1</sup>Departamento Física de Materiales, Facultad de CC. Físicas, Universidad Complutense, (Spain). <sup>2</sup>IMDEA-Nanociencia, Cantoblanco, (Spain)

► **09:15 - 09:30 57C-0014 Invited Talk EMERGENT INTERFACIAL PHENOMENA IN MAGNETIC COMPLEX OXIDE HETEROSTRUCTURES**

S.G.E. te Velthuis<sup>1</sup>

<sup>1</sup>Materials Science Division, Argonne National Laboratory, Argonne, USA.

► **09:30 - 09:45 57C-0015 Invited Talk CONVERSION OF SPIN DYNAMICS INTO ELECTRIC SIGNALS IN METALLIC AND INSULATING FERROMAGNETS**

A. Azevedo<sup>1</sup>, R.L. Rodríguez-Suárez<sup>2</sup>, and S.M. Rezende<sup>1</sup>

<sup>1</sup>Departamento de Física, Universidade Federal de Pernambuco, Brasil. <sup>2</sup>Facultad de Física, Pontificia Universidad Católica de Chile, Chile.

■ **09:45 - 10:00 57C-0016 PRELIMINARY THEORETICAL-EXPERIMENTAL RESULTS OF THE RuSr<sub>2</sub>(Gd<sub>1-x</sub>Lu<sub>x</sub>)Cu<sub>2</sub>O<sub>8</sub> COMPOUND**

Rodolfo Sánchez<sup>1</sup>, Alberto Rubio-Ponce<sup>1</sup>, Elizabeth Chavira<sup>2</sup>, Adriana Tejada<sup>2</sup>, Damaris Cabrero<sup>2</sup>, Carlos Flores<sup>2</sup>, Omar Novelo<sup>2</sup>, Josué Romero-Ibarra<sup>2</sup>, Mohamed Abatal<sup>3</sup>

<sup>1</sup>Universidad Autónoma Metropolitana, Unidad Azcapotzalco. México. <sup>2</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México. <sup>3</sup>Facultad de Ingeniería y Tecnología, Universidad Autónoma del Carmen, México.

■ **10:00 - 10:15 57C-0017 UNCONVENTIONAL SUPERCONDUCTIVITY IN NEW**



**NON-CENTROSYMMETRIC COMPOUND  $\text{YCo}_{0.7}\text{C}_2$  and  $\text{ThCo}_2$**

Orlando C. Velazquez<sup>1</sup>, Ted Grant<sup>1</sup>, P. F. S. Rosa<sup>2</sup>, B. S. de Lima<sup>1</sup>, A. J. S. Machado<sup>1</sup> and Z. Fisk<sup>2</sup>

<sup>1</sup> University of Sao Paulo, <sup>2</sup> University of California Irvine

**▶ 10:15 - 10:30 57C-0018 *Invited Talk* MAGNETIC DEFLAGRATION IN MOLECULAR MAGNETS**

Q. Zhang<sup>1</sup>, M. P. Sarachik<sup>1</sup>, Y. Chen<sup>2</sup>, A. D. Kent<sup>2</sup>, M. L. Baker<sup>3</sup>, N. Mhesn<sup>4</sup>, C. Lampropoulos<sup>4</sup>

<sup>1</sup>Department of Physics, City College of New York, CUNY, New York, USA, <sup>2</sup>Department of Physics, New York University, New York, USA, <sup>3</sup>Department of Chemistry, Stanford University, Stanford, USA, <sup>4</sup>Department of Chemistry, University of North Florida, USA

**▶ 10:30 - 10:45 57C-0019 *Invited Talk* SPIN TORQUE AND SPIN HALL EFFECT DRIVEN NANO-OSCILLATORS**

Johan Åkerman<sup>1</sup>

<sup>1</sup>Physics Department, University of Gothenburg, Sweden

**▶ 10:45 - 11:00 57C-0020 *Invited Talk* SKYRMION LATTICES IN RANDOM AND ORDERED POTENTIAL ENERGY LANDSCAPES**

Charles Reichhardt<sup>1</sup>

<sup>1</sup>Los Alamos National Laboratory.

**☑ 11:00 - 11:30 COFFEE BREAK**

**📖 11:30 - 12:30 PLENARY LECTURE**

**▶ 12:30 - 12:45 57C-0021 *Invited Talk* CURRENT INDUCED TORQUES IN MAGNETIC MATERIALS**

Andrew D. Kent<sup>1</sup>

<sup>1</sup>Department of Physics, New York University

**▶ 12:45 - 13:00 57C-0022 *Invited Talk* MAGNETIC AND ELECTRICAL PROPERTIES ON HYBRID MULTIFERROIC BILAYERS DEPOSITED BY SPUTTERING TECHNIQUE AT HIGH OXYGEN PRESSURES AND PULSED LASER DEPOSITION**

M. E. Gómez<sup>1</sup>, J. E. Ordoñez<sup>1</sup>, C. Dominguez<sup>1</sup>, W. Lopera<sup>1</sup>, P. Prieto<sup>1,2</sup>

<sup>1</sup>Thin Film Group, Department of Physics, Universidad del Valle, Colombia, <sup>2</sup>Center of Excellence on Novel Materials - CENM, Colombia

**■ 13:00 - 13:15 57C-0023 INFLUENCE ON THE PHYSICAL PROPERTIES OF THE  $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3$  DUE TO PRESENCE OF  $\text{BiFeO}_3$  THIN FILMS GROWTH AT HIGH OXYGEN PRESSURES**

Claribel Domínguez<sup>1</sup>, John Edward Ordoñez<sup>1</sup>, Maria Elena Gomez<sup>1,2</sup>

<sup>1</sup>Thin Film Group, Department of Physics, Universidad del Valle, Colombia, <sup>2</sup>Center of Excellence for Novel Materials - CENM, Colombia

**■ 13:15 - 13:30 57C-0024 SYNTHESIS AND CHARACTERIZATION OF INTERMETALLIC RE-CuBi (RE = Y, Ho, Gd)**

C. Aguilar-Maldonado<sup>1</sup>, R. Escudero<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, UNAM, México, D. F.

**✂ 14:00 - 16:00 LUNCH**

## Symposium 7D

# MATERIALS & DEVICES FOR FLEXIBLE & LARGE AREA ELECTRONICS

**Husam N. Alshareef** / SAUDI ARABIA / King Abdullah University of Science & Technology (KAUST)

**Thomas Anthopoulos** / ENGLAND / Imperial College London

**Rafael Ramírez Bon** / MEXICO / CINVESTAV-IPN

**Israel Mejia** / USA / The University of Texas

ROOM: COBA  
TUESDAY, AUGUST 18

- **09:00 - 09:30 S7D-0001 *Invited Talk* SOLID-STATE SYNTHONS IN THE DESIGN OF ORGANIC SEMICONDUCTOR CRYSTALS**  
Rawad K. Hallani<sup>1</sup>, Jennifer Washbourne<sup>1</sup>, Sean R. Parkin<sup>1</sup>, John E. Anthony<sup>1</sup>

<sup>1</sup>Department of Chemistry, University of Kentucky, Lexington KY

- **09:30 - 10:00 S7D-0002 *Invited Talk* SOLUTION PROCESSING OF LARGE AREA METAL OXIDE AND ORGANIC SEMICONDUCTOR THIN FILMS**  
M. A. McLachlan<sup>1</sup>

<sup>1</sup>Department of Materials and Centre for Plastic Electronics, Imperial College London, London, UK

- **10:00 - 10:30 S7D-0003 *Invited Talk* UNCONVENTIONAL APPROACHES FOR FLEXIBLE AND STRETCHABLE ELECTRONICS USING 1D- OR 2D- NANOMATERIALS**  
Jang-Ung Park<sup>1</sup>

<sup>1</sup>School of Material Science and Engineering, Korea

- **10:30 - 10:45 S7D-0004 DIRECTLY GROWN, SOLUTION-PROCESSED ORDERED ORGANIC CRYSTALLINE WIRES FOR ORGANIC ELECTRONIC DEVICES WITH AMBIPOLAR CHARGE TRANSPORT**  
Minkyung Jae, Hyunseok Shim, Amit Kumar, Kyoseung Sim, Akshaya K. Palai, Jaehyun Kwon, Jaehee Chun, Seungmoon Pyo

Department of Chemistry, Konkuk University, Seoul, Korea

- **10:45 - 11:00 S7D-0005 A THIOL-ENE / ACRYLATE THERMOSET POLYMER AS FLEXIBLE SUBSTRATE FOR IMPLANTABLE FLEXIBLE ELECTRONICS**

David E. Arreaga-Salas<sup>1</sup>, Adrian Avendaño-Bolívar<sup>1</sup>, Dustin Simon<sup>1</sup>, Radu Reit<sup>1</sup>, Aldo Garcia-Sandoval<sup>1</sup>, Alexandra Joshi-Imre<sup>1</sup> and Walter E. Voit<sup>1</sup>

<sup>1</sup>The University of Texas at Dallas, Richardson, TX.

- ☐ **11:00 - 11:30 COFFEE BREAK**

- 📖 **11:30 - 12:30 PLENARY LECTURE**

- **12:30 - 12:45 S7D-0006 LASER DIRECT-WRITE OF COMPLEX MATERIALS: TOWARDS MULTI-LAYERED MICRO/NANO-STRUCTURED OPTOELECTRONIC DEVICES**

Michael M. Lee<sup>1</sup>, and Thomas Lippert<sup>1</sup>

<sup>1</sup>Paul Scherrer Institute, General Energy Research Department, Switzerland

- **12:45 - 13:00 S7D-0007 SOLUTION-PROCESSED CO-PLANAR NANO-SCALE LEDS BY ADHESION LITHOGRAPHY (A-LITH)**

G. Wyatt-Moon<sup>1</sup>, T. Anthopoulos<sup>1</sup>

<sup>1</sup>Department of Physics, Imperial College London, The Blackett Laboratory, Exhibition Road, South Kensington, London, UK

- **13:00 - 13:15 S7D-0008 PARADIGM-CHANGING SUBSTRATES FOR FLEXIBLE ELECTRONICS**



**Adrian Avendano-Bolivar<sup>1</sup>, David Arreaga-Salas<sup>1</sup>, Radu Reit<sup>1</sup>, Walter Voit<sup>1,2,3</sup>**

<sup>1</sup>Department of Materials Science and Engineering, University of Texas at Dallas, USA. <sup>2</sup>Department of Mechanical Engineering, The University of Texas at Dallas, USA. <sup>3</sup>Syzygy Memory Plastics Inc., Dallas, Texas, USA

▶ **13:15 - 13:45 S7D-0009 Invited Talk LARGE AREA RADIATION DETECTORS FOR SECURITY APPLICATIONS**

**B. Gnade<sup>1</sup>, L. Smith<sup>1</sup>, J. Murphy<sup>1</sup>, I. Mejia<sup>1</sup>, M. Quevedo<sup>1</sup>**

<sup>1</sup>Materials Science and Engineering, University of Texas at Dallas, Dallas

■ **13:45 - 14:00 S7D-0010 THIN FILM ELECTRONIC DEVICES AND CIRCUITS FOR LARGE AREA AND COST-EFFECTIVE APPLICATIONS**

**Israel Mejia<sup>1</sup>, Lindsey Smith<sup>1</sup>, Jesus Avila-Avendano<sup>1</sup>, Martha Rivas<sup>1</sup>, Gerardo Contreras-Puente<sup>2</sup>, Bruce Gnade<sup>1</sup> and Manuel Quevedo-Lopez<sup>1</sup>**

<sup>1</sup> Department of Materials Science and Engineering, University of Texas at Dallas, USA. <sup>2</sup> Escuela Superior de Fisica y Matematicas, Instituto Politecnico Nacional, Mexico.

✕ **14:00- 16:00 LUNCH**

■ **16:00 - 16:15 S7D-0011 CAPACITIVE IMMUNOSENSOR**

**Christos Sapsanis<sup>1</sup>, Shilpa Sivashankar<sup>1</sup>, Hesham Omran<sup>1</sup>, Ulrich Buttner<sup>1</sup>, Khaled Nabil Salama<sup>1</sup>**

<sup>1</sup>King Abdullah University of Science and Technology, Saudi Arabia

■ **16:15 - 16:30 S7D-0012 CRYSTAL GROWTH OF COBALT FERRITE ON SILICON AND ITS APPLICATION TO MAGNETO-OPTICAL ISOLATOR**

**M. Yanaga<sup>1</sup>, Y. Shoji<sup>2</sup>, Y. Takamura<sup>3</sup>, S. Nakagawa<sup>3</sup> and T. Mizumoto<sup>1</sup>**

<sup>1</sup> Dept. of Electrical and Electronic Engineering, Tokyo Institute of Technology, Japan. <sup>2</sup> Quantum Nanoelectronics Research Center, Tokyo Institute of Technology, Japan. <sup>3</sup> Dept. of Physical Electronics, Tokyo Institute of Technology, Japan

▶ **16:30 - 17:00 S7D-0013 Invited Talk TWO-DIMENSIONAL TRANSITION-METAL DICHALCOGENIDES WITH TAILORED PROPERTIES**  
**U. Schwingenschlöggl<sup>1</sup>**

<sup>1</sup>KAUST, PSE Division, Thuwal, Saudi Arabia

■ **17:00 - 17:15 S7D-0014 GATE-BIAS STRESS STABILITY IMPROVEMENT OF TFTS USING ZnO/HfO<sub>2</sub> MULTILAYER CHANNEL STRUCTURE**

**P. K. Nayak, Z. Wang, M. N. Hedhili, D. H. Anjum and H. N. Alshareef**

Materials Science and Engineering, King Abdullah University of Science & Technology (KAUST), Thuwal

■ **17:15 - 17:30 S7D-0015 EFFECTIVE MOBILITY AND SERIES RESISTANCE EXTRACTION PROCEDURE FOR ORGANIC THIN-FILM TRANSISTORS**

**Julio Tinoco<sup>1</sup>, Israel Mejia<sup>2</sup>, Rodolfo Garcia-Lozano<sup>3</sup>, M. A. Quevedo-Lopez<sup>2</sup> and Andrea G. Martinez-Lopez<sup>1</sup>**

<sup>1</sup>Micro and Nanotechnology Research Centre, Universidad Veracruzana, Boca del Río, Veracruz, Mexico. <sup>2</sup>Department of Materials Science and Engineering, The University of Texas at Dallas, Richardson, Texas, USA. <sup>3</sup>Centro Universitario Ecatepec, Universidad Autónoma del Estado de México, Ecatepec, Estado de Mexico, Mexico

**ROOM: TERRACE  
TUESDAY, AUGUST 18**

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S7D-P001 ORGANIC LIGHT-EMITTING TRANSISTORS WITH CARBON NANOTUBE GATE ELECTRODES**

**R. Gómez-Aguilar<sup>1</sup>, G. Ortega-Cervantes<sup>2</sup>, J. Ortiz-López<sup>2</sup>, M. Martínez-Rivero<sup>1</sup>**

<sup>1</sup>U.P.I.I.T.A-IPN, U.P.A.L.M., México. <sup>2</sup>Departamento de Física, ESFM-IPN, U.P.A.L.M., México.

■ **S7D-P002 SOLUTION- PROCESSED ORGANIC-INORGANIC HYBRID GATE DIELECTRIC FOR FLEXIBLE THIN FILM TRANSISTORS**

**M.G.Syamala Rao<sup>1</sup>, Rafael Ramirez Bon<sup>1</sup>**

<sup>1</sup>Centro de Investigación y de Estudios Avanzados (CINVESTAV-IPN), Santiago de Querétaro, Querétaro, México.

■ **S7D-P003 SIMULATION OF DOUBLE GATE OTFT FOR SENSOR APPLICATIONS**

**I. Aguilar Romero<sup>1</sup>, J. J. Alvarado Pulido<sup>1</sup>, B.S. Soto Cruz<sup>1</sup>, S. Alcántara Iniesta<sup>1</sup> and M. Estrada del Cueto<sup>2</sup>**

<sup>1</sup>Centro en Dispositivos Semiconductores-Instituto de Ciencias BUAP, Puebla, México, <sup>2</sup>Sección de Electrónica del Estado Sólido, CINVESTAV, México

■ **S7D-P004 MODELING OF A DOUBLE GATE POLYMERIC THIN FILM TRANSISTOR PTFE**

M. L. Ramírez<sup>1</sup>, J. J. Alvarado<sup>1</sup>, B. S. Soto<sup>1</sup>, M. Estrada<sup>2</sup>, A. Cerdeira<sup>2</sup>

<sup>1</sup>Centro de Investigación en Dispositivos Semiconductores, Benemérita Universidad Autónoma de Puebla, Puebla, <sup>2</sup>Sección de Electrónica del Estado Sólido, CINVESTAV, México.

■ **S7D-P005 COMPARISON OF ANNEALING TREATMENTS ON CONTACT RESISTANCE AND INDIUM-GALLIUM-ZINC-OXIDE SEMICONDUCTOR ON THIN FILM TRANSISTORS WITH GOLD CONTACTS**

G. Gutierrez-Heredia<sup>1</sup>, A. Avendano-Bolivar<sup>1</sup>, D. Arreaga-Salas<sup>1</sup>, A. Garcia-Sandoval<sup>2</sup>, R. Reit<sup>3</sup> and W. Voit<sup>1,2,3</sup>

<sup>1</sup>Department of Material Science and Engineering, the University of Texas at Dallas, USA. <sup>2</sup>Department of Mechanical Engineering, the University of Texas at Dallas, USA. <sup>3</sup>Department of Bioengineering, the University of Texas at Dallas, USA

■ **S7D-P006 CdS/CdSe QUANTUM DOTS SENSITIZED SOLAR CELLS: EFFECT OF ZnS TO IMPROVES THE PHOTO CONVERSION EFFICIENCY**

Diego Esparza<sup>1</sup>, Tzarara Lopez-Luke<sup>1</sup>, Elder de la Rosa<sup>1</sup>, Andrea Cerdan<sup>1,2</sup> and Alejandro Martinez<sup>1</sup>

<sup>1</sup>Centro de Investigaciones en Óptica, Mexico. <sup>2</sup>Universidad de Guanajuato, Guanajuato, Gto. Mexico.

■ **S7D-P007 ELECTRICAL CHARACTERIZATION OF FLEXIBLE ZNO/PEDOT:PSS SCHOTTKY BARRIER DIODES**

N. Hernandez-Como<sup>1</sup>, F.J. Hernandez-Cuevas<sup>1</sup>, R. Garcia-Lozano<sup>2</sup> and M. Aleman<sup>1</sup>

<sup>1</sup> Centro de Nanociencias y Micro y Nanotecnologías, Instituto Politécnico Nacional, México. <sup>2</sup> Centro Universitario Ecatepec, Universidad Autónoma del Estado de México, Ecatepec, México.

■ **S7D-P008 IN-SITU SOLUTION-BASED DOPING OF CdS FOR LARGE AREA AND FLEXIBLE THIN FILMS**

J.M. Flores-Marquez<sup>1,2</sup>, I. Mejia-Silva<sup>2</sup>, M. Quevedo-Lopez<sup>2</sup>, M.L. Albor-Aguilera<sup>1</sup>, G.S. Contreras-Puente<sup>1</sup>, M. Tuñi-Á±o-Velazquez<sup>1</sup>

<sup>1</sup>ESFM-IPN, Depto. Física, U.P.A.L.M., Mexico. <sup>2</sup>Materials Science and Engineering, University of Texas at Dallas, Richardson, Texas, USA.

■ **S7D-P009 CONTACT RESISTANCE AS A FUNCTION OF TEMPERATURE IN PENTACENE-BASED THIN-FILM TRANSISTORS**

C. A. Pons-Flores<sup>1</sup>, L. Reséndiz<sup>1</sup>, I. Mejía<sup>2</sup> and M. A. Quevedo-Lopez<sup>2</sup>

<sup>1</sup>Sección de Estudios de Posgrado e Investigación, Unidad Profesional Interdisciplinaria en Ingeniería y Tecnologías Avanzadas IPN, Mexico. <sup>2</sup>Department of Materials Science and Engineering, University of Texas at Dallas, Richardson, USA

■ **S7D-P010 EFFECTS OF ZnO DEPOSITION ON THE ELECTRICAL PROPERTIES OF In-Ga-Zn-O TRANSISTORS WITH COLLAGEN AS A SUBSTRATE**

O. Luebbert-Larios<sup>1</sup>, R.A. Rodríguez-Dávila<sup>2</sup>, F.S. Aguirre-Tostado<sup>1</sup>, M.A. Quevedo-López<sup>2</sup>, E. Martínez-Guerra<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados, S.C. (CIMAV), Apodaca, Nuevo León, México. <sup>2</sup>Department of Materials Science and Engineering, University of Texas at Dallas, Richardson, Texas, USA.

■ **S7D-P011 ENHANCEMENT OF ELECTROLUMINESCENT INTENSITY OF OLED BY DOPING OF Co AND FeCo MAGNETIC NANOPARTICLES IN MDMO-PPV SYSTEMS**

R. Gómez-Aguilar<sup>1</sup>, J. Angeles-Islas<sup>1</sup>, A. A. Castañeda Galván<sup>1</sup>, Ramírez-Rosales<sup>2</sup>

<sup>1</sup>Depto. de Ciencias Básicas, UPIITA, Instituto Politécnico Nacional, México. <sup>2</sup> Depto. de Física, ESFM, Instituto Politécnico Nacional, México.

■ **S7D-P012 FABRICATION OF A PD/SNO<sub>2</sub> STRUCTURE FOR GAS SENSING APPLICATION**

M. de la L. Olvera, A. Maldonado

Departamento de Ingeniería Eléctrica-SEES, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, México.

■ **S7D-P013 WHITE LUMINESCENCE FROM AS DEPOSITED NC-Si CORE-SHELL STRUCTURE USING HW-CVD**

A. Dutt<sup>1</sup>, Y. Matsumoto<sup>1,2</sup>, G. Satana Rodríguez<sup>3</sup>, J Santoyo Salazar<sup>4</sup>, S. Godavarthi<sup>5</sup>

<sup>1</sup>SEES, Electrical Engineering Department, Centro de Investigación y de Estudios Avanzados del IPN, Mexico,

■ **S7D-P0014 STUDY OF Ga- AND Al-DOPED ZnO THIN FILM TRANSPARENT ELECTRODES DEPOSITED BY D.C. PULSED MAGNETRON SPUTTERING**

C. J. Tavares<sup>1</sup>, M. V. Castro<sup>1</sup>

S-7D





<sup>1</sup>Centre of Physics (GRF), University of Minho, Guimarães, Portugal.

**ROOM: COBA**  
**WEDNESDAY, AUGUST 19**

▶ **09:00 - 09:30 S7D-0016 *Invited Talk* SPRAY AS COATING TOOL FOR ORGANIC ELECTRONICS**

Fernando Ely<sup>1</sup>

<sup>1</sup>Electronic Packaging Lab., CTI - Center for Information Technology Renato Archer, Brazil

▶ **09:30 - 10:00 S7D-0017 *Invited Talk* VACUUM TRANSFER PROCESS TO ACHIEVE ROBUST 2D MATERIAL BASED DEVICES**

Byoung Hun Lee<sup>1</sup>

<sup>1</sup>Center for Emerging Electronic Devices and Systems, School of Material Science and Engineering, Gwangju Institute of Science and Engineering

■ **10:00 - 10:15 S7D-0018 MANIPULATING THE ELECTRONIC STRUCTURE OF TRANSITION-METAL DICHALCOGENIDE MONOLAYER SYSTEMS**

Udo Schwingenschlög<sup>1</sup>

<sup>1</sup>KAUST, PSE Division, Thuwal, Saudi Arabia

▶ **10:15 - 10:45 S7D-0019 *Invited Talk* MOLECULAR-ATOMIC LAYER DEPOSITION (MALD) FOR NOVEL FLEXIBLE HYBRID MATERIALS**

Jiyoung Kim<sup>1</sup>

<sup>1</sup>Dept. of Materials Science and Engineering, The University of Texas at Dallas, Richardson, USA

■ **10:45 - 11:00 S7D-0020 DE-IONIZED WATER TREATED INDIUM ZINC OXIDE THIN FILM TRANSISTORS WITH FIELD-EFFECT MOBILITY >50 cm<sup>2</sup>/Vs**

P. K. Nayak, J. A. Caraveo-Frescas, Z. Wang, M. N. Hedhili and H. N. Alshareef

Materials Science and Engineering, King Abdullah University of Science & Technology (KAUST), Thuwal.

☑ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

▶ **12:30 - 13:00 S7D-0021 *Invited Talk* DEPOSITION AND CHARACTERIZATION OF SEMICONDUCTOR**

**MATERIALS BY IONIC LAYER ABSORPTION AND REACTION METHODS**

F.S. Aguirre-Tostado<sup>1</sup>, O.Y. Ramírez-Esquivel<sup>1</sup>, R. Garza-Hernández<sup>1</sup>, M. R. Alfaro Cruz<sup>1</sup>, E. Martínez-Guerra<sup>1</sup>

<sup>1</sup>CIMAV-Monterrey, Apodaca, NL. Mexico.

■ **13:00 - 13:15 S7D-0022 LOW TEMPERATURE PROCESSED COMPLEMENTARY METAL OXIDE SEMICONDUCTOR (CMOS) DEVICE BY OXIDATION EFFECT FROM CAPPING LAYER**

Z. Wang<sup>1</sup>, H. Al-Jawhari<sup>2</sup>, P. K. Nayak<sup>1</sup>, J. A. Caraveo-Frescas<sup>1</sup>, N. Wei<sup>1</sup>, M. N. Hedhili<sup>1</sup> & H. N. Alshareef<sup>1</sup>

<sup>1</sup> Materials Science and Engineering, King Abdullah University of Science & Technology (KAUST), Thuwal, Saudi Arabia, <sup>2</sup> Department of Physics, King Abdulaziz University, Jeddah, Saudi Arabia.

▶ **13:15 - 13:45 S7D-0023 *Invited Talk* IMPROVING THE PHOTOCONVERSION EFFICIENCY OF TiO<sub>2</sub> SOLAR CELLS SENSITIZED WITH QUANTUM DOTS PREPARED BY SILAR, ELECTROPHORESIS AND COLLOIDAL METHOD**

Elder De la Rosa<sup>1</sup>, Diego Esparza<sup>1</sup>, Isaac Zarazua<sup>1</sup>, Tzarara López-Luke<sup>1</sup>, Andrea Cerdan<sup>1</sup>, and Ana Sánchez<sup>1</sup>

<sup>1</sup>Centro de Investigaciones en Optica, México

■ **13:45 - 14:00 S7D-0024 SYNAPTIC MEMORY OBSERVED IN BI-LAYER SnO MEMRISTORS**

M. K. Hota<sup>1</sup>, H. N. Alshareef<sup>1</sup>

<sup>1</sup>Materials Science and Engineering, King Abdullah University of Science & Technology (KAUST), Saudi Arabia.



**14:00 - 16:00 LUNCH**

■ **16:00 - 16:15 S7D-0025 EFFECTS OF NEUTRON IRRADIATION ON ZnO THIN FILM TRANSISTORS**

Joaquin Alvarado<sup>1</sup>, Israel Mejia<sup>2</sup>, Salvador Garduño<sup>3</sup>, Rafael Policroniades<sup>4</sup>, Hector Lopez<sup>4</sup>, Hector Carrasco<sup>4</sup>, Juan Aspiazu<sup>4</sup>, Jessica Metcalfe<sup>5</sup>, Helio Takai<sup>5</sup>, Susana Soto<sup>1</sup>, Manuel Quevedo-Lopez<sup>2</sup>, Bruce Gnade<sup>2</sup>

<sup>1</sup>Centro de Investigación en Dispositivos Semiconductores, Instituto de Ciencias, Benemérita Universidad Autónoma de Puebla, Puebla, México. <sup>2</sup>Department of Material Science and Engineering, University of Texas at Dallas, USA. <sup>3</sup>Sección de Electrónica del Estado Sólido, CINVESTAV-IPN, México. <sup>4</sup>Instituto Nacional de Investigaciones Nucleares, México. <sup>5</sup>Physics Department, Brookhaven National Laboratory, USA.

■ **16:15 - 16:30 S7D-0026 HIGH YIELD AND GEOMETRY-INDEPENDENT ZNO TFTS FOR FLEXIBLE ELECTRONIC APPLICATIONS**

R. A. Rodriguez-Davila<sup>1</sup>, I. Mejia<sup>1</sup>, C.D. Young<sup>1</sup>, M. A. Quevedo-Lopez<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, University of Texas at Dallas, Texas.

■ **16:30 - 16:45 S7D-0027 MODELING THE ELECTRICAL STRESS IN SOLUTION-BASED THIN FILM TRANSISTORS**

R. Garcia<sup>1</sup>, I. Mejia<sup>2</sup>, J. Tinoco<sup>3</sup>, J.E. Molinar<sup>1</sup>, M. A. Quevedo-Lopez<sup>2</sup>

<sup>1</sup>Centro Universitario Ecatepec, Universidad Autónoma del Estado de México, Mexico. <sup>2</sup>Department of Materials Science and Engineering, The University of Texas at Dallas, Richardson, USA. <sup>3</sup>Micro and Nanotechnology Research Centre, Universidad Veracruzana, Boca del Río, Veracruz, Mexico

■ **16:45 - 17:00 S7D-0028 TRANSPARENT ALL TIN OXIDES BASED P-N DIODE THERMOMETER**

Z. Wang, P. K. Nayak, A. Albar, N. Wei, U. Schwingenschlögl, H. N. Alshareef

Materials Science and Engineering, King Abdullah University of Science & Technology (KAUST), Thuwal, Saudi Arabia

■ **17:00 - 17:15 S7D-0029 UNIFORM GROWTH OF ZnO NANORODS ON GLASS SUBSTRATE BY CHEMICAL PROCESS IN AQUEOUS SOLUTION AT LOW TEMPERATURE**

M. A. López-Pastrana<sup>1</sup>, M. Ortega-López<sup>1,2</sup>, Yasuhiro Matsumoto<sup>1,2</sup>

<sup>1</sup>Programa de doctorado en Nanociencias y Nanotecnología del CINVESTAV-IPN. <sup>2</sup>Departamento de Ingeniería Eléctrica, Sección de Electrónica del Estado Sólido (SEES). Centro de Investigación y de Estudios Avanzados del IPN, México.

## Symposium 7E

# PHASE TRANSITIONS IN MAGNETIC MATERIALS: FROM FUNDAMENTALS TO APPLICATIONS

**José Luis Sánchez Llamazares** / MEXICO / Instituto Potosino de Investigación Científica y Tecnológica A.C. (IPICYT)

**Victorino Franco** / SPAIN / University of Sevilla

**Peter Müllner** / USA / Boise State University

ROOM: MAYA II  
MONDAY, AUGUST 17

 Session Chair: **J.L. SÁNCHEZ LLAMAZARES**

▶ **09:00 - 09:30 S7E-0001 *Invited Talk***  
**ELASTOCALORIC MICROCOOLING: FROM BASIC  
EFFECTS TO MINIATURE COOLING DEVICES (INVITED)**

M. Kohl<sup>1</sup>, H. Ossmer<sup>1</sup>, F. Wendler<sup>1</sup>, S. Miyazaki<sup>2</sup>, C. Chluba<sup>3</sup>,  
and E. Quandt<sup>3</sup>

<sup>1</sup>Karlsruhe Institute of Technology, IMT,  
Germany. <sup>2</sup>University of Tsukuba, Japan. <sup>3</sup>University of  
Kiel, IMS, Germany

▶ **09:30 - 10:00 S7E-0002 *Invited Talk***  
**CALORIC  
EFFECTS NEAR FERROELECTRIC PHASE TRANSITIONS**

X. Moya<sup>1</sup>, P. Lloveras<sup>2</sup>, E. Stern-Taulats<sup>3</sup>, M. Barrio<sup>2</sup>, J.-Ll.  
Tamarit<sup>2</sup>, S. Crossley<sup>1</sup>, W. Li<sup>1</sup>, V. Pomjakushin<sup>4</sup>, A. Planes<sup>3</sup>,  
Ll. Mañosa<sup>3</sup> and N. D. Mathur<sup>1</sup>

<sup>1</sup>Department of Materials Science, University of  
Cambridge, Cambridge, UK. <sup>2</sup>Departament de Física  
i Enginyeria Nuclear, ETSEIB, Universitat Politècnica  
de Catalunya, Catalonia, Spain. <sup>3</sup>Facultat de Física,  
Departament d'Estructura i Constituents de la Matèria,  
Universitat de Barcelona, Barcelona, Catalonia,  
Spain. <sup>4</sup>Paul Scherrer Institute, Switzerland

▶ **10:00 - 10:30 S7E-0003 *Invited Talk***  
**SOFT  
MAGNETIC MULTIPHASE COMPOSITES WITH  
TUNABLE MAGNETOCALORIC PROPERTIES**

I. Skorvanek<sup>1</sup>

<sup>1</sup>Institute of Experimental Physics, Slovak Academy of  
Sciences, Slovakia

■ **10:30 - 10:45 S7E-0004 *Influence of***  
**NANOCRYSTALLIZATION ON THE MAGNETOCALORIC  
PROPERTIES OF Ni-BASED AMORPHOUS ALLOYS**

M. Sánchez-Pérez<sup>1</sup>, L.M. Moreno-Ramírez<sup>1</sup>, V. Franco<sup>1</sup>, A.  
Conde<sup>1</sup>, M. Marsilius<sup>2</sup>, G. Herzer<sup>2</sup>


<sup>1</sup>Dpto. Física de la Materia Condensada, ICMSE-CSIC,  
Universidad de Sevilla, Sevilla, Spain.

<sup>2</sup>Vacuumschmelze GmbH & Co KG, Hanau, Germany

■ **10:45 - 11:00 S7E-0005 *Studies on***  
**MAGNETOCALORIC EFFECT OF La(Fe,Si)13 ALLOYS,  
THEIR HYDRIDES AND POLYMER COMPOSITES FOR  
COOLING/HEATING APPLICATION**

L. Hawelek<sup>1</sup>, P. Włodarczyk<sup>1</sup>, M. Polak<sup>1</sup>, P. Zackiewicz<sup>1</sup>, M.  
Kowalczyk<sup>2</sup>, A. Kolano-Burian<sup>1</sup>

<sup>1</sup>Institute of Non-Ferrous Metals, Poland, <sup>2</sup>Warsaw  
University of Technology, Poland.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

 Session Chair: **P. MÜLLNER**

■ **12:30 - 13:00 S7E-0006 *Invited Talk***  
**COOL  
MAGNETS AND HOT ELECTRONS**

Ekkes Brück<sup>1</sup>

<sup>1</sup>Fundamental Aspects of Materials and Energy,  
Department of Radiation Science and Technology,

Faculty of Applied Sciences, Delft University of Technology, Delft, The Netherlands

▶ **13:00 - 13:30 S7E-0007 *Invited Talk* UNDERSTANDING THE EXTRAORDINARY MAGNETO-RESPONSIVE RARE EARTH MATERIALS FROM FIRST PRINCIPLES AND MAGNETO-THERMODYNAMIC MODELING**

D. Paudyal<sup>1</sup>, V. K. Pecharsky<sup>1,2</sup> and K. A. Gschneidner, Jr.<sup>1,2</sup>

<sup>1</sup>The Ames Laboratory of US DOE, Iowa State University, <sup>2</sup>Department of Materials Science and Engineering, Iowa State University,

■ **13:30 - 13:45 S7E-0008 MAGNETOSTRICTION AND MAGNETISATION IN  $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3$  WITHIN THE BEAN-RODBELL FRAMEWORK**

H.N. Bez<sup>1</sup>, K.K. Nielsen<sup>1</sup>, A. Smith<sup>1</sup>, C.R.H. Bahl<sup>1</sup>

<sup>1</sup>Department for Energy Conversion and Storage, Technical University of Denmark, Risø Campus, Denmark

■ **13:45 - 14:00 S7E-0009 MAGNETOCALORIC PROPERTIES OF STACKED  $\text{Ni}_{50}\text{Mn}_{18.75}\text{Cu}_{6.25}+\text{XGa}_{25}$  (X= 0; 0,25; 0,5) POLYCRYSTALLINE ALLOYS**

R. Wróblewski<sup>3</sup>, K. Sielicki<sup>3</sup>, M. Leonowicz<sup>3</sup>

<sup>3</sup>Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland.



**14:00- 16:00 LUNCH**

👤 Session Chair: **V. FRANCO**

▶ **16:00 - 16:30 S7E-0010 *Invited Talk* FIRST-ORDER-REVERSAL-CURVE ANALYSIS OF MAGNETIC MATERIALS**

Brad Dodrill<sup>1</sup>

<sup>1</sup>Lake Shore Cryotronics

■ **16:30 - 16:45 S7E-0011 DETERMINATION OF THE ANISOTROPY OF ELECTRODEPOSITED Ni AND NiFe NANOWIRE ARRAYS BY FERROMAGNETIC RESONANCE (FMR)**

Ikram Ziti<sup>1,3</sup>, Mohammed Reda Britel<sup>1</sup>, Cristina Bran<sup>2</sup>, Manuel Vázquez<sup>2</sup>, Adel Bouajaj<sup>1</sup>, Raul Valenzuela<sup>3</sup>

<sup>1</sup>LTI, National School of Applied Sciences, Abdelmalik Esaâdi University, Tangier, Morocco, <sup>2</sup>Instituto de Ciencia de Materiales de Madrid, Madrid, Spain, <sup>3</sup>Departamento de Materiales Metálicos y Cerámicos, Instituto de

Investigaciones en Materiales, Universidad Nacional Autónoma de México, México.

■ **16:45 - 17:00 S7E-0012 MAGNONIC CRYSTAL VIA DIP COATING NANOPARTICLES FILMS.**

J. L. Domínguez-Juárez<sup>1</sup>, C. L. Ordóñez-Romero<sup>2</sup>, D. Matatagui<sup>3</sup>, O. Kolokoltsev<sup>3</sup>, R. Quintero-Torres<sup>4</sup> and J. L. Aragón<sup>4</sup>.

<sup>1</sup>Cátedras CONACyT, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México. <sup>2</sup>Instituto de Física, Universidad Nacional Autónoma de México, México. <sup>3</sup>CCADET, Universidad Nacional Autónoma de México, México. <sup>4</sup>Departamento de Nanotecnología, Centro de Física Aplicada y Tecnología Avanzada, Universidad Nacional Autónoma de México, México.

■ **17:00 - 17:15 S7E-0013 SIZE DEPENDENT GIANT MAGNETORESISTANCE IN MILLIMETER SCALE GAAS/ALGAAS DEVICES**

R. G. Mani<sup>1</sup>, A. Kriisa<sup>2</sup>, W. Wegscheider<sup>3</sup>

<sup>1</sup>Georgia State University, U.S.A, <sup>2</sup>Emory University, U.S.A., <sup>3</sup>ETH-Zurich, Switzerland

▶ **17:15 - 17:45 S7E-0014 *Invited Talk* DESIGN OF FERROMAGNETIC SHAPE MEMORY ALLOYS AND THEIR COMPOSITES AND ACTUATORS**

M. Taya<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, University of Washington, USA

ROOM: TERRACE  
MONDAY, AUGUST 17

▶ **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S7E-P001 MAGNETIC MAP OF CRO THIN FILMS ON FE(001) BCC SUBSTRATE: FIRST PRINCIPLES CALCULATIONS**

R. E. Félix-Medina<sup>1</sup>, M. A. Leyva-Lucero<sup>1</sup> and S. Meza-Aguilar<sup>1</sup>-C. Demangeat<sup>2</sup>

<sup>1</sup>Facultad de Ciencias Físico-Matemáticas de la Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México. <sup>2</sup>UFR de Physique et d'Ingénierie, Strasbourg, France.

■ **S7E-P002 SYNTHESIS AND STRUCTURAL, MAGNETIC AND MAGNETOCALORIC CHARACTERIZATION OF  $\text{Nd}_2\text{Fe}_{17}$  MELT-SPUN RIBBONS**

S-7E



**J. L. Sánchez Llamazares<sup>1</sup>, C. F. Sánchez-Valdés<sup>1,2</sup>, P. J. Ibarra-Gaytán<sup>1</sup>, Pablo Álvarez-Alonso<sup>3</sup>, and Pedro Gorria<sup>4</sup>**

<sup>1</sup> Instituto Potosino de Investigación Científica y Tecnológica, México, <sup>2</sup> Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Baja California, México, <sup>3</sup> Departamento de Electricidad y Electrónica, Universidad del País Vasco, Leioa, Spain, <sup>4</sup> Departamento de Física, EPI, Universidad de Oviedo, Gijón, Spain.

■ **57E-P003 EFFECTS OF ALLOYING Fe ON PHASE STABILITY, MARTENSITIC TRANSFORMATION AND MAGNETIC PROPERTIES IN Ni-Mn-Ga ALLOYS BY AB-INITIO CALCULATIONS**

**Zhao<sup>1</sup>, J. Bai<sup>1</sup>, J.-M. Raulot<sup>2,3</sup>, Y. D. Zhang<sup>2</sup>, C. Esling<sup>2</sup>, L. Zuo<sup>1</sup>**

<sup>1</sup>Key Laboratory for Anisotropy and Texture of Materials, Northeastern University, Shenyang, China. <sup>2</sup>Laboratoire d'Étude des Microstructures et de Mécanique des Matériaux, Metz, France. <sup>3</sup>Laboratory of Excellence on Design of Alloy Metals for low-mAss Structures (DAMAS), Metz, France

■ **57E-P004 A TWO- PHASE MAGNETOCALORIC COMPOSITE BASED ON MELT-SPUN RIBBONS OF THE DyNi<sub>2</sub> AND TbNi<sub>2</sub> LAVES PHASES**

**P. J. Ibarra-Gaytan<sup>1</sup>, J.L. Sánchez Llamazares<sup>1</sup>, C.F. Sánchez-Valdes<sup>1</sup>, Pablo Álvarez,<sup>3</sup> P. Gorria,<sup>4</sup> and J. A. Blanco<sup>4</sup>**

<sup>1</sup>Instituto Potosino de Investigación Científica y Tecnológica, Mexico, <sup>2</sup>Departamento de Electricidad y Electrónica, Leioa, Spain, <sup>3</sup>Departamento de Física & IUTA, EPI, Universidad de Oviedo, Gijón, Spain, <sup>4</sup>Departamento de Física, Universidad de Oviedo, Oviedo, Spain

■ **57E-P005 INFLUENCE OF MN ON MAGNETOCALORIC EFFECT AND PHASE TRANSITIONS IN OFF-STOICHIOMETRIC RNI<sub>2</sub>MN (R=GD) COMPOUNDS**

**A. Aryal<sup>1</sup>, A. Quetz<sup>1</sup>, S. Pandey<sup>1</sup>, I. Dubenko<sup>1</sup>, S. Stadler<sup>2</sup>, N. Ali<sup>1</sup>**

<sup>1</sup>Department of Physics, Southern Illinois University, Carbondale, USA. <sup>2</sup>Department of Physics & Astronomy, Louisiana State University, Baton Rouge, USA.

■ **57E-P006 MAGNETIC, TRANSPORT, AND MAGNETOCALORIC PROPERTIES OF BORON DOPED Ni-Mn-In ALLOYS**

**S. Pandey<sup>1</sup>, A. Quetz<sup>1</sup>, I.D. Rodionov<sup>2</sup>, A. Aryal<sup>1</sup>, M. I. Blinov<sup>2</sup>, I.S. Titov<sup>2</sup>, V.N. Prudnikov<sup>2</sup>, A.B. Granovsky<sup>2</sup>, I. Dubenko<sup>1</sup>, S. Stadler<sup>3</sup>, and N. Ali<sup>1</sup>**

<sup>1</sup>Department of Physics, Southern Illinois University, Carbondale, USA, <sup>2</sup>Lomonosov Moscow State University, Faculty of Physics, Moscow, Russia, <sup>3</sup>Department of Physics & Astronomy, Louisiana State University, Baton Rouge, USA

■ **57E-P007 MAGNETOCALORIC EFFECTS IN SILVER DOPED Ni-Mn-In ALLOYS**

**S. Pandey<sup>1</sup>, A. Quetz<sup>1</sup>, A. Aryal<sup>1</sup>, I. Dubenko<sup>1</sup>, S. Stadler<sup>2</sup>, and N. Ali<sup>1</sup>**

<sup>1</sup>Department of Physics, Southern Illinois University, Carbondale, USA, <sup>2</sup>Department of Physics & Astronomy, Louisiana State University, Baton Rouge, USA

■ **57E-P008 FERMI LEVEL TUNING OF HIGHLY SPIN-POLARIZED COMPLEX HEUSLER ALLOYS VIA MATERIALS GENOME**

**S. Pandey<sup>1</sup>, A. Quetz<sup>1</sup>, A. Aryal<sup>1</sup>, M. Fralaidé<sup>1</sup>, T. Samanta<sup>2</sup>, K. Munira<sup>3</sup>, W. Butler<sup>3</sup>, I. Dubenko<sup>1</sup>, D. Mazumdar<sup>1</sup>, S. Stadler<sup>2</sup> and N. Ali<sup>1</sup>**

<sup>1</sup>Department of Physics, Southern Illinois University, Carbondale, IL. <sup>2</sup>Department of Physics & Astronomy, Louisiana State University, Baton Rouge, LA. <sup>3</sup>MINT Center, University of Alabama, Tuscaloosa, AL

■ **57E-P009 MAGNETOCALORIC PROPERTIES OF AUSTENITE IN AS-QUENCHED AND ANNEALED Ni<sub>50</sub>Mn<sub>34</sub>In<sub>16</sub>-XSix MELT SPUN RIBBONS (0.0 ≤ X ≤ 2.0)**

**F. M. Lino Zapata<sup>1</sup>, J. L. Sánchez Llamazares<sup>1</sup>, A. G. Lara Rodríguez<sup>2</sup>, D. Ríos-Jara<sup>1</sup>**

<sup>1</sup>Instituto Potosino de Investigación Científica y Tecnológica, México. <sup>2</sup>Universidad Nacional Autónoma de México, Instituto de Investigaciones en Materiales, México.

■ **57E-P010 MAGNETIC CHARACTERIZATION OF MAGNETITE-DECORATED GRAPHENE NANOTUBES SYNTHESIZED BY A SOFT CHEMICAL ROUTE**

**Jesus Guerrero-Contreras<sup>1</sup>, J.L. Sánchez-Llamazares<sup>2</sup>, J.R. Rangel-Méndez<sup>2</sup>, F Caballero-Briones<sup>1</sup>**

<sup>1</sup>Instituto Politécnico Nacional, Laboratorio de Materiales Fotovoltaicos, CICATA Altamira. Altamira, México. <sup>2</sup>Instituto Potosino de Investigación Científica y Tecnológica A.C. (IPICYT), División de Materiales Avanzados, México.

■ **57E-P011 MAGNETOCALORIC RESPONSE OF Y<sub>2</sub>Fe<sub>17</sub> MELT-SPUN AND ANNEALED ALLOY RIBBONS**

**C.F. Sánchez-Valdes<sup>1,2</sup>, P. J. Ibarra-Gaytan<sup>1</sup>, J.L. Sánchez Llamazares<sup>1</sup>, Pablo Álvarez-Alonso,<sup>3</sup> P. Gorria,<sup>4</sup> and J. A. Blanco<sup>4</sup>**



<sup>1</sup>Instituto Potosino de Investigación Científica y Tecnológica A.C., Mexico. <sup>2</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Baja California, Mexico. <sup>3</sup>Departamento de Electricidad y Electrónica, Leioa, Spain. <sup>4</sup>Departamento de Física, Universidad de Oviedo, Calvo Sotelo Oviedo, Spain

■ **S7E-P012 FERROMAGNETIC PHASE TRANSITION AND HALL EFFECT IN IRON, NICKEL AND COBALT-BASED METALLIC GLASSES**

Jessica López-Tabares<sup>a</sup>, Juanita Hincapie-Bedoya<sup>a</sup>, Juan Carlos Hernández-Parra<sup>a</sup>, Diego Gómez-Montoya<sup>a</sup>, Abilo Velásquez-Salazar<sup>a,b</sup>, Andrés Rosales-Rivera<sup>a</sup>, Fabio Daniel Saccone<sup>c</sup>

<sup>a</sup>Laboratorio de Magnetismo y Materiales Avanzados, Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Colombia, Sede Manizales, Manizales, Colombia. <sup>b</sup>Departamento de Ingeniería Eléctrica, Electrónica y Computación, Facultad de Ingeniería y Arquitectura, Universidad Nacional de Colombia, Sede Manizales, Manizales, Colombia. <sup>c</sup>Laboratorio de Sólidos Amorfos, INTECIN, FIUBA-CONICET, Buenos Aires, Argentina

■ **S7E-P013 LARGE MAGNETOCALORIC EFFECT WITH A LOW HYSTERESIS LOSS ACROSS THE MARTENSITIC TRANSFORMATION IN A SINGLE-CRYSTALLINE Ni-Co-Mn-Sn**

José Luis Sánchez Llamazares<sup>1</sup>, Feng Chen<sup>2</sup>, César Fidel Sánchez-Valdés<sup>1,3</sup>, Peter Müller<sup>4</sup>

<sup>1</sup>División de Materiales Avanzados, IPICYT, San Luis Potosí S.L.P. Mexico, <sup>2</sup>Center for Biomedical Materials and Engineering, Key Laboratory of Superlight Material and Surface Technology, Ministry of Education, Harbin Engineering University, Harbin, China, <sup>3</sup>Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Baja California, México, <sup>4</sup>Department of Materials Science and Engineering, Boise State University, USA

■ **S7E-P014 STRUCTURAL TRANSITION AND MAGNETOCALORIC EFFECT IN Mn<sub>1-x</sub>Cr<sub>x</sub>CoGe MELT-SPUN RIBBONS (x = 0.04, 0.11)**

Gerardo Daniel-Pérez<sup>1</sup>, J.L. Sánchez Llamazares<sup>2</sup>, P. Álvarez-Alonso<sup>3</sup>, D. Ríos-Jara<sup>4</sup>, R. Varga<sup>4</sup>, and V. Chernenko<sup>5</sup>

<sup>1</sup>Instituto Tecnológico Superior de Irapuato, Irapuato, Guanajuato, México. <sup>2</sup>División de Materiales Avanzados, Instituto Potosino de Investigación Científica y Tecnológica A.C., San Luis Potosí, México. <sup>3</sup>Departamento

de Electricidad y Electrónica, Universidad del País Vasco, Leioa, Spain. <sup>4</sup>Institute of Physics, Faculty of Sciences, University Pavol Jozef Safárik, Kosice, Slovakia. <sup>5</sup>BC Materials and University of Basque Country, UPV/EHU, Spain.

■ **S7E-P015 MECHANICAL ENTROPY CHANGE NEAR TO ROOM TEMPERATURE IN A Ni-Mn-In ALLOY.**

J. P. R. Camarillo-García<sup>1</sup>, H. Flores-Zuñiga<sup>1</sup> and D. Ríos-Jara<sup>1</sup>

<sup>1</sup> Instituto de Investigación Científica y Tecnológica A. C., México.

■ **S7E-P016 CRITICAL EXPONENTS, HALL EFFECT AND MAGNETO-IMPEDANCE IN FeCrCuNbSiB METALLIC GLASSES**

Andrés Rosales-Rivera<sup>1</sup>, Juan Carlos Hernández-Parra<sup>1</sup>, Jessica López-Tabares<sup>1</sup>, Juanita Hincapie-Bedoya<sup>1</sup>, Abilo Velásquez-Salazar<sup>1</sup>, Diego Gómez-Montoya<sup>1</sup> And Fabio Daniel Saccone<sup>2</sup>

<sup>1</sup>Laboratorio de Magnetismo y Materiales Avanzados, Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Colombia, Sede Manizales, Manizales, Colombia. <sup>2</sup>Laboratorio de Sólidos Amorfos, INTECIN, FIUBA-CONICET, Buenos Aires, Argentina

■ **S7E-P017 THERMOMECHANICAL CYCLING AND ELASTOCALORIC EFFECT IN Ni-Ga-Fe MELT SPUN RIBBONS**

C.O. Aguilar-Ortiz<sup>1,3</sup>, H. Flores-Zuñiga<sup>1</sup>, G. A. Lara-Rodríguez<sup>2</sup>, P. Álvarez-Alonso<sup>3</sup>, V. Chernenko<sup>3,4</sup>, E. Villa<sup>5</sup>

<sup>1</sup>División de Materiales Avanzados. Instituto Potosino de Investigación Científica y Tecnológica A.C., Mexico. <sup>2</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México D.F., México. <sup>3</sup>Departamento de Electricidad y Electrónica, Universidad del País Vasco (UPV/EHU) Leioa, Spain. <sup>4</sup>BC Materials and University of Basque Country, Spain. <sup>5</sup>CNR- IENI, Lecco Italy.

■ **S7E-P018 MÖSSBAUER STUDY OF ALLOYS FEAl(B) OBTAINED BY MECHANICAL ALLOYING**

D. Oyola Lozano<sup>1</sup>, Y. A. Rojas Martínez<sup>1</sup>, H. Bustos Rodríguez<sup>2</sup> and C. López Vargas<sup>1</sup>

<sup>1</sup>Universidad del Tolima, Barrio Santa Helena. Ibagué-Colombia

■ **S7E-P019 TRANSFORMATION TEMPERATURES AND MAGNETIC ANALYSIS OF Ni<sub>55</sub>Fe<sub>18</sub>Ga<sub>27-x</sub>Sn<sub>x</sub> (X=1, 1.5, 3)**



**F. Hernández Navarro<sup>1</sup>, H. Flores-Zúñiga<sup>1</sup> and J. L. Sánchez Llamazares<sup>1</sup>**

<sup>1</sup> Instituto Potosino de Investigación Científica y Tecnológica A.C., México.

■ **S7E-PO20 THE EVOLUTION OF THE MAGNETIC STRUCTURE OF Dy(Ni<sub>1-x</sub>Cox)2B2C (x=0, 0.2, 0.4, 0.6, 0.8, 1)**

**Adriana Jiménez-Vázquez<sup>1,2</sup>, Mohammed ElMassalami<sup>1</sup>, H. Takeya<sup>3</sup>, B. Ouladdiaf<sup>4</sup>, R. F. Calderon<sup>2</sup>**

<sup>1</sup>Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro RJ, Brasil; <sup>2</sup>División Académica de Ciencias Básicas, Universidad Juárez Autónoma de Tabasco, Cunduacán, Tabasco, México; <sup>3</sup>National Institute for Materials Science, I-2-1 Sengen, Tsukuba, Ibaraki, Japan; <sup>4</sup>Institut Laue-Langevin, Grenoble Cedex, France.

■ **S7E-PO21 ELASTOCALORIC EFFECT IN A CU-AL-BE MELT-SPUN RIBBON**

**A. C. González Castillo<sup>1</sup>, H. Flores Zúñiga<sup>1</sup>**

<sup>1</sup> División de Materiales Avanzados, Instituto Potosino de Investigación Científica y Tecnológica A. C., México.

■ **S7E-PO22 HYPERFINE INTERACTION AND MAGNETIC PROPERTIES OF Y-TYPE Ba<sub>2</sub>Co<sub>1.5</sub>Zn<sub>0.5</sub>Fe<sub>12</sub>O<sub>22</sub> HEXAFERRITE INVESTIGATED BY USING MOSSBAUER SPECTROSCOPY**

**Jung Tae Lim<sup>1</sup>, Taejoon Kouh<sup>1</sup> and Chul Sung Kim<sup>1</sup>**

<sup>1</sup>Kookmin University

■ **S7E-PO23 MAGNETIC PROPERTIES OF W-TYPE BaCoZnFe<sub>16</sub>O<sub>27</sub>**

**Hyunkyung Choi<sup>1</sup>, Hyunkyu Kim<sup>1</sup>, Byung Ug Ko<sup>1</sup>, Bo Wha Lee<sup>2</sup>, and Chul Sung Kim<sup>1</sup>**

<sup>1</sup>Department of Physics, Kookmin University, Seoul, South Korea. <sup>2</sup>Department of Physics, Hankuk University of Foreign studies, Yongin, Kyungki, Korea

■ **S7E-PO24 MAGNETO-STRUCTURAL STUDIES OF THE MnFeP<sub>1-x</sub>As<sub>x</sub> COMPOUNDS PREPARED BY SPARK PLASMA SINTERING**

**L. Hawełek<sup>1</sup>, P. Włodarczyk<sup>1</sup>, M. Polak<sup>1</sup>, P. Zackiewicz<sup>1</sup>, M. Kowalczyk<sup>2</sup>, A. Kolano-Burian<sup>1</sup>**

<sup>1</sup>Institute of Non-Ferrous Metals, Gliwice, ul. Sowinskiego, Poland, <sup>2</sup>Warsaw University of Technology, Warsaw, ul. Woloska, Poland

ROOM: MAYA II  
TUESDAY, AUGUST 18

👤 Session Chair: **M. KOHL**

▶ **09:00 - 09:30 S7E-0015 Invited Talk CRYSTALLOGRAPHY OF MARTENSITIC TRANSFORMATION OF Ni-Mn BASED ALLOYS AND ITS IMPACT ON MARTENSITE VARIANT SELECTION**

**Haile Yan<sup>1,2,3</sup>, Yudong Zhang<sup>1,2</sup>, Claude Esling<sup>1,2</sup>, Xiang Zhao<sup>3</sup>, Liang Zuo<sup>3</sup>**

<sup>1</sup>Laboratoire d'Étude des Microstructures et de Mécanique des Matériaux, Université de Lorraine, Metz, France. <sup>2</sup>Laboratory of Excellence on Design of Alloy Metals for low-mAss Structures (DAMAS), Université de Lorraine, Metz, France. <sup>3</sup>Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education), Northeastern University, Shenyang, China

■ **09:30 - 09:45 S7E-0016 IRREVERSIBILITY AND KINETIC ARREST IN NI-CO-MN-IN MARTENSITIC TRANSFORMATION**

**L. Porcar<sup>1,2,3,4</sup>, G. Crouigneau<sup>1,2,3,4</sup>, P. Courtois<sup>5</sup> and D. Bourgault<sup>1,2,3,4</sup>**

<sup>1</sup>Univ. Grenoble Alpes, Institut NEEL, F-38042 Grenoble, France. <sup>2</sup>CNRS, Institut NEEL, F-38042 Grenoble, France. <sup>3</sup>Univ. Grenoble Alpes, CRETA, Grenoble, France. <sup>4</sup>CNRS, CRETA, Grenoble, France. <sup>5</sup>Institut Laue Langevin, France.

■ **09:45 - 10:00 S7E-0017 GIANT "REVERSIBLE" CHANGES IN THE ADIABATIC TEMPERATURES IN THE VICINITY OF THE PHASE TRANSITIONS OF Ni50Mn35In15**

**A. Quetz<sup>1a</sup>, S. Pandey<sup>1</sup>, Y. S. Koshkidko<sup>2,3</sup>, A. Kazakov<sup>4</sup>, I. Rodionov<sup>4</sup>, A. Aryal<sup>1</sup>, P. J. Ibarra-Gaytan<sup>6</sup>, V. Prudnikov<sup>4</sup>, A. Granovsky<sup>4</sup>, I. Dubenko<sup>3</sup>, T. Samanta<sup>3</sup>, J. Cwik<sup>3</sup>, J. L. Sánchez Llamazares<sup>6</sup>, S. Stadler<sup>5</sup>, and N. Ali<sup>1</sup>**

<sup>1</sup>Department of Physics, Southern Illinois University, Carbondale, Illinois, USA. <sup>2</sup>VSB-Technical University of Ostrava, Czech Republic. <sup>3</sup>International Laboratory of High Magnetic Fields and Low Temperatures, Poland. <sup>4</sup>Faculty of Physics, Moscow State University, Moscow, Russia. <sup>5</sup>Department of Physics & Astronomy, Louisiana State University, Baton Rouge, Louisiana, USA. <sup>6</sup>Instituto Potosino de Investigación Científica y Tecnológica, Mexico

■ **10:00 - 10:15 S7E-0018 MAGNETIC-FIELD-INDUCED BENDING AND STRAINING OF MAGNETIC SHAPE MEMORY BEAMS**

J. Kucza<sup>1</sup>, C. L. Patrick<sup>1</sup>, D. C. Dunand<sup>2</sup>, P. Müllner<sup>1</sup>

<sup>1</sup>Department of Materials Science & Engineering, Boise State University, Dr., Boise, USA, <sup>2</sup>Department of Materials Science & Engineering, Northwestern University, Evanston, USA

▶ **10:15 - 10:45 S7E-0019 *Invited Talk* MAGNETIC SHAPE MEMORY EFFECT IN MICRO SCALE Ni-Mn-Ga ELEMENTS**

K. Ullakko<sup>1</sup>, A. Sozinov<sup>1</sup>, A. Saren<sup>1</sup>, A.R. Smith<sup>1</sup> and D. Musienko<sup>1</sup>

<sup>1</sup>Lappeenranta University of Technology, School of Engineering Science, Material Physics Laboratory, Savonlinna, Finland.

■ **10:45 - 11:00 S7E-0020 MECHANICAL PROPERTIES OF FeMnAlNi MELT SPUN RIBBONS**

V. Khovaylo<sup>1</sup>, M. Gorshenkov<sup>1</sup>, M. Lyange<sup>1</sup>, S. Belyaev<sup>2</sup>, N. Resnina<sup>2</sup>, V. Rubanik, Jr.<sup>3</sup>, V. Rubanik<sup>3</sup>, J. Mino<sup>4</sup>, Z. Vargova<sup>4</sup>, R. Varga<sup>4</sup>

<sup>1</sup>National University of Science and Technology "MISIS", Moscow, Russia. <sup>2</sup>Saint Petersburg State University, Saint Petersburg, Russia. <sup>3</sup>Institute of Technical Acoustics NAS of Belarus, Belarus. <sup>4</sup>Faculty of Sciences, Institute of Physics, UPJS, Kosice, Slovakia.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

## Symposium 8A

# ESTRATEGIAS DE VINCULACIÓN ACADEMIA INDUSTRIA (STRATEGIES FOR ACADEMY- INDUSTRY RELATIONSHIPS)

David Ríos / MEXICO / Instituto Potosino de Investigación Científica y Tecnológica

Ernesto E. Marinero / USA / School of Chemical Engineering and School of Materials Engineering, Purdue University

Juan Méndez Nonell / MEXICO / Centro de Investigación y Estudios Avanzados del IPN

Ismeli Alfonso / MEXICO / Instituto de Investigaciones en Materiales, Unidad Morelia

ROOM: MAYA VIII  
WEDNESDAY, AUGUST 19

► **09:00 - 09:30 S8A-0001 *Invited Talk* INNOVATION  
AND UNIVERSITY-INDUSTRY PARTNERSHIPS**

J.M. Sanchez<sup>1</sup>, R.A. Peterson<sup>1</sup>

<sup>1</sup>The University of Texas at Austin, TX, U.S.A.

■ **09:30 - 09:45 S8A-0002 PRINCIPALES FACTORES  
QUE INTERVIENEN EN EL CRECIMIENTO DEL  
DESARROLLO TECNOLÓGICO DE PYMES EN LA  
REGIÓN SUR DEL ESTADO DE HIDALGO**

Ventura Rodríguez Lugo<sup>1</sup>, Magda Gabriela Sánchez Trujillo<sup>2</sup>

<sup>1</sup>Instituto de Ciencias Básicas e Ingeniería Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, Hgo., México. Universidad Autónoma. <sup>2</sup>Escuela Superior de Tepeji del Río, Área de Administración, Tepeji del Río, Hidalgo

► **09:45 - 10:15 S8A-0003 *Invited Talk* LA  
PROBLEMATICA DE MEXICO PARA EL DESARROLLO  
DE TECNOLOGIA**

Francisco Anton Gabelich<sup>1</sup>

<sup>1</sup>CIATEQ, A.C.,

■ **10:15 - 10:30 S8A-0004 THE IDI4BIZ(R)  
CONSORTIUM. A MEXICAN INITIATIVE TO GENERATE  
HUMAN RESOURCES FOR EFICIENT KNOWLEDGE  
TRANSFER BETWEEN ACADEMIA AND INDUSTRY**

**AND TO SUPPORT THE ENTREPRENEURSHIP SPIRIT  
AMONG ACADEMICS**

Juan F. Castro-Cal<sup>1</sup>, Patricia Ocampo Thomason<sup>2</sup>, Vladimir Escobar Barrios<sup>3</sup>

<sup>1</sup>Agencia Estatal Consejo Superior de Investigaciones Científicas; Instituto de Ciencias del Patrimonio;

<sup>2</sup>Directora de Vinculación. Centro de Investigación Científica del Yucatán; <sup>3</sup>Dr. Vladimir Escobar Barrios Director de Vinculación. Instituto Potosino de Investigación Científica y Tecnológica;

■ **10:30 - 10:45 S8A-0005 PRODUCTION AND  
QUALITY OF AVOCADO (PERSEA AMERICANA MILL.)  
HASS IN RESPONSE TO THE INORGANIC FERTILIZER  
OCUITUCO, MORELOS**

Héctor Sotelo Nava<sup>1</sup>, Oscar Gabriel Villegas Torres<sup>1</sup>, Martha Lilia Domínguez Patiño<sup>2</sup>, Miguel Aguilar Cortes<sup>3</sup>

<sup>1</sup>Faculty of Agricultural Sciences, University of Autonomous Morelos State, Mexico, <sup>2</sup>Faculty of Chemical Sciences and Engineering, University of Autonomous Morelos State, Mexico, <sup>3</sup>Engineering and Applied Science Postgraduate School, University of Autonomous Morelos State, Mexico.

■ **10:45 - 11:00 S8A-0006 FROM THE LAB TO THE FAB**  
R. Nochebuena-Tinoco<sup>1</sup>

☞ 11:00 - 11:30 COFFEE BREAK

📖 11:30 - 12:30 PLENARY LECTURE

► **12:30 - 13:00 S8A-0007 Invited Talk CAPITALIZING RESEARCH. ENTREPRENEURIAL ACADEMY - INDUSTRY COLLABORATION**

Jorge Canto Ibañez<sup>1</sup>

<sup>1</sup>Corrosión y Protección Ingeniería S.C., México DF

► **13:00 - 13:30 S8A-0008 Invited Talk CENTRO DE INNOVACIÓN Y DESARROLLO AGROALIMENTARIO DE MICHOACÁN (CIDAM)**

Aguado Gutiérrez, Serafin<sup>1</sup>, Damián Badillo, Luz María<sup>1</sup>

<sup>1</sup>Centro de innovación y desarrollo agroalimentario de Michoacán (CIDAM).

✂ **14:00- 16:00 LUNCH**

■ **16:00 - 16:15 S8A-0009 ESTRATEGIAS PARA LA VINCULACIÓN EFECTIVA UNIVERSIDAD-INDUSTRIA EN LA ZONA BINACIONAL DE CIUDAD JUAREZ-EL PASO, TEXAS**

Carlos Alberto Martínez Pérez<sup>1</sup>

<sup>1</sup>Centro de Innovación y Transferencia de Tecnología, Universidad Autónoma de Ciudad Juárez,

■ **16:15 - 16:30 S8A-0010 MODELO TRIPLE HÉLICE Y LA GESTIÓN DE LA VINCULACIÓN EN LA UNIVERSIDAD JUÁREZ AUTÓNOMA DE TABASCO**

Jesús Hernández del Real<sup>1</sup>, Blanca Lilia

Ramos González<sup>2</sup>, Marysol Magaña Chable<sup>3</sup>, Carlos Arturo Custodio Izquierdo<sup>4</sup>

<sup>1</sup>Universidad Juárez Autónoma de Tabasco DAIS – Universidad Mundo Maya – Centro Internacional de Posgrado A.C./México. <sup>2</sup>Universidad Juárez Autónoma de Tabasco DAEA - Universidad Tecnológica de Tabasco – Centro Internacional de Posgrado A.C /México.

<sup>3</sup>Universidad Juárez Autónoma de Tabasco DAIS/México,

<sup>4</sup>Universidad Juárez Autónoma de Tabasco DAIS/México

■ **16:30 - 16:45 S8A-0011 INCLUSIÓN EDUCATIVA Y CALIDAD SOCIAL COMO RESPUESTA EN LA ATENCIÓN A LA DIVERSIDAD**

B. Salmerón Quiroz<sup>1</sup>, S.A. Rodríguez Paredes<sup>1</sup>, G. Villegas Medina<sup>1</sup>, B. Perez-Rodriguez<sup>2</sup>, Pérez Betanzos K.<sup>1</sup>

<sup>1</sup> Instituto Politécnico Nacional-SEPI ESIME Unidad Azcapotzalco – México, <sup>2</sup> I.P.N. E.S.C.O.M

■ **16:45 - 17:00 S8A-0012 CHARACTERIZATION OF THE PROCESS OF INDUSTRIALIZATION AND MARKET ON DERIVATES PRODUCTS**

**OF ALOE LEAF: AN EXPERIENCE OF LINKING UNIVERSITY-AGRIBUSINESS**

Pedroza Sandoval Aurelio<sup>1</sup>, Samaniego-Gaxiola José Alfredo<sup>2</sup>, Ruiz Torres José<sup>1</sup>, Trejo Calzada Ricardo<sup>1</sup>.

<sup>1</sup>Profesores-Investigadores de la Unidad Regional Universitaria de Zonas Áridas. Universidad Autónoma Chapingo. <sup>2</sup> Investigador del Instituto Nacional de Investigaciones Agrícolas y Pecuarias. Matamoros, Coah.

■ **17:00 - 17:15 S8A-0013 REDES DE VINCULACIÓN. BONDADES, OPORTUNIDADES Y RETOS**

V.A. Escobar-Barrios<sup>1</sup>

<sup>1</sup>Dirección de Vinculación, Instituto Potosino de Investigación Científica y Tecnológica, México

■ **17:15 - 17:30 S8A-0014 FIELD TESTS OF MODERN AND INNOVATIVE TECHNOLOGY FOR CLEAN WATER AND COMFORTABLE TOILETS IN PUBLIC SCHOOLS**

M. Buenfil R.<sup>1</sup>, F. Leyva C.<sup>1</sup>

<sup>1</sup>Instituto Mexicano de Tecnología del Agua, Jiutepec, Morelos, Mexico

■ **17:30 - 17:45 S8A-0015 CATHEDRA TERNIUM-UANL: SUCCESS VINCULATION CASE UNDER THE TRIPLE HELIX MODEL**

M.A. Ruiz-Acuña<sup>1</sup>, G. Preciado<sup>1</sup>, R. González-de-la-Peña<sup>1</sup>, M. Hinojosa-Rivera<sup>2</sup>, L. A. Leduc-Lezama<sup>2</sup>

<sup>1</sup> Ternium México; <sup>2</sup> Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica

■ **17:45 - 18:00 S8A-0016 PROPUESTA DE VINCULACIÓN ACADEMIA INDUSTRIA PARA LA FABRICACIÓN DE PANELES SOLARES DE PELÍCULAS DELGADAS DE CdS/CdTe MEDIANTE PROCESOS ESCALABLES**

Juan Luis Peña Chapa

CINVESTAV IPN Unidad Mérida

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

► **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **S8A-P001 ESTUDIO DE LOS FACTORES DEL SECTOR METAL MECÁNICO DE LA CUENCA DE MÉXICO QUE REPRESENTAN UNA HERRAMIENTA PARA UNA MAYOR COMPETITIVIDAD**

S-8A





**V. Rodríguez-Lugo<sup>1</sup>, Á. Portillo-Santillan<sup>2</sup>, L.M. González-Mora<sup>1</sup> y M. G. Sánchez-Trujillo<sup>2</sup>**

<sup>1</sup>Instituto de Ciencias Básicas e Ingeniería Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, México. Universidad Autónoma, <sup>2</sup>Escuela Superior de Tepeji del Río, Tepeji del Río, Hidalgo.

■ **S8A-P002 IMPORTANCIA DE LA INNOVACIÓN EN EL DESARROLLO DEL SECTOR QUÍMICO DE LA CUENCA DE MEXICO: ASPECTOS FUNDAMENTALES QUE CONTRIBUYEN EN SU FORTALECIMIENTO**

**Gabriela Sánchez Trujillo<sup>1</sup>, Abigail Citlali Tapia Rodríguez<sup>1</sup>, S. Víquez-Cano<sup>2</sup>, Ventura Rodríguez Lugo<sup>2</sup>**

<sup>1</sup>Escuela Superior de Tepeji del Río; <sup>2</sup>Instituto de Ciencias Básicas e Ingeniería Área Académica de Ciencias de la Tierra y Materiales, Centro de Innovación y Desarrollo Tecnológico, Universidad Autónoma del Estado de Hidalgo, México.

■ **S8A-P003 DETERMINACIÓN DE LAS PRINCIPALES VARIABLES QUE CONTRIBUYEN EN EL DESARROLLO DEL SECTOR TEXTIL EN LA CUENCA MÉXICO COMO ELEMENTO PARA LA CONSOLIDACIÓN DE LA COMPETITIVIDAD**

**Ventura Rodríguez Lugo<sup>1</sup>, Marco Antonio Reyes Arenas<sup>2</sup>, E. Cuevas García<sup>1</sup> y M. Gabriela Sánchez Trujillo<sup>2</sup>**

<sup>1</sup>Instituto de Ciencias Básicas e Ingeniería Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, México. Universidad Autónoma; <sup>2</sup>Escuela Superior de Tepeji del Río, Universidad Autónoma del Estado de Hidalgo, Tepeji del Río, Hidalgo.

■ **S8A-P004 ESTUDIO DE LA IDENTIFICACIÓN DE LAS VARIABLES QUE CONTRIBUYEN AL INCREMENTO DE LA EFICIENCIA DE LAS EMPRESAS MANUFACTURERAS DE LA CUENCA MÉXICO**

**Gabriela Sánchez Trujillo<sup>1</sup>, Mariela García Domingo<sup>1</sup> y S. Víquez Cano<sup>2</sup>, Ventura Rodríguez Lugo<sup>2</sup>**

<sup>1</sup>Escuela Superior de Tepeji del Río, Universidad Autónoma del Estado de Hidalgo; <sup>2</sup>Instituto de Ciencias Básicas e Ingeniería Área Académica de Ciencias de la Tierra y Materiales, Universidad Autónoma del Estado de Hidalgo, Carretera Pachuca-Tulancingo, México. Universidad Autónoma

■ **S8A-P005 CONFORMACIÓN DE UN SISTEMA DE INFORMACIÓN GEOGRÁFICA (SIG), APLICADO EN LA**

**INDUSTRIA LADRILLERA ARTESANAL EN EL ESTADO DE HIDALGO, MÉXICO**

**Á. M. Hernández-Verde<sup>1</sup>, R. Moreno-Tovar<sup>1</sup>, y V. Rodríguez-Lugo<sup>1</sup>**

<sup>1</sup>Instituto de Ciencias Básicas e Ingeniería Área Académica de Ciencias de la Tierra y Materiales, Centro de Innovación y Desarrollo Tecnológico, Universidad Autónoma del Estado de Hidalgo, México. Universidad Autónoma

■ **S8A-P006 DESIGN AND CONSTRUCTION OF PROTOTYPE OF A NEW SYSTEM OF DOORS WITH INHIBITING DEVICE THE OPENING OF THE SAME ON THE OPPOSITE SIDE**

**H. Jiménez<sup>1</sup>**

<sup>1</sup>Universidad Autónoma Metropolitana, México D. F., México.

■ **S8A-P007 DESIGN AND TECHNOLOGY DEVELOPMENT FOR AUTOMATION OF PRODUCTION PROCESSES IN A PILOT PLANT**

**J. O. Hernández-Monterrosas<sup>1</sup>, D. Torres-Franco<sup>2</sup>, B. Romero-Ángeles<sup>3</sup>, H. A. Benítez-García<sup>1</sup>, S. Viveros-Bretón<sup>2</sup>, J. Espinoza-Zavala y G. Urriolagoitia-Sosa<sup>1</sup>**

<sup>1</sup>Instituto Politécnico Nacional, Escuela Superior de Ingeniería Mecánica y Eléctrica, Sección de Estudios de Posgrado e Investigación, Unidad Profesional Adolfo López Mateos Zacatenco, México. <sup>2</sup>Universidad Politécnica del Valle de México, División Mecánica y Electrónica, Estado de México, México. <sup>3</sup>Instituto Politécnico Nacional, Escuela Superior de Ingeniería Mecánica y Eléctrica. México, D.F., México.

■ **S8A-P008 INVESTIGATION OF THE USEFUL LIVES OF THE GAS TURBINE BLADES**

**Bárbara González Rolón<sup>1</sup>, José María Villaseñor Aguilar<sup>1</sup>**

<sup>1</sup>Campus Salamanca, Salamanca Guanajuato.

■ **S8A-P009 DESARROLLO DE UN CEMENTANTE COMPOSITO SUSTENTABLE PARA APLICACIONES EN LA INDUSTRIA DE LA CONSTRUCCIÓN**

**J. M. Díaz Basteris<sup>1</sup>, R. D. Maldonado<sup>2,3</sup>, J.G. Carrillo<sup>4</sup>, E. Huerta<sup>5</sup>**

<sup>1</sup>Productora de Cal Yucatán S. A. de C. V., Mérida, Yucatán México, <sup>2</sup>Universidad Anahuac-Mayab, Facultad de Ingeniería, Carretera Mérida-Progreso Mérida, Yucatán, México, <sup>3</sup>Asesoría Científica, Tecnológica e Industrial, Mérida, Yucatán, México. <sup>4</sup>Centro de Investigación Científica de Yucatán AC, Unidad de Materiales. Mérida,

Yucatán, Mexico. <sup>3</sup> Augusto Irineo León castillo, Servicio y Mantenimiento S.A. de C.V., Mérida Yucatán, México.

■ **S8A-P010 DISEÑO Y CONSTRUCCIÓN DE UN CALENTADOR SOLAR DE BAJO COSTO USANDO MATERIALES TERMOPLÁSTICOS**

J. M. Díaz Basteris<sup>1</sup>, R. D. Maldonado<sup>2,3</sup>, E. Huerta<sup>4</sup>

<sup>1</sup>Larc Industries, S.A. de C.V, Mérida, Yucatán México, <sup>2</sup>Universidad Anahuac-Mayab, Facultad de Ingeniería, Carretera Mérida-Progreso Mérida, Yucatán, México, <sup>3</sup>Asesoría Científica, Tecnológica e Industrial, Mérida, Yucatán, México. <sup>4</sup>Augusto Irineo León castillo, Servicio y Mantenimiento S.A. de C.V., Mérida Yucatán, México.

■ **S8A-P011 PILOT PLANT IMPLEMENTATION FOR QUALITY IMPROVEMENT OF LOW DENSITY POLYETHYLENE IN THE PRODUCTION OF PLASTIC BAGS.**

O. Ceh-Soberanis<sup>1</sup>, D. Hernández-Dorantes<sup>2</sup>, H. Becil-Dajer<sup>3</sup>

<sup>1</sup>Motus Energy S.A. de C.V, Yucatán, Mérida, Yucatán. <sup>3</sup>Universidad Anáhuac Mayab,

■ **S8A-P012 STUDY OF TWO-PHASE FLOW DYNAMICS, STEEL-ARGON, IN A SLAB MOLD**

María M. Salazar-Campoy<sup>1)</sup>, Ismael-Calderón-Ramos<sup>1)</sup> Valentin Cedillo-Hernández<sup>1)</sup> and R.D. Morales<sup>1),2)</sup>

<sup>1)</sup>Department of Metallurgy and Materials Engineering, Instituto Politécnico Nacional-ESIQIE, Ed. 7 UPALM, <sup>2)</sup> K&E Technologies,

■ **S8A-P013 SERVICIO DEL LABORATORIO DE FUERZA ATÓMICA Y TUNELAMIENTO PARA UNA INCLUSIÓN SOCIAL RESPONSABLE**

B. Salmerón Quiroz<sup>1</sup>, G. Villegas Medina<sup>1</sup>, S.A. Rodríguez Paredes<sup>1</sup>, B. Perez-Rodriguez<sup>2</sup>, T. S Flores Hernandez<sup>3</sup>

<sup>1</sup> Instituto Politécnico Nacional-SEPI ESIME Unidad Azcapotzalco – México, <sup>2</sup> I.P.N. E.S.C.O.M., <sup>3</sup> I.P.N. C. E. C.

■ **S8A-P014 PHYSICAL AND MATHEMATICAL MODELING OF FLOW TURBULENCE IN A CONTINUOUS CASTING SLAB MOLD COMPARING THREE COMMERCIALS SEN DESIGNS**

Ismael Calderón-Ramos<sup>1</sup>, Rodolfo Morales-Dávila<sup>1</sup>, Valentin Cedillo Hernández<sup>1</sup>, María Salazar Campoy<sup>1</sup> and Javier Guarneros Guarneros<sup>2</sup>

<sup>1</sup>Department of Materials Engineering and Metallurgy, Instituto Politécnico Nacional-E.S.I.Q.I.E., Ed. 7, UPALM, <sup>2</sup>K&E Technologies,

■ **S8A-P015 MODELING FLOW TURBULENCE IN A CONTINUOUS CASTING SLAB MOLD COMPARING THE USE OF TWO BIFURCATED NOZZLES WITH SQUARE AND CIRCULAR PORTS**

Valentin Heder Cedillo Hernandez<sup>1</sup>, R.D. Morales<sup>1</sup>, Ismael Calderon<sup>1</sup>, María Salazar Campoy<sup>1</sup>

<sup>1</sup>Department of Materials Engineering and Metallurgy, Instituto Politécnico Nacional-E.S.I.Q.I.E., Ed. 7 UPALM,

■ **S8A-P016 PELICULAS DELGADAS Y RECUBRIMIENTOS; UNA PROPUESTA PARA MOTIVAR LA VINCULACION**

H. Cruz-Manjarrez<sup>1</sup>

Instituto de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México,

■ **S8A-P017 EVALUACIÓN MORFOLÓGICA, QUÍMICA Y DE PROPIEDADES MECÁNICAS DE COMPONENTES METÁLICOS Y SOLUCIONES QUÍMICAS UTILIZADAS EN LA INDUSTRIA PETROQUÍMICA**

R. Guzmán Guzman<sup>1</sup>, Anabel González-Díaz<sup>1</sup>, Erik Ramírez-Morales<sup>1</sup>, Laura Lorena Díaz Flores<sup>1</sup>

<sup>1</sup>Student bachelor degree <sup>1</sup>Universidad Juárez Autónoma de Tabasco. Villahermosa Centro Tabasco

ROOM: MAYA VIII  
THURSDAY, AUGUST 20

► **09:00 - 09:30 S8A-0017 Invited Talk VINCULACION ACADEMIA-EMPRESA EN EL SIGLO XXI: TENDENCIAS Y HERRAMIENTAS NUEVAS**

Ernesto E. Marinero<sup>1</sup>

<sup>1</sup>School of Materials Engineering and School of Electrical and Computer Engineering, Purdue University, West Lafayette, Indiana,

► **09:30 - 10:00 S8A-0018 Invited Talk ALGUNAS CONSIDERACIONES SOBRE EL DECRETO QUE MODIFICA LAS LEYES DE CIENCIA Y TECNOLOGÍA Y DE RESPONSABILIDADES ADMINISTRATIVAS DE LOS SERVIDORES PÚBLICOS, EMITIDO POR LA CÁMARA DE DIPUTADOS**

D. Rios-Jara<sup>1</sup>

<sup>1</sup>Instituto Potosino de Investigación Científica y Tecnológica, A.C., San Luis Potosí, S:L:P., México.



■ **10:00 - 10:15 S8A-0019 DISEÑO Y CONCEPCIÓN DE UNA MÁQUINA DE ENSAYOS EN FATIGA EN TORSIÓN: VINCULACIÓN CON EL SECTOR INDUSTRIAL METAL-MECÁNICO**

Gonzalo Mariano Domínguez Almaraz<sup>1</sup>, Jorge Luis Ávila Ambriz<sup>1</sup> Julio Cesar Verduzco Juárez<sup>2</sup>, Erasmus Correa Gómez<sup>1</sup>

<sup>1</sup>Universidad Michoacana de San Nicolás de Hidalgo (UMSNH), Facultad de Ingeniería Mecánica, Morelia, México.

■ **10:15 - 10:30 S8A-0020 DISEÑO Y CONSTRUCCIÓN DE EQUIPOS ELECTROMAGNÉTICOS PARA ANÁLISIS DE VIBRACIONES EN SISTEMAS MECÁNICOS AUTOMOTRICES**

R.J. Gutiérrez Estupiñán<sup>1</sup> J.C. Colín Ortega<sup>2</sup> C.R. Ibáñez Juárez<sup>3</sup> H. Girón Nieto<sup>4</sup>

<sup>1</sup>Departamento de Ciencias e Ingenierías. Universidad Iberoamericana Puebla. San Andrés Cholula, Puebla, México. <sup>2</sup> Departamento de Ciencias e Ingenierías. Universidad Iberoamericana Puebla. San Andrés Cholula, Puebla, México. <sup>3</sup> Departamento de Ciencias e Ingenierías. Universidad Iberoamericana Puebla. San Andrés Cholula, Puebla, México. <sup>4</sup> Instituto de diseño e Innovación Tecnológica. Universidad Iberoamericana Puebla. San Andrés Cholula, Puebla, México.

■ **10:30 - 10:45 S8A-0021 CREANDO UNA MASA CRÍTICA PARA FOMENTAR LA COMPETITIVIDAD Y LA INNOVACIÓN A TRAVÉS DE LA PROPIEDAD INTELECTUAL Y LA TRANSFERENCIA DE TECNOLOGÍA**

C. G. López<sup>1</sup>, G. A. Estrada<sup>2</sup>

<sup>1</sup>Investigador, Centro de Investigación Científica y de Educación Superior de Ensenada, B.C, CICESE; Ensenada, B.C., México. <sup>2</sup>Director, Centro de Competitividad e Innovación, Cámara Nacional de Manufacturas Eléctricas CANAME; México

■ **10:45 - 11:00 S8A-0022 WATER TREATMENT IN CHIAPAS AND MICHOACAN: A RESULT OF HUMAN ACTIVITY**

Edgar Barajas Ledesma<sup>1</sup>, Luis Alfredo Padilla Godínez<sup>2</sup>, Alejandra Araceli Romero Santos<sup>3</sup>

<sup>1</sup>Universidad de La Ciénega del Estado de Michoacán de Ocampo, Sahuayo. Michoacán, México, <sup>2,3</sup>ARS Ingeniería Mexicana S. A. de C. V., Tuxtla Gutiérrez Chiapas, México.

☕ **11:00 - 11:30 COFFEE BREAK**

📖 **11:30 - 12:30 PLENARY LECTURE**

■ **12:30 - 12:45 S8A-0023 PATENTS: A MEANS OF TRANSFER AND GROWTH OF PRODUCTIVE SECTOR**  
R. Lopez<sup>1</sup>

<sup>1</sup>Universidad Autonoma de Ciudad Juarez,

■ **12:45 - 13:00 S8A-0024 CENTRO DE VINCULACIÓN Y GESTIÓN TECNOLÓGICA AHMSA CASO DE ESTUDIO "DESARROLLO DE NUEVOS PRODUCTOS A PARTIR DE POLVO DE COLECTOR DE ALTO HORNO Y BOF PARA SU USO COMO PINTURA REFRACTARIA ANTIADHERENTE"**

Luis Antonio Silva Guajardo<sup>1</sup>, Fernando García Garza<sup>1</sup>, Santiago Camacho Lopez<sup>1</sup>, Raymundo de la Cruz Rodríguez<sup>2</sup>, Francisco Raúl Carrillo Pedroza<sup>2</sup>, Ma. De Jesús Soria Aguilar<sup>2</sup>, Antonia Martínez Luevanos<sup>3</sup>, Luis Fernando Camacho Ortegón<sup>4</sup>.

<sup>1</sup>Altos Hornos de México, S.A.B. de C.V., Monclova, Coahuila, México. <sup>2</sup>Facultad de Metalurgia, Universidad Autónoma de Coahuila, Monclova, Coahuila, México. <sup>3</sup>Facultad de Ciencias Químicas, Universidad Autónoma de Coahuila, Boulevard Venustiano Carranza, Saltillo, Coahuila, México. <sup>4</sup>Escuela Superior de Ingeniería, Universidad Autónoma de Coahuila, Nueva Rosita Coahuila, México.

✂ **14:00- 16:00 LUNCH**

## Symposium NM

# 6TH LATIN AMERICAN CONFERENCE ON METASTABLE AND NANOSTRUCTURED MATERIALS

**Jorge Roberto Vargas García** / MEXICO / Instituto Politécnico Nacional - ESIQIE, Dept. of Eng. In Metallurgy & Materials

**Daniel Rodrigo Leiva** / BRAZIL / Universidade Federal de São Carlos

**José Federico Chávez Alcalá** / MEXICO / Instituto Politécnico Nacional - ESIQIE, Dept. of Eng. In Metallurgy & Materials

ROOM: MAYA III  
WEDNESDAY, AUGUST 19

## Opening Ceremony Metallic Glasses Session

👤 Session Chair: **CLAUDIO KIMINAMI**,  
**UNIVERSIDADE FEDERAL DE SÃO CARLOS, BRAZIL**

👤 Co-Chair: **AFONSO CONRADO R. M.**,  
**UNIVERSIDADE FEDERAL DE SÃO CARLOS, BRAZIL**

▶ **08:30 - 09:00 S4G-0001 Invited Talk BULK NANOSTRUCTURED MATERIALS PROCESSED BY SEVERE PLASTIC DEFORMATION: FUNDAMENTALS AND APPLICATIONS**

**Alexander Zhilyaev**<sup>1</sup>

<sup>1</sup>Institute for Metals Superplasticity Problems of Russian Academy of Science, Russia.

■ **09:00 - 09:15 SNM-0002 MECHANICAL AND MICROSTRUCTURAL PROPERTIES OF CU-AL-NI-MN-ZR SHAPE MEMORY ALLOY PROCESSED BY SPRAY FORMING**

**R.D. Cava<sup>1</sup>, C. Bolfarini<sup>1</sup>, C. S. Kiminami<sup>1</sup>, E. M. Mazzer<sup>1</sup>, V. M. Pedrosa<sup>1</sup>, W. J. Botta<sup>1</sup>, P. Gargarella<sup>1</sup>**

<sup>1</sup> Department of Materials Engineering, Federal University of São Carlos Rod. São Carlos, Brazil

■ **09:15 - 09:30 SNM-0001 THE EFFECT OF SILICON ADDITION ON THE SYNTHESIS OF THE Zr-Fe-AL METALLIC GLASS**

**Ali Tabeshian<sup>a</sup>, Huahai Mao<sup>b</sup>, Lars Arnberg<sup>a</sup> and Ragnhild E. Aune<sup>a</sup>**

<sup>a</sup> Dept. of Material Science and Engineering, Norwegian University of Science and Technology (NTNU), Norway. <sup>b</sup> Dept. of Material Science and Engineering, Royal Institute of Technology (KTH), Sweden

■ **09:30 - 10:00 SNM-0003 Invited Talk A NEW FAMILY OF SHAPE MEMORY BULK METALLIC GLASS COMPOSITES**

**Piter Gargarella<sup>1,2</sup>, Simon Pauly<sup>2</sup> and Jürgen Eckert<sup>2,3</sup>**

<sup>1</sup>Departamento de Engenharia de Materiais, Universidade Federal de São Carlos, Rod. São Carlos, Brazil. <sup>2</sup>IFW Dresden, Institut für Komplexe Materialien, Dresden, Germany. <sup>3</sup>Institut für Werkstoffwissenschaft, Technische Universität Dresden, Germany

▶ **10:00 - 10:30 SNM-0004 Invited Talk (Fe<sub>36</sub>Co<sub>36</sub>B<sub>19</sub>.2Si<sub>4</sub>.8Nb<sub>4</sub>)<sub>100-x</sub>Cu<sub>x</sub> (x = 0 AND 0.5) BMGs, CRYSTALLIZATION BEHAVIOR AND MAGNETIC PROPERTIES**

**M. Stoica<sup>1,2</sup>**


<sup>1</sup>IFW Dresden, Institute for Complex Materials, Dresden, Germany. <sup>2</sup>POLITEHNICA University of Timisoara, Timisoara, Romania

■ **10:30 - 11:00 SNM-0005 Invited Talk DESIGNING Fe-BASED BULK METALLIC GLASS MATRIX COMPOSITES VIA SPARK PLASMA SINTERING**



**O.A. Graeve<sup>1,2</sup>, J.P. Kelly<sup>1,2</sup>, S.M. Fuller<sup>2</sup>, K. Seo<sup>1</sup>, E. Novitskaya<sup>1</sup>, J.C. Farmer<sup>3</sup>, A.M. Hodge<sup>4</sup>, V. Eliasson<sup>4</sup>**

<sup>1</sup>Department of Mechanical and Aerospace Engineering, University of California, San Diego, La Jolla, USA. <sup>2</sup>Kazuo Inamori School of Engineering, Alfred University, USA. <sup>3</sup>Laser Inertial Fusion Energy, Lawrence Livermore National Laboratory, USA. <sup>4</sup>Department of Aerospace and Mechanical Engineering, University of Southern California, USA.

 **11:00 - 11:30 COFFEE BREAK**

 **11:30 - 12:30 PLENARY LECTURE**

## RAPID SOLIDIFICATION SESSION

 Session Chairs: **RUTH H. G. A. KIMINAMI, UNIVERSIDADE FEDERAL DE SÃO CARLOS, BRAZIL**

 Co-Chair: **PITER GARGARELLA, UNIVERSIDADE FEDERAL DE SÃO CARLOS, BRAZIL**

■ **12:30 - 13:00 SNM-006 *Invited Talk* AMORPHOUS AND NANOCRYSTALLINE Ti-BASED ALLOYS PRODUCED BY RAPID SOLIDIFICATION AND MAGNETRON SPUTTERING**

**C.R.M. Afonso<sup>1</sup>, M.F. de Carvalho<sup>1</sup>, E. Joanni<sup>2</sup>**

<sup>1</sup>Department of Materials Engineering (DEMA), Universidade Federal de São Carlos (UFSCar), São Carlos – SP, Brazil. <sup>2</sup>Center for Information Technology Renato Archer (CTI), Campinas – SP, Brazil

■ **13:00 - 13:30 SNM-0007 *Invited Talk* PHASE FORMATION, THERMAL STABILITY AND MECHANICAL PROPERTIES OF RAPIDLY SOLIDIFIED Cu-Al-Ni-Mn SHAPE MEMORY ALLOY**

**C.S. Kiminami<sup>1</sup>, E.M. Mazzer<sup>2</sup>, P. Gargarella<sup>1</sup>, R.D. Cava<sup>1</sup>, F.H.P. de Almeida<sup>1</sup>, V.M. Pedrosa<sup>1</sup>, C. Bolfarini<sup>1</sup> and W.J. Botta<sup>1</sup>**

<sup>1</sup>Department of Materials Engineering, Federal University of São Carlos, São Carlos, SP, Brazil. <sup>2</sup>Postgraduate Program in Materials Science and Engineering, Federal University of São Carlos, São Carlos, SP, Brazil

■ **13:30 - 14:00 SNM-0008 *Invited Talk* LASER CHEMICAL VAPOR DEPOSITION OF C-AXIS-ORIENTED YBa2Cu3O7-X SUPERCONDUCTIVE FILMS**

**Rong Tu<sup>1</sup>, Ting Wang<sup>1</sup>, Wang Ke<sup>1</sup>, Song Zhang<sup>1</sup>, Pei Zhao<sup>2</sup>, Takashi Goto<sup>2</sup>**

<sup>1</sup>State Key Lab of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, P.R.China. <sup>2</sup>Institute for Materials Research, Tohoku University, Japan.



**14:00- 16:00 LUNCH**

## Mechanical Properties Session with Trends on Severe Plastic Deformation Symposium

 Session Chairs: **J. FEDERICO CHÁVEZ A. ESIQIE-INSTITUTO POLITÉCNICO NACIONAL**

■ **16:00 - 16:15 SNM-0009 MECHANICAL AND MICROSTRUCTURAL RESPONSE OF AN ALUMINUM NANOCOMPOSITE REINFORCED WITH CARBON-BASED PARTICLES**

**I. Estrada-Guel<sup>1,2</sup>, C. Carreño-Gallardo<sup>2</sup>, C. López-Meléndez<sup>3</sup>, R. Martínez-Sánchez<sup>2</sup>**

<sup>1</sup>Department of Mechanical Engineering Technology, University of Houston, Houston, USA. <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMA), Laboratorio Nacional de Nanotecnología, Chihuahua, Chih, Mexico. <sup>3</sup>Universidad La Salle Chihuahua, Chihuahua, Mexico.

■ **16:15 - 16:30 S4G-0013 EFFECT OF SEVERE PLASTIC DEFORMATION ON AN EXTRUDED ZK60 MAGNESIUM ALLOY**

**Florina-Diana Dumitru<sup>1</sup>, György Deák<sup>1</sup>, Oscar Fabián Higuera Cobos<sup>2</sup>, José María Cabrera<sup>3,4</sup>**

<sup>1</sup>National Institute for Research and Development in Environmental Protection, Bucharest, Romania. <sup>2</sup>Facultad de Ingeniería Mecánica, Universidad Tecnológica de Pereira, Vereda La Julita, Pereira, Colombia. <sup>3</sup>Departamento de Ciencia de los Materiales e Ingeniería Metalúrgica, Universidad Politécnica de Cataluña, Barcelona, España <sup>4</sup>Fundación CTM Centre Tecnològic, Manresa, Spain

■ **16:30 - 17:00 SNM-0010 *Invited Talk* STRENGTHENING OF CuMg ALLOYS DEFORMED BY EQUAL CHANNEL ANGULAR PRESSING**

**J.M. Cabrera<sup>1,2</sup>, P. Rodríguez-Calvillo<sup>1,2</sup>, N. Ferrer<sup>3</sup>**



<sup>1</sup> Fundació CTM Centre Tecnològic, Manresa, Spain. <sup>2</sup> Universitat Politècnica de Catalunya, Departament de Ciència de los Materiales e Ingeniería Ingeniería Metalúrgica, Barcelona, Spain. Les Masies de Voltregà, Barcelona, Spain

■ **17:00 - 17:30 SNM-0011 *Invited Talk* HIGH STRENGTH AND ENHANCED ELECTRICAL CONDUCTIVITY IN NANOSTRUCTURED ALUMINIUM ALLOYS**

I. Sabirov<sup>1</sup>, M.Yu. Murashkin<sup>2,3</sup> and R.Z. Valiev<sup>2,3</sup>

<sup>1</sup>IMDEA Materials Institute, Madrid, Spain. <sup>2</sup>Ufa State Aviation Technical University, Russia. <sup>3</sup>Saint Petersburg State University, Peterhof, Saint Petersburg, Russia

■ **17:30 - 18:00 S4G-0014 *Invited Talk* THE INCREASED STRENGTH AND ELECTRICAL CONDUCTIVITY IN ULTRAFINE-GRAINED Cu-BASED ALLOYS WITH Cr, Zr AND Hf AFTER SEVERE PLASTIC DEFORMATION**

S.V. Dobatkin<sup>1,2</sup>, D.V. Shangina<sup>1,2</sup>, N.R. Bochvar<sup>1</sup>

<sup>1</sup>A.A. Baikov Institute of Metallurgy and Materials Science, Russian Academy of Sciences, Moscow, Russia. <sup>2</sup>National University of Science and Technology "MISIS", Laboratory of Hybrid Nanostructured Materials, Russia

■ **18:00 - 18:15 S4G-0015 SEGREGATION HARDENING CONTRIBUTION IN AN AL-MG ALLOY AND A STAINLESS STEEL NANOSTRUCTURED BY HIGH PRESSURE TORSION**

A. Enikeev<sup>1,2</sup>, M. M. Abramova<sup>1</sup>, M. Murashkin<sup>1,2</sup>, R. Z. Valiev<sup>1,2</sup>, X. Sauvage<sup>3</sup>

<sup>1</sup>Institute for Physics of Advanced Materials, Ufa State Aviation Technical University, Russia; <sup>2</sup>University of Rouen, France; <sup>3</sup>Saint Petersburg State University, St. Petersburg, Russia

■ **18:15 - 18:30 S4G-0016 THE EFFECT OF SEVERE PLASTIC DEFORMATION ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF TITANIUM MATRIX COMPOSITES**

W.J. Lu<sup>1,2</sup>, Y.F. Han<sup>1</sup>, J.X. Li<sup>1</sup>, G.F. Huang<sup>1</sup>, D. Zhang<sup>1</sup>

<sup>1</sup>State Key Laboratory of Metal Matrix Composites, Shanghai Jiao Tong University, Shanghai, China. <sup>2</sup>Shanghai Key Laboratory of Advanced High Temperature Materials and Precision Forming, Shanghai, China

ROOM: TERRACE  
WEDNESDAY, AUGUST 19

► **18:30 -20:30 POSTER SESSION & COFFEE BREAK**

■ **SNM-P001 CORROSION STUDY OF THE PVD NANOCOATING SYSTEM OF AN AERO-ENGINE NI-BASE SUPERALLOY**

Jamnie Yazmín Achem Calahorra<sup>1</sup>, Hilda Esperanza Esparza Ponce<sup>2</sup>, Patricia del Carmen Zambrano Robledo, José Ángel Cabral Miramontes, Citalli Gaona Tiburcio

<sup>1</sup>Universidad Autónoma de Nuevo León (UANL), Centro de Investigación e Innovación en Ingeniería Aeronáutica (CIIIA). Apodaca, N.L. México. <sup>2</sup>Centro de Investigación en Materiales Avanzados S.C. (CIMAV Chihuahua, Chih. México. <sup>3</sup>Universidad Autónoma de Nuevo León (UANL), Centro de Investigación e Innovación en Ingeniería Aeronáutica (CIIIA). Apodaca, N.L. México.

■ **SNM-P002 KINETIC AND THERMODYNAMIC PARAMETERS OF SILVER ELECTRODEPOSITION IN A CHOLINE CHLORIDE: UREA SOLVENT. EFFECT OF HYDRODYNAMIC CONDITIONS AND TEMPERATURE**

J. Aldana-González<sup>1,2</sup>, L. E. Botello<sup>3</sup>, J. Mostany<sup>3</sup>, M. G. Montes de Oca<sup>2</sup>, M. Romero-Romo<sup>2</sup>, E. M. Arce-Estrada<sup>1</sup>, M. Palomar-Pardavé<sup>2</sup>

<sup>1</sup>Departamento de Ingeniería Metalúrgica. Escuela Superior de Ingeniería Química e Industrias Extractivas, ESIQIE-IPN, UPALM México, D.F. <sup>2</sup>Universidad Autónoma Metropolitana-Azcapotzalco, Departamento de Materiales, México, D.F., México, D. F. <sup>3</sup>Universidad Simón Bolívar, Departamento de Química, Venezuela.

■ **SNM-P003 SILICA BASED HYBRID COATINGS FOR HIGH TEMPERATURE CORROSION PROTECTION**

L.E. Belly-González<sup>1</sup>, L. Téllez-Jurado<sup>1</sup>, J. F. Chávez-Alcalá<sup>1</sup>

<sup>1</sup>Department of Engineering in Metallurgy and Materials, ESIQIE-Instituto Politécnico Nacional, UPALM. México, D.F., México

■ **SNM-P004 GROWTH AND CHARACTERIZATION OF NANOESTRUCTURED CdSe THIN FILMS**

J. A. González-Olmos<sup>1</sup>, A. G. Rojas-Hernández<sup>2</sup>, A. L. Leal-Cruz<sup>2</sup>, A. Vera-Marquina<sup>2</sup>, and L. A. García-Delgado<sup>2</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, Hermosillo, Sonora, México. <sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, Mexico, Hermosillo, Sonora, México.



■ **SNM-P005 SYNTHESIS AND MICROSTRUCTURAL CHARACTERIZATION OF SnO<sub>2</sub>:Sb THIN FILMS OBTAINED BY AACVD**

P. Amézaga-Madrid<sup>1</sup>, A. Heiras Trevizo<sup>2</sup>, S.S. Castillo Molina<sup>2</sup>, O. Esquivel-Pereyra<sup>1</sup>, L. Corral-Bustamante<sup>2</sup>, M. Miki-Yoshida<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados S.C. - Departamento de Física de Materiales, Chihuahua, Chih., México. <sup>2</sup>Instituto Tecnológico de Ciudad Cuauhtémoc

■ **SNM-P006 STUDY ON NANOSTRUCTURED CDS1-XSEX FILMS DEPOSITED BY CHEMICAL SOLUTION**

E.A. Sanchez-Ramirez<sup>1</sup>, M.A. Hernandez-Perez<sup>1</sup>, J.R. Aguilar-Hernandez<sup>2</sup>

<sup>1</sup>Escuela Superior de Ingeniería Química e Industrias Extractivas, Instituto Politécnico Nacional, Mexico.

<sup>2</sup>Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, México D.F., Mexico

■ **SNM-P007 GROWTH AND DENSIFICATION KINETICS OF CBD-CdS THIN FILMS FOR SOLAR CELLS**

A. López Moreno<sup>1</sup>, A. Vera-Marquina<sup>2</sup>, A. L. Leal-Cruz<sup>2</sup>, I. E. Zaldivar-Huerta<sup>3</sup>, D. Berman-Mendoza<sup>2</sup>, P. Rosales-Quintero<sup>3</sup>, J.A. Perez-Aguirre<sup>1</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, Hermosillo, Sonora, México, <sup>2</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Sonora, México, <sup>3</sup>Instituto Nacional de Astrofísica, Óptica y Electrónica, Tonantzintla Puebla, México.

■ **SNM-P008 INFLUENCE OF THE DEPOSITION TIME AND TEMPERATURE ON GROWTH KINETICS AND PROPERTIES OF THE CdS<sub>0.25</sub>Se<sub>0.75</sub> THIN FILMS DEPOSITED BY CHEMICAL ROUTE**

E.A. Sanchez-Ramirez<sup>a</sup>, M.A. Hernandez-Perez<sup>a</sup>, J.R. Aguilar-Hernandez<sup>b</sup>

<sup>a</sup>Departamento de Ingeniería en Metalurgia y Materiales, ESIQIE- Instituto Politecnico Nacional U.P.A.L.M, México. <sup>b</sup>Escuela Superior de Física y Matemáticas- I.P.N. U.P.A.L.M., Mexico

■ **SNM-P009 INFLUENCE OF THE ACETYLACETONE STABILIZING AGENT ON THE FUNCTIONAL PROPERTIES OF FTO FILMS PREPARED BY SOL-GEL SPIN-COATING**

G.A. Velázquez-Nevárez<sup>1</sup>, J.R. Vargas-García<sup>1</sup>, O.E. Vega-Becerra<sup>2</sup>, M.Z. Figueroa-Torres<sup>3</sup>

<sup>1</sup>Departamento de Ingeniería Metalúrgica y Materiales, Instituto Politécnico Nacional, México. <sup>2</sup>Centro de Investigación en Materiales Avanzados, Unidad

Monterrey, Apodaca, Nuevo León, México. <sup>3</sup>Universidad Autónoma de Nuevo León, Monterrey, Nuevo León, México, México.

■ **SNM-P010 ARSENIC (III AND V) REMOVAL FROM WATER WITH MAGNETITE NANOPARTICLES SYNTHETIZED BY AACVD TECHNIQUE**

B. Monárrez-Cordero<sup>1</sup>, P. Amézaga-Madrid<sup>1</sup>, C. Leyva-Porras<sup>1</sup>, P. Pizá-Ruiz<sup>1</sup>, M. Miki-Yoshida<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados S.C. Departamento de Física de Materiales, Chihuahua, Chih., México.

■ **SNM-P011 SYNTHESIS AND MICROSTRUCTURAL CHARACTERIZATION OF SnO<sub>2</sub>:F THIN FILMS DEPOSITED BY AACVD FOR ITS POSSIBLE APPLICATION FOR ELECTRODES IN SOLAR CELLS**

P. Amézaga-Madrid<sup>1</sup>, K.A. Chavarria-Castillo<sup>2</sup>, O. Esquivel-Pereyra<sup>2</sup>, W. Antúnez-Flores<sup>1</sup>, P. Pizá Ruiz<sup>1</sup>, M. Miki-Yoshida<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados S.C. Departamento de Física de Materiales, Chihuahua, México. <sup>2</sup>Universidad Autónoma de Chihuahua, México.

■ **SNM-P012 SYNTHESIS AND OPTICAL KERR EFFECT EXHIBITED BY VERTICALLY ALIGNED CARBON NANOTUBES**

Cecilia Mercado-Zúñiga,<sup>1</sup> Marco Antonio Corona-Armas,<sup>2</sup> Reydezel Torres-Martínez,<sup>3</sup> Jorge Roberto Vargas-García,<sup>4</sup> Carlos Torres-Torres<sup>2</sup>

<sup>1</sup>Subdirección C, Tecnológico de Estudios Superiores de Coacalco, Coacalco de Berriozábal, Estado de México, México, <sup>2</sup>Sección de Estudios de Posgrado e Investigación, Escuela Superior de Ingeniería Mecánica y Eléctrica Unidad Zacatenco, Instituto Politécnico Nacional, México, Distrito Federal, México, <sup>3</sup>Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada Unidad Querétaro, Instituto Politécnico Nacional, Santiago de Querétaro, Querétaro, México, <sup>4</sup>Departamento de Ingeniería en Metalurgia y Materiales, Escuela Superior de Ingeniería Química e Industrias Extractivas, Instituto Politécnico Nacional, México, Distrito Federal, México

■ **SNM-P013 SIMULATION OF EVAPORATION OF THE DROP DURING THE FORMATION OF NANOPARTICLES BY AACVD**

B. E. Monárrez-Cordero<sup>1</sup>, P. Amézaga-Madrid<sup>1</sup>, A. Díaz-Díaz<sup>1</sup>, M. Miki-Yoshida<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados S. C. - Laboratorio Nacional de Nanotecnología, Chihuahua, Chih., México.

■ **SNM-P014 RECOVERY OF RARE EARTHS (La, Ce, Nd) FROM SPENT Ni/MH BATTERIES**

L. Nava-Noguez<sup>1</sup>, A. Jiménez-Muñiz<sup>1</sup>, E. G. Palacios-Beas<sup>1</sup>

<sup>1</sup>Departamento de Ingeniería en Metalurgia y Materiales, ESIQIE-IPN, UPALM, México, D.F., Mexico.

■ **SNM-P015 THE EFFECT OF MAGNETIC FIELD ON THE PARTICLE SIZE OF CoXNi100-X ALLOYS**

S. L. Olvera<sup>1</sup>, E. M. Arce<sup>2</sup>, J. Sánchez-Marcos<sup>3</sup>, F. J. Palomares<sup>4</sup>, L. Vázquez<sup>4</sup>, P. Herrasti<sup>3</sup>

<sup>1</sup>Instituto Politécnico Nacional, UPIIZ, Departamento de Formación Profesional Específica, Zacatecas, Zacatecas, México. <sup>2</sup>Instituto Politécnico Nacional, ESIQIE, Departamento de Ingeniería en Metalurgia y Materiales, México, D. F. México. <sup>3</sup>Universidad Autónoma de Madrid, Facultad de Ciencias, Departamento de Química-Física Aplicada, Madrid, Spain. <sup>4</sup>Instituto de Ciencia de Materiales de Madrid, ICMM-CSIC, Cantoblanco, Madrid.

■ **SNM-P016 CARBON NANOTUBES SYNTHESIS ON SUBSTRATE AND IN FORM OF FLAKES USING A COMMERCIAL MICROWAVES OVEN**

M. I. Suárez-Hernández<sup>1</sup>, G. Ortega-Cervantez<sup>2</sup>, G. L. Rueda-Morales<sup>2</sup>, J. Ortiz-López<sup>2</sup>

<sup>1</sup>ESIQIE-IPN, UPALM, Zacatenco, México.

<sup>2</sup>ESFM-IPN, UPALM, Zacatenco, México.

■ **SNM-P017 PROCESSING OF CdS SEMICONDUCTOR INKS FOR ELECTRONIC DEVICES PRINTING**

J. A. Pérez-Aguirre<sup>1</sup>, A. L. Leal-Cruz<sup>2,3</sup>, A. Vera-Marquina<sup>3</sup>, A. López Moreno<sup>3</sup>, A. G. Rojas-Hernández<sup>3</sup>, R. Gómez-Fuentes<sup>3</sup>, and L. A. García-Delgado<sup>3</sup>

<sup>1</sup>Departamento de Física, Universidad de Sonora, Hermosillo, Sonora, México. <sup>2</sup>Departamento de Ciencias Químico Biológicas, Universidad de Sonora, Hermosillo, Sonora, México. <sup>3</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Sonora, México.

■ **SNM-P018 KINETICS OF FORMATION AND CRYSTAL STRUCTURE DETERMINATION OF Sr4Al6O12SO4 NANOCRYSTALLINE**

G. Ríos-Rodríguez<sup>1</sup>, J. A. Rodríguez-García<sup>1</sup>, E. Rocha-Rangel<sup>1</sup>, J. M. Almanza-Robles<sup>2</sup>, J. Torres-Torres<sup>2</sup> and E. Refugio-García<sup>3</sup>

<sup>1</sup>Universidad Politécnica de Victoria, Ciudad Victoria, Tamaulipas, México. <sup>2</sup>Centro de Investigación y de Estudios Avanzados Unidad Saltillo, Coahuila,

México, <sup>3</sup>Universidad Autónoma Metropolitana, Departamento de Materiales, D.F., México,

■ **SNM-P019 OPTICAL PROPERTIES AND BAND GAP DETERMINATION OF ZINC OXIDE NANORODS OBTAINED BY AEROSOL ASSISTED CVD**

A. Sáenz-Trevizo<sup>1</sup>, P. Amézaga-Madrid<sup>1</sup>, P. Pizá-Ruiz<sup>1</sup>, W. Antúnez-Flores<sup>1</sup> and M. Miki-Yoshida<sup>1</sup>

Departamento de Física de Materiales, Centro de Investigación en Materiales Avanzados, S. C., Chihuahua, Chihuahua, México.

■ **SNM-P020 SYNTHESIS OF GOLD NANOPARTICLES BY EXTRACT OF OPUNTIA FICUS-INDICA**

A. Torres<sup>1</sup>, M.E Contreras-García<sup>1</sup>

<sup>1</sup>Instituto de Investigaciones en Metalurgia y Materiales, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Mich, México.

■ **SNM-P021 GROWTH AND CHARACTERIZATION OF MONO- AND MULTI-LAYER OF ZnO BY CBD FOR ELECTRONIC DEVICES**

A. Chaira-Sánchez<sup>1</sup>, A. Vera-Marquina<sup>1</sup>, A. L. Leal-Cruz<sup>1</sup>, D. Berman-Mendoza<sup>1</sup>, I. E. Zaldivar-Huerta<sup>2</sup>, A. García-Juárez<sup>1</sup>, and A. G. Rojas-Hernández<sup>1</sup>

<sup>1</sup>Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Sonora, México. <sup>2</sup>Instituto Nacional de Astrofísica, Óptica y Electrónica, Tonantzintla, Puebla, México.

■ **SNM-P022 Ir-Ru-Co ACTIVE OXIDE PARTICLES SUPPORTED ON TiO2 AND ANTIMONY-DOPED SnO2**

A. Verdejo-Palacios<sup>1</sup>, J.R. Vargas-García<sup>1</sup>, R.G. González-Huerta<sup>1</sup>

<sup>1</sup>Depto. Ing. Metalurgia y Materiales, ESIQIE Instituto Politécnico Nacional, D.F., México

■ **SNM-P023 SYNTHESIS OF AlNiCo-SiC COMPOSITE PREPARED BY MECHANICAL ALLOYING**

F.J. Baldenebro-Lopez<sup>1,2</sup>, J.A. Baldenebro-Lopez<sup>2</sup>, J.M. Herrera-Ramirez<sup>1</sup>, C.D. Gomez-Esparza<sup>1</sup> and R. Martinez-Sanchez<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMA), Laboratorio Nacional de Nanotecnología, Chihuahua, Chih., México. <sup>2</sup>Facultad de Ingeniería Mochis, Universidad Autónoma de Sinaloa, Los Mochis, Sinaloa, México.

■ **SNM-P024 ALUMINUM-WC COMPOSITES SYNTHESIZED BY MEANS OF MECHANICAL MILLING**

S-111



**A.P. Dimas-Muñoz<sup>1</sup>, E. Rocha-Rangel<sup>1</sup>, J. A. Rodríguez-García<sup>1</sup>**

<sup>1</sup>Universidad Politécnica de Victoria, Tamaulipas, México,

■ **SNM-P025 NANOCRYSTALLINE HIGH ENTROPY ALLOYS PRODUCED BY MECHANICAL ALLOYING**

**C. D. Gómez-Esparza<sup>1</sup>, F. J. Baldenebro-Lopez<sup>1,2</sup>, J. A. Baldenebro-Lopez<sup>2</sup> and R. Martínez-Sánchez<sup>1</sup>**

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, Chihuahua, Chih., México. <sup>2</sup>Facultad de Ingeniería Mochis, Universidad Autónoma de Sinaloa, Los Mochis, Sinaloa, México.

■ **SNM-P026 FABRICATION AND CHARACTERIZATION OF P3HT/PEO AND P3HT/PEO/CdS NANOFIBERS, AND IN-SITU SYNTHESIS OF CdS IN PRESENCE OF P3HT/PEO FIBERS**

**D. Hernández-Martínez<sup>a</sup>, M.E. Nicho-Díaz<sup>a</sup>, Claudia Martínez-Alonso<sup>b</sup>, Hailin Zhao-Hu<sup>b</sup>, Mónica Castillo-Ortega<sup>c</sup>**

<sup>a</sup> Centro de Investigación en Ingeniería y Ciencias Aplicadas, Universidad Autónoma del Estado de Morelos. (UAEM), Cuernavaca, Morelos, México. <sup>b</sup> Centro de Investigación en Energía, UNAM, México. <sup>c</sup> Universidad de Sonora, Hermosillo, Sonora, México.

■ **SNM-P027 COMPRESSION BEHAVIOR OF MAGNESIUM/CARBON NANOTUBES COMPOSITES USING THE POWDER METALLURGY TECHNIQUE**

**F.J. Baldenebro-López<sup>1,2</sup>, C.D. Gomez-Esparza<sup>1</sup>, J.E. Ledezma-Sillas<sup>1</sup> and J.M. Herrera-Ramírez<sup>1</sup>**

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, México. <sup>2</sup>Facultad de Ingeniería Mochis, Universidad Autónoma de Sinaloa, Los Mochis, Sinaloa, México.

■ **SNM-P028 GLUCOSE OXIDATION ON HIGHLY DISPERSED METAL NANOPARTICLES SUPPORTED ON CARBON NANOTUBES**

**Jiménez-Marín<sup>1</sup>, J. R. Vargas-García<sup>1</sup>, A. Manzo-Robledo<sup>2</sup>**

<sup>1</sup>Depto. de Ing. Metalúrgica y Materiales., ESIQIE- Instituto Politécnico Nacional México, <sup>2</sup>Laboratorio de Electroquímica y Corrosión, ESIQIE, Instituto Politécnico Nacional, México

■ **SNM-P029 CERAMIC MATERIALS: STUDIES ABOUT ALUMINA**

**L. Camacho Escobar<sup>1</sup>, B. Zeifert<sup>1</sup>, J.L. Contreras<sup>2</sup>, J. Salmones<sup>3</sup>, A. Romero Serrano<sup>1</sup>**

<sup>1</sup>Metallurgy and Materials Department, IPN-ESIQIE, UPALM, Mexico. <sup>2</sup>Energy Department, CBI, DF, Mexico. <sup>3</sup>Catalysis and Materials Laboratory, SEPI-ESIQIE, UPALM, Mexico.

■ **SNM-P030 ELECTRICAL IMPEDANCE OF MAGGANESE OLIVINE LITHIUM PHOSPHATE OBTAINED BY SOL GEL AND SINTERED BY PRESSURELESS SINTERING AND SPARK PLASMA SINTERING**

**Joel O. Herrera Robles<sup>1</sup>, Luis E. Fuentes Cobas<sup>2</sup>, Lorena Álvarez Contreras<sup>2</sup>, Sebastián Díaz de la Torre<sup>3</sup>, Oscar Raymond Herrera<sup>4</sup>, Héctor Camacho Montes<sup>1</sup>**

<sup>1</sup>Departamento de Física y Matemáticas. Instituto de Ingeniería y Tecnología. Universidad Autónoma de Ciudad Juárez. México. <sup>2</sup>Centro de Investigación en Materiales Avanzados CIMAV, Chihuahua México. <sup>3</sup>Centro de Investigación e Innovación Tecnológica. Instituto Politécnico Nacional. Azcapotzalco, México DF. <sup>4</sup>Centro de Nanociencia y Nanotecnología. Universidad Nacional Autónoma de México, Ensenada Baja California México.

■ **SNM-P031 EFFECT OF CRYSTALLIZATION ON THE DILATOMETRIC SHRINKAGE ANALYSIS FOR A MODEL GLASS CERAMIC**

**Omar Cedillos Barraza<sup>1</sup>, Perla E. García Casillas<sup>1</sup>, Claudia A. Rodríguez González<sup>1</sup>, Carlos A. Martínez-Pérez<sup>1</sup>, Armando García Reyes<sup>2</sup> and Héctor Camacho Montes<sup>1</sup>**

<sup>1</sup>Departamento de Física y Matemáticas. Instituto de Ingeniería y Tecnología. Universidad Autónoma de Ciudad Juárez. <sup>2</sup>Interceramic Technological Center, Chihuahua, Chih., Mexico

■ **SNM-P032 OBTAINING Al/MULLITE CERMETS BY POWDERS METALLURGY**

**J.A. Castillo-Robles<sup>1</sup>, E. Rocha-Rangel<sup>1</sup>, J. A. Rodríguez-García<sup>1</sup>**

<sup>1</sup>Universidad Politécnica de Victoria, Tamaulipas, México,

■ **SNM-P033 SYNTHESIS AND CHARACTERIZATION OF MESOPOROUS ALUMINA**

**G. Gómez<sup>1</sup>, J. A. Fabián Anguiano<sup>2</sup>, J. L. Contreras<sup>1</sup>, B. Zeifert<sup>2</sup>, T. Vázquez<sup>2</sup>, J. Navarrete<sup>3</sup>, J. Salmones<sup>2</sup>, G. A. Fuentes<sup>4</sup>, L. Nuño<sup>1</sup>**

<sup>1</sup> Universidad Autónoma Metropolitana-Azcapotzalco, DF, México. <sup>2</sup>Instituto Politécnico Nacional-ESIQIE, DF, México. <sup>3</sup>Instituto Mexicano del Petróleo, DF, México. <sup>4</sup>Universidad Autónoma Metropolitana-Iztapalapa, DF, México

■ **SNM-P034 PHOTOLUMINESCENCE AND RAMAN PROPERTIES OF Al-DOPED ZNO NANOSTRUCTURES**

**PREPARED USING METAL CHLORIDE BY SOL-GEL TECHNIQUE**

J. Keshtkar<sup>1</sup>, J.R. Vargas-Garcia<sup>2</sup>, J.A. Galaviz-Perez<sup>2</sup>, M.A. Quevedo-Lopez<sup>3</sup>, J. Martinez-Trinidad<sup>1</sup>

<sup>1</sup>School of Mechanical and Electrical Eng., National Polytechnic Institute, Mexico DF Mexico. <sup>2</sup>Dept of Materials and Metallurgical Eng, National Polytechnic Institute, Mexico DF Mexico. <sup>3</sup>Department of Materials Science and Eng, University of Texas at Dallas, TX, USA

■ **SNM-P035 ENHANCED PHOTOELECTROCHEMICAL BEHAVIOR OF TiO2 NANORODS FILM DECORATED BY SILVER NANOPARTICLES**

J.V. Medina<sup>1</sup>, E.M. Arce<sup>1</sup>, A. Manzo<sup>2</sup>, A. Romero<sup>1</sup>, M. Corrales<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional. ESIQIE. Departamento de Ingeniería en Metalurgia y Materiales, México, D.F. <sup>2</sup>Lab. de Electroquímica y Corrosion, Mexico

■ **SNM-P036 STUDY OF STRUCTURAL STRENGTH INTO MORTARS OF PORTLAND CEMENT BY CONTROLLED ADDING OF INDOLE NANOSTRUCTURES**

José Ernesto Domínguez-Herrera<sup>a</sup>, Delia Cristina Altamirano-Juárez<sup>a</sup>, Luis Armando Díaz-Torres<sup>b</sup>, Efraín Rubio-Rosas<sup>c</sup>, Francisco Jair Luna-Mosso<sup>d</sup>

<sup>a</sup>Universidad Tecnológica del Centro de Veracruz, Veracruz, México. <sup>b</sup>Centro de Investigaciones en Óptica, León, Guanajuato, México. <sup>c</sup>Benemérita Universidad Autónoma de Puebla – Centro Universitario de Vinculación y Transferencia Tecnológica; Puebla, Puebla. <sup>d</sup>Centro de Estudios de la Fotosíntesis Humana, A. C, Aguascalientes, Aguascalientes.

■ **SNM-P037 PREDICTION OF BULK GLASS FORMING ABILITY FOLLOWING STRUCTURAL PACKING MODELS**

C. E Borja<sup>1</sup>, J. A. Verduzco<sup>1</sup>, G. Lara-Rodríguez<sup>2</sup> I. A. Figueroa<sup>2</sup>

<sup>1</sup>Instituto de Investigación en Metalurgia y Materiales, México. <sup>2</sup>Instituto de Investigaciones en Materiales, México

■ **SNM-P038 DEVELOPMENT OF TOOL GRADE STEEL WITH HIGH THERMAL CONDUCTIVITY FOR HOT WORK**

N. Camargo Z.<sup>1</sup>, J.F. Chávez<sup>1</sup>, E. Meza<sup>2</sup>

<sup>1</sup>IPN-ESIQIE, Department of Engineering in Metallurgy and Materials, UPALM, Mexico, D.F. <sup>2</sup>Chemnitz University of Technology, Professorship for Machine Tools and Forming Technology, Chemnitz, Germany.

■ **SNM-P039 STUDY OF PRECIPITATION IN RAPIDLY SOLIDIFIED AND STIR-CASTED Al-Si-Mg ALLOYS**

R. Pinto<sup>1</sup>, E. Correa<sup>1</sup>, A. Hernández<sup>1</sup>, J.F. Chávez<sup>1</sup>

<sup>1</sup>IPN-ESIQIE, Department of Engineering in Metallurgy and Materials, UPALM, México D.F.

■ **SNM-P040 PRECIPITATION HARDENING IN NI-RICH NI-TI ALLOYS GENERATED ALONG A CONCENTRATION GRADIENT**

C. G. Garay-Reyes<sup>1</sup>, S. E. Hernández-Martínez<sup>2</sup>, I. Estrada-Guel<sup>1</sup>, J.L. Hernández-Rivera<sup>2</sup>, J. J Cruz-Rivera<sup>2</sup> and R. Martínez-Sánchez<sup>1</sup>.

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, México. <sup>2</sup>Universidad Autónoma de San Luis Potosí, Instituto de Metalurgia, México.

■ **SNM-P041 COMBINED EFFECT OF THERMO-MECHANICAL TREATMENTS AND ARTIFICIAL AGING ON MECHANICAL PROPERTIES OF COMMERCIAL 2024 ALLOY**

González-Rodelas<sup>1</sup>, E. Cuadros-Lugo<sup>2</sup> C.G. Garay-Reyes<sup>2</sup>, I. Estrada-Guel<sup>2</sup>, R. Martínez-Sánchez<sup>2</sup>

<sup>1</sup>Universidad Autónoma de Chihuahua, Facultad de ingeniería, Chihuahua, Chih., México. <sup>2</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, México.

■ **SNM-P042 EVOLUTION OF MICROSTRUCTURE IN Al-Si-Cu SYSTEM MODIFIED WITH A TRANSITION ELEMENT ADDITION AND ITS EFFECT ON HARDNESS**

H.M. Medrano-Prieto<sup>1</sup>, C.G. Garay-Reyes<sup>1</sup>, C.D. Gómez-Esparza<sup>1</sup>, R. Martínez-Sánchez<sup>1</sup>

<sup>1</sup>Centro de Investigación en Materiales Avanzados (CIMAV), Laboratorio Nacional de Nanotecnología, México

■ **SNM-P043 SYNTHESIS AND MAGNETIC CHARACTERIZATION OF Mn-Bi ALLOYS OBTAINED BY SUCTION CASTING**

J. Zamora-Mendieta<sup>1</sup>, I. Betancourt<sup>1</sup>, I. A. Figueroa<sup>1</sup>

<sup>1</sup>Departamento de Materiales Metálicos y Cerámicos, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México D.F.

■ **SNM-P044 LATTICE TWINNING AND DETWINNING PROCESSES IN SHAPE MEMORY ALLOYS**

O. Adiguzel<sup>1</sup>

<sup>1</sup>Firat University, Department of Physics, Turkey





■ **SNM-P045 EFFECT OF Al ADDITION TO RAPID SOLIDIFIED Mg-Cu-RARE EARTH ALLOYS**

S. Rozenberg<sup>a</sup>, F. Audebert<sup>a,b,c</sup>, M. Galano<sup>d</sup>, I. Vergara Ogando<sup>d</sup>, C. Mendive<sup>e</sup>

<sup>a</sup>Advanced Materials Group, INTECIN, Faculty of Engineering, University of Buenos Aires, Ciudad de Buenos Aires, Argentina, <sup>b</sup>Department of Mechanical Engineering and Mathematical Sciences, Oxford Brookes University, Oxford, United Kingdom, <sup>c</sup>Department of Materials, University of Oxford, Oxford, United Kingdom <sup>d</sup>Department of Physics, Madrid, Spain, <sup>e</sup>Department of Chemistry, University of Mar del Plata, Argentina

■ **SNM-P046 EFFECT OF ALLOYING ELEMENTS IN MELT SPUN Mg ALLOYS FOR HYDROGEN STORAGE**

S. Rozenberg<sup>a</sup>, J. Lang<sup>b</sup>, F. Audebert<sup>a,c</sup>, F. Saporiti<sup>a</sup>, P. Botta<sup>d</sup>, M. Stoica<sup>e</sup>, J. Huot<sup>b</sup>, J. Eckert<sup>e</sup>

<sup>a</sup>Advanced Materials Group, INTECIN, Faculty of Engineering, University of Buenos Aires, Argentina, <sup>b</sup>Institut de recherche sur l'hydrogène, Université du Québec, Canada, <sup>c</sup>Department of Mechanical Engineering and Mathematical Sciences, Oxford Brookes University, Oxford, United Kingdom, <sup>d</sup>INTEMA, Faculty of Engineering, University of Mar del Plata, Argentina, <sup>e</sup>IFW Dresden, Leibniz Institute, Dresden, Germany

■ **09:00 - 09:30 S4G-0017 Invited Talk HYDROGEN STORAGE PROPERTIES OF NANOCRYSTALLINE Mg-Ni COMPOUNDS PRODUCED BY COLD ROLLING**

Floriano, R.<sup>1</sup>; Leiva, D. R.<sup>2</sup>; Figueroa, S. J. A.<sup>3</sup>; Zepon, G.<sup>2</sup>; Botta, W. J.<sup>2</sup>

<sup>1</sup>Faculdade de Ciências Aplicadas, Universidade Estadual de Campinas (UNICAMP), Brasil. <sup>2</sup>Departamento de Engenharia de Materiais, Universidade Federal de São Carlos (UFSCAR), Brasil. <sup>3</sup>Centro Nacional de Pesquisa em Energia e Materiais, Laboratório Nacional Luz Síncrotron (LNLS), Brasil.

■ **09:30 - 09:45 S4G-0018 DEVELOPING ALUMINUM ALLOYS FOR HYDROGEN GENERATION IN WATER USING HIGH-PRESSURE TORSION**

Fan Zhang<sup>1,2</sup>, Kaveh Edalati<sup>2</sup>, Makoto Arita<sup>1</sup>, Zenji Horita<sup>1,2</sup>

<sup>1</sup>Department of Materials Science and Engineering, Faculty of Engineering, Kyushu University, Japan. <sup>2</sup>WPI, International Institute for Carbon-Neutral Energy Research (I2CNER), Kyushu University, Japan

■ **09:45 - 10:00 S4G-0019 Invited Talk BALL MILLED AND SPD-NANOMATERIALS FOR HYDROGEN STORAGE**

D. R. Leiva<sup>1</sup>, R. Floriano<sup>2</sup>, T. T. Ishikawa<sup>1</sup>, C. S. Kiminami<sup>1</sup>, W. J. Botta<sup>1</sup>

<sup>1</sup>Departamento de Engenharia de Materiais, Universidade Federal de São Carlos, Brazil. <sup>2</sup>Faculdade de Ciências Aplicadas, Universidade Estadual de Campinas, Brazil.

■ **10:00 - 10:30 SNM-0013 Invited Talk HYDROGENATION PROPERTIES OF MG-ALLOYS PROCESSED BY ECAP AND COLD-ROLLING: INFLUENCE OF TEXTURES, GRAIN SIZE, PRECIPITATION AND CATALYSTS**

Alberto Moreira Jorge Júnior<sup>1,2</sup>

<sup>1</sup> Departamento de Engenharia de Materiais, Universidade Federal de São Carlos, Brazil. <sup>2</sup> LEPMI and SiMap Laboratory CNRS, France.

■ **10:30 - 11:00 S4G-0020 Invited Talk CHARACTERIZATION OF HYDROGEN STORAGE PROPERTIES OF Mg-Fe-CNT COMPOSITES PREPARED BY BALL MILLING, HOT-EXTRUSION AND SEVERE PLASTIC DEFORMATION METHODS**

Gisele Ferreira de Lima<sup>1</sup>, Maria Regina Martins Triques<sup>2</sup>, Claudio Shyinti Kiminami<sup>2</sup>, Walter Jose Botta<sup>2</sup>, Alberto Moreira Jorge Junior<sup>2</sup>

ROOM: MAYA III

THURSDAY, AUGUST 20

Hydrogen Storage Session  
with Trends on Severe Plastic  
Deformation Symposium


👤 Session Chair: MIHAI STOICA  
LEIBNIZ INSTITUTE FOR SOLID STATE AND  
MATERIALS RESEARCH, DRESDEN, GERMANY

■ **08:30 - 09:00 SNM-0012 Invited Talk EFFECT OF SUBSTITUTION OF VANADIUM BY FERROVANADIUM IN Ti-V-Mn BCC ALLOYS: HYDROGEN STORAGE PROPERTIES AND NEUTRON DIFFRACTION STUDY**

Tousignant<sup>a</sup>, B. C. Hauback<sup>b</sup>, J. Huot<sup>a</sup>

<sup>1</sup>Hydrogen Research Institute, Université du Québec à Trois-Rivières, Canada. <sup>2</sup>Institute for Energy Technology, Department of Physics, Norway

<sup>1</sup>Science and Technology Institute, Federal University of São Paulo, São José dos Campos/SP, Brazil; <sup>2</sup>Department of Materials Engineering, Federal University of São Carlos, São Carlos/SP, Brazil

 **11:00 – 11:30 COFFEE BREAK**

 **11:30 – 12:30 PLENARY LECTURE**

## Polymers Session

 Session Chair: **D. RODRIGO LEIVA, UNIVERSIDADE FEDERAL DE SÃO CARLOS, BRAZIL**

 Co-Chair: **MA. DE LOS ÁNGELES HERNÁNDEZ, ESIQIE-INSTITUTO POLITÉCNICO NACIONAL**

■ **12:30 - 12:45 SNM-0014 SYNTHESIS OF PAMAM DENDRIMERS WITH PORPHYRIN CORE AND FUNCTIONALIZED PERIPHERY AS TEMPLATE OF Ag NANOPARTICLES**

R. Hernández<sup>1</sup>, I. Lijanova<sup>1</sup>, N. Likhanova<sup>2</sup>, A. Hernández<sup>3</sup>, C. Fonseca<sup>4</sup>, T. Torres<sup>3</sup>

<sup>1</sup>Instituto Politécnico Nacional, CIITEC, México. <sup>2</sup>Instituto Mexicano del Petróleo, Dirección de Investigación y Posgrado, México. <sup>3</sup>Tecnológico de Estudios Superiores de Coacalco, México. <sup>4</sup>Departamento de Ingeniería Mecánica, Química y Diseño Industrial, Escuela Técnica Superior de Ingeniería y Diseño Industrial, Universidad Politécnica de Madrid, España.

■ **12:45 - 13:00 SNM-0015 BIODEGRADABLE AND ANTIMICROBIAL POLYCAPROLACTONE NANOFIBERS WITH AND WITHOUT SILVER PRECIPITATES**

L.A. Dobrzański<sup>a</sup>, A. Hudecki<sup>a</sup>, G. Chladek<sup>a</sup>, W. Król<sup>b</sup>, A. Mertas<sup>b</sup>

<sup>a</sup>Institute of Engineering Materials and Biomaterials, Silesian University of Technology, Gliwice, Poland. <sup>b</sup>Department of Microbiology and Immunology, Medical University of Silesia in Katowice, Zabrze, Poland.

■ **13:00 - 13:15 SNM-0016 COMPOSITE FILMS FROM POLYSTYRENE WITH HYDROXYL END GROUPS AND CARBON NANOTUBES**

F. G. Granados Martínez<sup>1</sup>, L. Domratcheva Lvova<sup>1</sup>, N. Flores Ramírez<sup>1</sup>, L. García González<sup>2</sup>, L. Zamora Peredo<sup>2</sup>, M. de L. Mondragón Sánchez<sup>3</sup>

<sup>1</sup>Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, México. <sup>2</sup>Centro de Investigaciones en Micro y Nanotecnología de la Universidad

Veracruzana, Boca del Río, Veracruz, México. <sup>3</sup>Instituto Tecnológico de Morelia, Morelia, Michoacán, México

■ **13:15 - 13:30 SNM-0017 ELECTROCHEMICAL PERFORMANCE AND  $\mu$ LFCC EVALUATION OF Pd/C AND PdRu/C SYNTHESIZED BY CARBONYL ROUTE TOWARDS OXYGEN REDUCTION AND METHANOL AND FORMIC ACID OXIDATION REACTIONS**

J.M. Mora - Hernández<sup>a,c</sup>, E.M. Arce - Estrada<sup>a</sup>, C. Reza - San Germán<sup>b</sup>, and N. Alonso-Vante<sup>c</sup>

<sup>a</sup>IPN, ESIQIE, DIMM, UPALM, Mexico D.F., Mexico. <sup>b</sup>IPN, ESIQIE, DIQI, UPALM, Mexico D.F., Mexico. <sup>c</sup>IC2MP, University of Poitiers, Poitiers., France.

■ **13:30 - 13:45 SNM-0018 EXPANDING DYNAMIC RANGE IN OPTICAL KERR TRANSMITTANCE BY A MAGNETIC FIELD IN MULTIWALL CARBON NANOTUBES**

José Antonio García-Merino<sup>1</sup>, Christopher René Torres-San Miguel<sup>1</sup>, Claudia Lizbeth Martínez-González<sup>1</sup>, Martín Trejo-Valdez<sup>2</sup>, Hugo Martínez-Gutiérrez<sup>3</sup>, Carlos Torres-Torres<sup>1</sup>

<sup>1</sup>Sección de Estudios de Posgrado e Investigación, Escuela Superior de Ingeniería Mecánica y Eléctrica Unidad Zacatenco, Instituto Politécnico Nacional, México, Distrito Federal, México. <sup>2</sup>Escuela Superior de Ingeniería Química e Industrias Extractivas, Instituto Politécnico Nacional, México, Distrito Federal, México. <sup>3</sup>Centro de Nanociencia y MicroNanotecnología del Instituto Politécnico Nacional, México, Distrito Federal, México.

 **14:00 - 16:00 LUNCH**

## Processing Session

 Session Chair: **J. ROBERTO VARGAS G., ESIQIE - INSTITUTO POLITÉCNICO NACIONAL**

 Co-Chair: **RICARDO FLORIANO, UNIVERSIDADE ESTADUAL DE CAMPINAS, BRAZIL**

■ **16:00 - 16:30 SNM-0019 Invited Talk Mg-BASED NANOCOMPOSITES PREPARED BY REACTIVE MILLING AND COLD ROLLING**

Floriano, R.<sup>1</sup>; Deledda, S.<sup>2</sup>; Hauback, B.<sup>2</sup>; Leiva, D. R.<sup>3</sup>; Zepon, G.<sup>3</sup>; Figueroa, S. J.A.<sup>4</sup>; Botta, W. J.<sup>3</sup>

<sup>1</sup>Faculdade de Ciências Aplicadas, Universidade Estadual de Campinas (UNICAMP), Rua Pedro Zaccaria, Limeira, SP, Brasil. <sup>2</sup>Physics Department, Institute for Energy Technology (IFE), Kjeller, Norway. <sup>3</sup>Departamento de Engenharia de Materiais, Universidade Federal de São



Carlos (UFSCAR), São Carlos, SP, Brasil. <sup>4</sup>Centro Nacional de Pesquisa em Energia e Materiais, Laboratório Nacional Luz Síncrotron (LNLS), Campinas, SP, Brasil

■ **16:30 - 17:00 SNM-0020 *Invited Talk* MICROWAVE PROCESSING OF CERAMIC NANOMATERIALS**

Ruth H. G. A. Kiminami<sup>1</sup>

<sup>1</sup>Federal University of São Carlos – Materials Engineering Department, São Paulo - Brazil

■ **17:00 - 17:30 SNM-0021 *Invited Talk* EASILY HYDRIDABLE NANOSTRUTURED TiFe FROM BALL MILLED TiH<sub>2</sub> AND Fe POWDERS MIXTURES**

R. B. Falcão<sup>1</sup>, E. D. C. C. Dammann<sup>1</sup>, C. J. Rocha<sup>1</sup>, R. U. Ichikawa<sup>1</sup>, L. G. Martinez<sup>1</sup>, M. Durazzo<sup>1</sup>, R. M. Leal Neto<sup>1</sup>

<sup>1</sup> Instituto de Pesquisas Energéticas e Nucleares, IPEN-CNEN/SP, Brasil

■ **17:30 - 17:45 SNM-0022 HSYCVD SYNTHESIS AND CHARACTERIZATION OF UNDOPED AND Eu-DOPED TiO<sub>2</sub> BASED CERAMICS**

A.L. Leal-Cruz<sup>1,2</sup>, R. Meléndrez-Amavizca<sup>2</sup>, A. Vera-Marquina<sup>2</sup>, M. Barboza-Flores<sup>2</sup>, J. A. Pérez-Aguirre<sup>2</sup>, and A. García-Juárez<sup>2</sup>

<sup>1</sup> Departamento de Investigación en Física, Universidad de Sonora, Hermosillo, Sonora, México. <sup>2</sup> Departamento de Ciencias Químico Biológicas, Universidad de Sonora, Hermosillo, Sonora, México.

■ **17:45 - 18:00 SNM-0023 SEVERE PLASTIC DEFORMATION OF Mg-6Zn-1Zr WITH 2.5 WT.% MISCHMETAL FOR HYDROGEN STORAGE**

J. Soyama<sup>1</sup> M.R.M. Triques<sup>1</sup> D.R. Leiva<sup>1</sup> E.P. Silva<sup>2</sup> H.C. Pinto<sup>2</sup> C.S. Kiminami<sup>1</sup> A.M. Jorge<sup>1</sup> W. J. Botta<sup>1</sup>

<sup>1</sup>Universidade Federal de São Carlos, Brazil. <sup>2</sup>Universidade de São Paulo, Brazil

Closing Ceremony

## Symposium WMC

# MEXICO-CHINA WORKSHOP ON NANOMATERIALS, NANOSCIENCE AND NANOTECHNOLOGY: RENEWABLE ENERGY AND WATER REMEDIATION

Juan Antonio Zapien / MEXICO / City University of Hong Kong

Sandra Rodil / MEXICO / Universidad Nacional Autónoma de México

Guoqiang Li / MEXICO / State Key Laboratory of Luminescent Materials and Devices

Iliana Medina Ramírez / MEXICO / Universidad Autónoma de Aguascalientes

ROOM: UXMAL I  
SATURDAY, AUGUST 15

- **8:50 - 9:10 Inauguración / Welcome Dr. Gerardo Cabañas**

👤 Chairs: JIESHENG CHEN & RODOLFO ZANELLA

- **9:10 - 9:35 SWMC-001 *Invited Talk* RECENT ADVANCES ON NANO-MATERIALS AND TECHNOLOGIES FOR ADVANCED ELECTRONIC, PHOTONIS AND MEMS APPLICATIONS**  
C.P. Wong<sup>1</sup>  
<sup>1</sup>Chinese University of Hong Kong
- **9:35 - 10:00 SWMC-0002 *Invited Talk* UNDERSTANDING STABILIZATION FORCES ON ZNO POLAR SURFACES**  
S. Y. Tong<sup>1</sup>  
<sup>1</sup>South University of Science and Technology of China, China.
- **10:00 - 10:25 SWMC-0003 *Invited Talk* HETEROSTRUCTURES BASED ON LAYER-BY-LAYER CONTROLLED QUANTUM WELLS OF II-VI SEMICONDUCTORS FOR OPTOELECTRONIC APPLICATIONS**  
Isaac Hernández-Calderón<sup>1</sup>  
<sup>1</sup>Physics Department, CINVESTAV.

- **10:25 - 10:50 SWMC-0004 *Invited Talk* SUSTAINABLE ENERGY: TECHNOLOGICAL HYPES AND REAL SOLUTIONS**

Yip-Wah Chung<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering and Mechanical Engineering, Institute for Sustainability and Energy, Northwestern University, Evanston, Illinois, USA

- **10:50 - 11:00 DISCUSSION LEADERS: MARINA RINCON & JIESHENG CHEN**

☒ **11:00 - 11:30 COFFE BREAK**

👤 Chairs: JL PENA & CHAO-JUN LI

- **11:30 - 11:55 SWMC-0005 *Invited Talk* SIZE CHARACTERIZATION AND STABLE ISOTOPE FRACTIONATION OF SILVER NANOPARTICLES**  
Dawei Lu<sup>1</sup>, Lihong Liu<sup>1</sup>, Qian Liu<sup>1</sup>, Guibin Jiang<sup>1</sup>  
<sup>1</sup>State Key Laboratory of Environmental Chemistry & Toxicology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China
- **11:55 - 12:15 SWMC-0006 *Invited Talk* SYNTHESIS, CHARACTERIZATION AND PHOTOCATALYTIC BEHAVIOR OF WO<sub>3</sub>/TiO<sub>2</sub>-A (A = N) UNDER SOLAR RADIATION**  
A. Cordero García<sup>1</sup>, A. Hernández-Ramírez<sup>1</sup>  
<sup>1</sup>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, Laboratorio de Fotocatálisis y Electroquímica Ambiental, México.



■ **12:15 - 12:35 SWMC-0007 *Invited Talk* THE ROLE OF CLASS I INTEGRONS IN THE DISSEMINATION OF SULFONAMIDE RESISTANCE GENES IN THE PEARL RIVER AND PEARL RIVER ESTUARY, SOUTH CHINA**

Baowei Chen<sup>2</sup>, Ximei Liang<sup>4</sup>, Xiangping Nie<sup>5</sup>, Xiaoping Huang<sup>3</sup>, Shichun Zou<sup>2</sup>, Xiangdong Li<sup>1</sup>

<sup>1</sup>Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong. <sup>2</sup>School of Marine Sciences, Sun Yat-Sen University, China. <sup>3</sup>Key Laboratory of Tropical Marine Bio-resources and Ecology, South China Sea Institute of Oceanology, Chinese Academy of Science China. <sup>4</sup>Pearl River Fisheries Research Institute, Chinese Academy of Fishery Sciences, China. <sup>5</sup>Department of Ecology/Institute of Hydrobiology, Jinan University, China.

■ **12:35 - 12:55 SWMC-0008 *Invited Talk* ELECTROCHEMICAL DETECTORS USING MODIFIED ELECTRODES WITH PRUSSIAN BLUE AND ORGANIC POLYMERS TO DETECT COMPOUNDS WITH BIOLOGICAL AND ENVIRONMENTAL IMPORTANCE**

Erika Bustos Bustos<sup>1</sup>

<sup>1</sup>Environmental Electrochemistry Group, Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S. C. México.

■ **12:55 - 13:20 SWMC-0009 *Invited Talk* NANOTECHNOLOGY-ENABLED WATER TREATMENT AND MICROBIAL CONTROL: MECHANISMS, APPLICATIONS & IMPLICATIONS**

Pedro J.J. Alvarez<sup>1</sup>

<sup>1</sup>Dept. of Civil & Environmental Engineering, Rice University, Houston, USA.

■ **13:15 - 13:25 DISCUSSION LEADERS: RODOLFO ZANELLA & GUIBING JIANG**



**13:25 - 15:00 Lunch**



**Chairs: ELDER DE LA ROSA & JIANFANG WANG**

■ **15:00 - 15:25 SWMC-010 *Invited Talk* EXPLORING NEW NANOCATALYSTS FOR CHEMICAL TRANSFORMATIONS**

Chao-Jun Li<sup>1</sup>

<sup>1</sup>McGill University

■ **15:25 - 15:45 SWMC-0011 *Invited Talk* SYNTHESIS OF NiTiO<sub>3</sub> AS A NEW MATERIAL FOR**

**PHOTOCATALYSIS IN THE VISIBLE WAVELENGTH RANGE**

Marco A. Ruiz-Preciado<sup>1,2</sup>, Arturo Morales-Acevedo<sup>1</sup>, A. Kassiba<sup>2</sup>, A. Gibaud<sup>2</sup> and M. Makowska<sup>3</sup>

<sup>1</sup>Centro de Investigación y de Estudios Avanzados del IPN, Mexico, D. F. <sup>2</sup>Institute of Molecules and Materials of Le Mans, Université du Maine, France. <sup>3</sup>Institute of Physics, Jan Dlugosz University in Czestochowa, Poland.

■ **15:45 - 15:55 SWMC-0012 VISIBLE LIGHT-INDUCED PHOTOCATALYTIC ACTIVITY OF MODIFIED TITANIUM (IV) OXIDE WITH ZERO-VALENT BISMUTH CLUSTERS**

H. Remita<sup>1</sup>, N. A. Kouamé<sup>1</sup>, O. Tahir Alaoui<sup>2</sup>, A. Herissan<sup>1</sup>, E. Larios<sup>3,4</sup>, M. José-Yacamán<sup>3</sup>, A. Etcheberry<sup>5</sup>, C. Colbeau-Justin<sup>1</sup>

<sup>1</sup>Laboratoire de Chimie Physique, France. <sup>2</sup>Département de Chimie, Faculté des Sciences et Techniques, Université My Ismail, Errachidia, Morocco. <sup>3</sup>Department of Physics & Astronomy, The University of Texas at San Antonio, One UTSA Circle, San Antonio, USA. <sup>4</sup>Departamento de Ingeniería Química y Metalurgia, Universidad de Sonora, Sonora, Mexico. <sup>5</sup>Institut Lavoisier de Versailles, France

■ **15:55 - 16:05 SWMC-0013 TRANSITION OF NANOSPHERES TO NANOFIBERS OF CdS PREPARED IN ETHYLENEDIAMINE-BUTANOL SOLVENT AND ITS PHOTOCATALYTIC PROPERTIES**

Agileo Hernández-Gordillo<sup>1</sup>, Etel Maya-Flores<sup>2</sup>, Ricardo Gomez<sup>3</sup>

<sup>1</sup>Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México. Circuito México. <sup>2</sup>Instituto Mexicano del Petróleo, México. <sup>3</sup>Depto. de Química, Área de Catálisis, Universidad Autónoma Metropolitana - Iztapalapa, México.

■ **16:05 - 16:15 SWMC-0014 A CHARGE-CARRIER DYNAMICS STUDY IN PHOTOCATALYTIC TiO<sub>2</sub> BY TIME RESOLVED MICROWAVE CONDUCTIVITY**

Alexandre Hérisson<sup>1</sup>, Ana Laura Luna Barron<sup>1</sup>, Maria Guadalupe Mendez Medrano<sup>1</sup>, Jonathan Verrett<sup>1</sup>, Hynd Remita<sup>1</sup>, Christophe Colbeau-Justin<sup>1</sup>

<sup>1</sup>Laboratoire de Chimie Physique, Université Paris-Sud, Bâtiment, France

■ **16:15 - 16:25 SWMC-0015 SURFACE SEGREGATION AND PHASE DIAGRAMS FOR NANOALLOYS IN CATALYSIS: MOLECULAR DYNAMICS SIMULATIONS AND MODELLING STUDY OF AuCu AND AuPd ALLOYS**

José Luis Rodríguez López<sup>1</sup>, Jaime Osiris Salinas Jiménez<sup>2</sup> and Jaime Enrique Pérez Terrazas<sup>2</sup>



<sup>1</sup> Advanced Materiales Department, Instituto Potosino de Investigación Científica y Tecnológica, A.C, México. <sup>2</sup> Instituto Tecnológico de Saltillo, División de Estudios de Posgrado e Investigación Saltillo, Coahuila, México.

■ **16:25 - 16:35 DISCUSSION LEADERS:**  
**JINWENSHI & JUAN MANRIQUEZ**

☞ **16:35 - 17:00 COFFEE BREAK**

👤 **Chairs: HYND REMITA & HAILIN HU**

■ **17:00 - 17:25 SWMC-0016 Invited Talk**  
**PHOTOCATALYTIC HYDROGEN PRODUCTION BY Au-MxOy/TiO2 (M=Ag, Cu, Ni)**

Rodolfo Zanella<sup>1</sup>, Socorro Oros-Ruiz<sup>1,2</sup>, Ricardo Gómez<sup>2</sup>, Agileo Hernández-Gordillo<sup>2,3</sup>, Sebastian E. Collins<sup>4</sup>

<sup>1</sup>Centro de Ciencias Aplicadas y Desarrollo Tecnológico, UNAM. <sup>2</sup>Eco-CATAL, UAM-Iztapalapa. <sup>3</sup>Instituto de Investigaciones en Materiales, UNAM. <sup>4</sup>Instituto de Desarrollo Tecnológico para la Industria Química, UNL

■ **17:25 - 17:45 SWMC-0017 Invited Talk**  
**MOLYBDENUM SULFIDE NANOSHEETS: AMMONIA POST-TREATMENT TOWARDS IMPROVED VISIBLE-LIGHT-DRIVEN HYDROGEN PRODUCTION**

Jinwen Shi<sup>1</sup>, Yazhou Zhang<sup>1</sup>, Liejin Guo<sup>1</sup>

<sup>1</sup>International Research Center for Renewable Energy (IRCRES), State Key Laboratory of Multiphase Flow in Power Engineering (MFPE), Xi'an Jiaotong University (XJTU).

■ **17:45 - 18:05 SWMC-0018 Invited Talk**  
**ELECTROCATALYTIC OXIDATION OF UREA ON Ni(II) CYCLAM-MODIFIED NANOPARTICULATE TiO2 ANODES FOR PROMOTING H2 EVOLUTION ON Pt ELECTRODES**

J. Manríquez<sup>1</sup>, S. Murcio-Hernández<sup>1</sup>, J.J. Pérez-Bueno<sup>1</sup>, S. Sepúlveda<sup>2</sup>

<sup>1</sup> Centro de Investigación y Desarrollo Tecnológico en Electroquímica S.C., México. <sup>2</sup> Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología, Universidad Autónoma de Nuevo León, Nuevo León, México.

■ **18:05 - 18:25 SWMC-0019 OPTIMIZATION OF WO3 NANOROD AND ITS CONFORMAL WO3/BIVO4 NANOWIRE HETEROJUNCTION FOR PHOTOELECTROCHEMICAL WATER OXIDATION**

J. Su<sup>1</sup>

<sup>1</sup>International Research Center for Renewable Energy, State Key Laboratory of Multiphase Flow in Power Engineering, Xian Jiaotong University, China

■ **18:25 - 18:35 DISCUSSION LEADERS:**  
**YIP-WAH CHUNG & MARINA RINCON**

▶ **18:35 - 19:30 RECEPTION & POSTERS**

■ **SWMC-P001 HIGHLY EFFICIENT GaN-BASED LIGHT-EMITTING DIODES GROWN ON Si (111) SUBSTRATES**

Guoqiang Li<sup>1</sup>, Yunhao Lin<sup>1</sup> and Wenliang Wang<sup>1</sup>

<sup>1</sup>South China University of Technology

■ **SWMC-P002 BISMUTH OXIDE THIN FILMS AS A VISIBLE PHOTOCATALYST**

J. C. Medina<sup>1,2</sup>, K. Barrera-Mota<sup>1,2</sup>, M. Bizarro<sup>1</sup>, S.E. Rodil<sup>1</sup>

<sup>1</sup> Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México. <sup>2</sup> Posgrado en Ciencia e Ingeniería de Materiales, Mexico.

■ **SWMC-P003 ENHANCED PHOTOACTIVITY OF TiO2 USING Au NANOPARTICLES FOR WATER TREATMENT AND HYDROGEN PRODUCTION**

G. Méndez-Medrano<sup>1,2</sup>, A. Herissan<sup>1</sup>, E. Kowalska<sup>3</sup>, A. Lehoux<sup>3</sup>, B. Ohtani<sup>3</sup>, S. Rau<sup>4</sup>, C. Colbeau-Justin<sup>1</sup>, J.L. Rodríguez-López<sup>2</sup> and H. Remita<sup>1</sup>

<sup>1</sup>Laboratoire de Chimie Physique, France. <sup>2</sup>Advanced Materials Department, IPICYT, Mexico. <sup>3</sup>Catalysis Research Center, Hokkaido University, Sapporo, Japan. <sup>4</sup>Ulm University, Department of Chemistry, Germany.

■ **SWMC-P004 EVALUATION OF THE PHOTOCATALYTIC ACTIVITY OF Ag@TiO2 AND Ag@ZnO. SYNTHESIS OF CARBONYL COMPOUNDS UNDER VISIBLE LIGHT**

Víctor Eulogio López Guerrero<sup>1</sup>, Iliana Ernestina Medina-Ramírez<sup>1</sup>, Virginia Flores Morales<sup>2</sup>, Irma Adriana Castro Gallo<sup>3</sup>

<sup>1</sup>Universidad Autónoma de Aguascalientes. departamento de Química, <sup>2</sup>Universidad Autónoma de Zacatecas. Departamento de Química, <sup>3</sup>Universidad Autónoma de Aguascalientes. Departamento de Química

■ **SWMC-P005 STRUCTURAL, OPTICAL AND TRANSPORT PROPERTIES OF POLYMORPHOUS SILICON THIN FILMS FOR APPLICATIONS IN SOLAR CELLS**

Javitt Linares<sup>1</sup>, Alejandra López-Suárez<sup>2</sup>, Michel Picquart<sup>3</sup>, Guillermo Santana<sup>1</sup>, B. Marel Monroy<sup>1</sup>



<sup>1</sup>Departamento de Materiales de Baja Dimensionalidad, Instituto de Investigaciones en Materiales, UNAM, México, D.F.

- **SWMC-P006 THIN FILMS OF Cds:O NANOSTRUCTURED DEPOSITED BY USING THE RF-SPUTTERING REACTIVE TECHNIQUE**  
M. Loeza-Poot<sup>1</sup>, E. Hernández-Rodríguez<sup>1</sup>, V. Rejón<sup>1</sup>, I. Riech<sup>2</sup>, J.L. Peña<sup>1</sup>  
<sup>1</sup>Applied Physics Department, CINVESTAV-IPN, México. <sup>2</sup>Materials Science Laboratory, Faculty of Engineering, University of Yucatán, México
- **SWMC-P007 NANOSTRUCTURED As<sub>2</sub>Te<sub>3</sub>/Cu BILAYER FOR BACK CONTACT APPLICATION IN CdTe-BASED SOLAR CELLS**  
E. Hernández-Rodríguez<sup>1</sup>, V. Rejón<sup>1</sup>, R. Mis-Fernández<sup>1</sup>, J.L. Peña<sup>1</sup>  
<sup>1</sup>Applied Physics Department, CINVESTAV-IPN Mérida, Mexico.
- **SWMC-P008 STUDY OF NANOMETRICS GRAINS IN SOLAR CELLS CdTe ACTIVATED BY A GAS MIXTURE OF N<sub>2</sub>-O<sub>2</sub>-CHClF<sub>2</sub>**  
A. López-Sánchez<sup>1</sup>, V. Rejón<sup>1</sup>, R. Mis-Fernández<sup>1</sup>, E. Hernández-Rodríguez<sup>1</sup>, J.L. Peña<sup>1</sup>  
<sup>1</sup>Applied Physics Department CINVESTAV-IPN., México
- **SWMC-P009 FACET-DEPENDENT CATALYTIC ACTIVITY OF NANOSHEETS-ASSEMBLED BiOI MICROSPHERES: REMOVAL OF AQUEOUS ENDOCRINE DISRUPTORS**  
Guandao Gao<sup>1</sup>, Lu Liu<sup>1</sup>, Wei Chen<sup>1</sup>  
<sup>1</sup>College of Environmental Science and Engineering, Nankai University, Wei Jin Road 94, China
- **SWMC-P010 ABNORMAL DIELECTRIC RELAXATION IN NANOCRYSTALLINE LaFeO<sub>3</sub>**  
Yang Qiu<sup>1</sup>  
<sup>1</sup>Key Laboratory of Advanced Micro/Nano Functional Materials, School of Physics and Electronic Engineering, Xinyang Normal University, China
- **SWMC-P012 TiO<sub>2</sub> CATALYST TREATMENT FOR HYDROCARBON CONTAMINATED SOIL REMEDIATION**  
D. Cabanas-Vargas<sup>1</sup>, J. Wang<sup>2</sup>, P. J. Alvarez<sup>3</sup>  
<sup>1</sup>Universidad Autonoma de Yucatan, Mexico, <sup>2</sup>Civil and Environmental Engineering, Rice University, <sup>3</sup>Rice University, 6100 Main St, Houston,

ROOM: UXML I-II  
SUNDAY, AUGUST 16

👤 Chairs: ISAAC HERNANDEZ & S. Y. TONG

- **08:30 - 08:55 SWMC-0020 Invited Talk PIEZOTRONICS AND PIEZO-PHOTOTRONICS**  
Zhong Lin Wang<sup>1,2</sup>  
<sup>1</sup>School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta USA. <sup>2</sup>Beijing Institute of Nanoenergy and Nanosystems, Chinese Academy of Sciences, Beijing, China
- **08:55 - 09:20 SWMC-0021 Invited Talk NANOPHOTONICS FOR LIGHTING AND SOLAR CELLS APPLICATIONS**  
Elder De la Rosa<sup>1</sup>, Tzarara López-Luke<sup>1</sup>, Haggeo Desirena<sup>1</sup>, Diego Esparza<sup>1</sup>, Andrea Cerdan<sup>1</sup>, José Carlos Basilio<sup>1</sup>, Alejandro Martínez<sup>1</sup> and Ana Sánchez<sup>1</sup>  
<sup>1</sup>Centro de Investigaciones en Óptica A.C.
- **9:20 - 09:45 SWMC-0022 Invited Talk COMPOSITE AND HIERARCHICAL STRUCTURES IN ELECTRODE MATERIALS**  
Jiesheng Chen<sup>1</sup>  
<sup>1</sup>School of Chemistry and Chemical Engineering, Shanghai Jiao Tong University, China
- **09:45 - 10:10 SWMC-0023 Invited Talk LARGE-SCALE STORAGE FOR SUSTAINABLE ENERGY: INNOVATION ON MATERIALS AND DEVICE DESIGN**  
M.E. Rincón<sup>1</sup>, A.K. Cuentas-Gallegos, M. Miranda, R. Nava, P. Acevedo, M. Robles, J. Muñoz, M. Valdez, S. Cuevas, E. Ramos, J.A. del Río.  
<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México (IERUNAM), México.
- **10:10 - 10:30 SWMC-0024 Invited Talk CdTe/CdS SOLAR CELL ACTIVATED WITH MgCl<sub>2</sub>**  
<sup>1</sup>J.L. Peña Chapa, <sup>1</sup>V. Rejón, <sup>1</sup>R. Mis-Fernández, <sup>1</sup>Ivan Rimmaudo, <sup>1</sup>E. Hernández-Rodríguez, <sup>2</sup>Inés Riech.  
<sup>1</sup>Applied Physics Department, CINVESTAV-IPN, México. <sup>2</sup>Materials Science Laboratory, Faculty of Engineering, University of Yucatán, Mérida, Yucatán.
- **10:30 - 10:40 DISCUSSION LEADERS: RODOLFO ZANELLA & CP WONG**

☒ 10:40 – 11:10 COFFE BREAK

👤 Chairs: JIE WANQI & JL PENA

■ 11:10 - 11:35 SWMC-0025 *Invited Talk* RECENT DEVELOPMENT OF FUNCTIONAL CRYSTALCS IN CHINA

Jiyang Wang<sup>1</sup>

<sup>1</sup>State Key Lab. of Crystal Materials, Shandong University,

■ 11:35 - 11:55 SWMC-0026 *Invited Talk* SOLAR ENERGY CONVERSION SYSTEMS BASED ON PHOTOELECTROCHEMISTRY AT NANOMATERIALS

G. Oskam<sup>1</sup>

<sup>1</sup>Department of Applied Physics, CINVESTAV-IPN, Mérida, México.

■ 11:55 - 12:20 SWMC-0027 *Invited Talk* FLEXIBILITY-BASED ORDERLY STRUCTURE ARRAYS FOR ENERGY STORAGE APPLICATION

Yongsong Luo<sup>1</sup>

<sup>1</sup>Xinyang Normal University, China.

■ 12:20 - 12:40 SWMC-0028 *Invited Talk* MONODISPERSE CdS SPHERES SYNTHESIZED BY MICROEAVE HEATING FOR HYBRID SOLAR CELL APPLICATIONS

Hailin Hu<sup>1</sup>, Claudia Martínez-Alonso<sup>1</sup>, Carlos A. Rodríguez-Castañeda<sup>1</sup>, Paola M. Moreno-Romero<sup>1</sup>, C. Selene Coria-Monroy<sup>1</sup>

<sup>1</sup>Instituto de Energías Renovables, Universidad Nacional Autónoma de México, Morelos, México.

■ 12:40 - 13:00 SWMC-0029 *Invited Talk* SOLVOTHERMAL SYNTHESIS OF HIGHLY VISIBLE-LIGHT-RESPONSIVE PERFORMANCE HETEROJUNCTION COMPOSED OF ONE-DIMENSIONAL TiO<sub>2</sub> NANOTUBES AND TWO-DIMENSIONAL BiOBr NANOPATES

Chao Xue<sup>1</sup>, Guidong Yang<sup>1</sup>

<sup>1</sup>Department of Chemical Engineering, School of Chemical Engineering and Technology, Xi'an Jiaotong University, (P.R. China)

■ 13:00 - 13:20 SWMC-0030 *Invited Talk* CARBON NANOMATERIALS FOR WATER REMEDIATION

Luis F. Cházaro-Ruiz<sup>1</sup>, J. René Rangel-Mendez<sup>1</sup>

<sup>1</sup>División de Ciencias Ambientales del Instituto Potosino de Investigación Científica y Tecnológica (IPICYT) A.C., Mexico.

■ 13:20 - 13:30 DISCUSSION LEADERS: JIESHENG CHEN & MARINA RINCON

✂ 13:30 - 15:00 Lunch

👤 Chairs: ELDER DE LA ROSA & YONGSONG LUO

■ 15:00 - 15:25 SWMC-0031 *Invited Talk* BEHAVIORS OF NANO-SIZE TE PRECIPITATES IN CdZnTe AS X-RAY RADIATION DETECTOR MATERIALS

Jie Wanqi<sup>1</sup>

<sup>1</sup>School of Materials Science and Engineering, Northwestern Polytechnical University, Xian, China)

■ 15:25 - 15:45 SWMC-0032 *Invited Talk* COLLOIDAL METAL NANOCRYSTALS FOR PLASMONIC CATALYSIS

Jianfang Wang<sup>1</sup>

<sup>1</sup>Department of Physics, The Chinese University of Hong Kong, Shatin, Hong Kong.

■ 15:45 - 15:55 SWMC-0033 HYDROGEN ISOTOPE SEPARATION IN METAL-ORGANIC FRAMEWORKS

T. Heine<sup>1</sup>

<sup>1</sup>Jacobs University Bremen, School of Physics and Earth Science, Bremen

■ 15:55 - 16:05 SWMC-0034 SURFACE PLASMON ENHANCED OPTOELECTRONIC PROPERTIES OF SEMICONDUCTOR MATERIALS AND DEVICES

Shuguang Zhang<sup>1</sup>, Lei Wen<sup>1</sup>, and Fangliang Gao<sup>1</sup>

<sup>1</sup>State key laboratory of luminescent materials and devices, South China University of Technology, Guangzhou,

■ 16:05 - 16:15 SWMC-0035 PLASMONIC PROPERTIES OF ORDERED ARRAYS OF Ag AND Au NANOSTRUCTURES EMBEDDED IN SILICA FABRICATED BY A COMBINACIÓN OF NANOSPHERE LITHOGRAPHY WITH ION IMPLANTATION

O. Graniel<sup>1</sup>, C. Salinas<sup>1</sup>, E. Flores-Romero<sup>1</sup>, E. Rodríguez-Sevilla<sup>1</sup>, J.C. Cheang-Wong<sup>1</sup>

<sup>1</sup>Instituto de Física, Universidad Nacional Autónoma de México.

■ 16:15 - 16:40 SWMC-0036 *Invited Talk* NANOSCIENCE AND NANOTECHNOLOGY IN CHINA



**Leo W.M. Lau<sup>1</sup>**

<sup>1</sup>Beijing Computational Science Research Center,  
Beijing, China, Green Energy and Green Manufacturing  
Technology R&D Center - CAEP Chengdu Science and  
Technology Development Center, Chengdu, Sichuan,  
China.

- **16:40 - 16:50 DISCUSSION LEADERS:  
GUOQIANG LI & ARTURO MORALES-ACEVEDO**
- **16:50 - 17:00 Closing Remarks**