NSS Program

N01 NSS Plenary I

Monday, Nov. 10   08:30-10:00   6B

Session Chairs: **Ingrid-Maria Gregor**, DESY, Germany
Adam Bernstein, Lawrence Livermore National Laboratory, United States

N01-1 (08:30, invited) NSS Opening
I.-M. Gregor, *DESY, Germany*

N01-2 (08:45, invited) The Mystery of Mass and the Higgs Boson
O. Botner, *Uppsala University, Sweden*

N01-3 (09:30, invited) A Year in the Life of the Curiosity Mars Rover
N. L. Lanza, *Los Alamos National Laboratory, United States*

N02 NSS Plenary II

Monday, Nov. 10   10:30-11:30   6B

Session Chairs: **Adam Bernstein**, Lawrence Livermore National Laboratory, United States
Ingrid-Maria Gregor, DESY, Germany

N02-1 (10:30, invited) Concentrating Solar Power - Solar Power on Demand
C. Richter
DLR (German Aerospace Center) / SolarPACES, Spain

N02-2 (11:15, invited) News from the Hunt for Dark Matter
R. I. Gaitskell, *Brown University, United States*

N03 NSS Poster Session I - Analog and Digital Circuits

Monday, Nov. 10   14:00-15:30   4B

Session Chair: **Farah F. Fahim**, Fermi National Accelerator Laboratory, United States

N03-1 A Method Generating a Time-Varying Threshold to Keep the Time-over-Threshold Linear with Nuclear Pulse Amplitudes
Y. Wang, Y. Xiao, W. Zhu
University of Science and Technolgy of China, China

N03-2 X-Ray Wide Dynamic Range Imaging
C. P. Lambropoulos, V. V. Zografos, G. Theodoratos
Technological Educational Institute of Sterea Ellada, Greece

N03-3 Design of a Full Scale Building Block Prototype with in-Pixel Discriminator and Improved Rolling Shutter Architecture for the Alice Mft Project
Y. Degerli, A. Baldisseri, C. Flouzat, F. Guilloux, F. Orsini, P. Venault
CEA - Saclay, France

N03-4 STS-XYTER, a High Count-Rate Self-Triggering Strip Silicon Detector Readout IC for High Resolution Time and Energy Measurements
K. Kasinski, P. Grybos, R. Szczygiel, R. Kleczek, P. Otfinowski
AGH University of Science and Technology, Poland

N03-5 A Novel All on-Chip Design Solution for Pole-Zero Cancellation Topology
M. Roknsharifi, N. Zhang, M. E. Casey, R. Grazioso
Siemens Healthcare, US

N03-6 Current Mode-Based Positioning Circuit for SiPM-Based PET
M. Roknsharifi, B. Johannes, R. Grazioso
Siemens Healthcare, US

N03-7 Design and Characterization of the ePix10k Prototype: a High Dynamic Range Integrating Pixel ASIC for LCLS Detectors.
P. Caragiulo, A. Dragone, B. Markovic, R. Herbst, K. Nishimura, B. Reese, S. Herrmann, P. Hart, G. Blaj, J. Segal, A. Tomada, J. Hasi, G. Carini, C. Kenney, G. Haller
Stanford Linear Accelerator Laboratory (SLAC), USA

N03-8 Silicon-Drift-Detectors Readout IC with on-Chip 12-Bit Charge-Redistribution SAR Analog-to-Digital Converter
F. Schembari[1,2], R. Quaglia[1,2], A. Abba[1,2], F. Caponio[1,2], C. Fiorini[1,2]
[1]Politecnico di Milano, Italy; [2]INFN, Sezione di Milano, Italy

N03-9 A Low-Power, Low-Noise Pixel Readout ASIC for a Hyperspectral Energy-Resolving X-Ray Imaging Detector

S. Li, G. De Geronimo, J. Fried, D. A. Pinelli, A. Kuczewski, D. P. Siddons
Brookhaven National Laboratory, U.S.

N03-11 Design of Fully-Integrated DC-DC Converters for High Energy Physics Applications

A. Krieger, J. Chang, M. Garcia-Sciveres, C. Grace
Lawrence Berkeley National Laboratory, USA

N03-12 Optimization of the Spatial Resolution in a Position Sensitive Detection System Based on a Gas Electron Multiplier Detector

T. Fiutowski, M. Czogalik, B. Mindur, A. Zielinska
AGH University of Science and Technology, Poland

N03-13 Time and Energy Measurement ASIC for Microstrip Detectors with Two-Level Reset System Based on the Time-over-Threshold Technique

K. Kasinski, R. Kleczek
AGH University of Science and Technology, Poland

N03-14 Design of an Integrated Low-Noise Ultra-Fast Charge-Sensitive Micro-Probe for Semiconductor Detectors

A. Pullia[1,2], S. Capra[1], E. Frontini[1]
[1]University of Milano, Italy; [2]INFN, Italy

N03-15 An Improved Fast Readout ASIC for Si-Strip Detector in the J-PARC Muon G-2/EDM Experiment and Other Related Applications

S. Shirabe[1,2], H. Ikeda[2,3], M. Ikeno[2,4], K. Ueno[2,4], T. Uchida[2,4], K. Kawagoe[1], S. Koura[1,2], T. Kohriki[2,4], N. Saito[4], O. Sasaki[2,4], M. Tanaka[2,4], J. Tojo[1,2], S. Nishimura[5], T. Mibe[2,4], T. Yoshioka[1]
[1]Kyushu University, Japan; [2]Open-It, Japan; [3]JAXA, Japan; [4]KEK, Japan; [5]The University of Tokyo, Japan

N03-16 The Development of a Readout ASIC for a GEM-TPC X-Ray Polarimeter

H. Y. Zhang[1,2], L. He[1,2], Z. Deng[1,2], H. Feng[1], J. F. Ji[1], M. Zeng[1,2], Y. N. Liu[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

N03-17 AGIPD 1.0: the High-Speed High Dynamic Range Readout ASIC for the Adaptive Gain Integrated Pixel Detector at the European XFEL

U. Trunk[1], A. Allagholi[1], J. Becker[1], L. Bianco[1], R. Dinapoli[2], E. Fretwurst[3], P. Göttlicher[1], H. Graafsma[1,4], D. Greiffenberg[2], M. Gronewald[5], B. Henrich[2], H. Hirsemann[1], S. Jack[1], R. Klanner[3], A. Klyuev[1], H. Krüger[5], A. Marras[1], D. Mezza[2], A. Mozzanica[2], I. Sheviakov[1], B. Schmitt[2], J. Schwandt[3], X. Shi[2], Q. Xia[1], J. Zhang[1], M. Zimmer[1], A. Delfs[1]
[1]DESY Deutsches Elektronen-Synchrotron, Germany; [2]PSI Paul-Scherrer-Institut, Switzerland; [3]University of Hamburg, Germany; [4]Mid Sweden University, Sweden; [5]University of Bonn, Germany

N03-18 Testability Features of a Single Photon Counting Hybrid Pixel Detector Readout Circuit with Charge Sharing Elimination Algorithm

P. Maj, A. Drozd, P. Grybos, R. Szczygiel, G. Deptuch
AGH University of Science and Technology, Poland

N03-19 Fermi CMS Pixel (FCP130) Test ASIC

F. Fahim, G. W. Deptuch, J. Hoff, A. Shenai, M. Trimpl, D. C. Christian
Fermi National Accelerator Laboratory, USA

N03-20 Implementation of an On-Chip Charge Cluster Reconstruction Technique with the miniVIPIC Pixel Readout Chip for Soft X-ray Counting and Timing

M. Trimpl, G. Deptuch, J. Hoff, F. Fahim, *Fermi National Laboratory, USA*; P. May, P. Kmon, P. Grybos, R. Szczygiel, *AGH-UST, Poland*

N03-21 A Switchless Low-Noise High Voltage Bias Supply

K. Nishimura, M. Breidenbach, A. Dragone, M. Freytag, R. Herbst, G. Haller
SLAC National Accelerator Laboratory, USA

N03-22 Study of the Effects of Parasitic Capacitance on Large Integrated Feedback Resistors for Charge-Sensitive Preamplifiers

S. Capra[1], A. Pullia[1,2]
[1]University of Milano, Italy; [2]INFN, Italy

N03-23 Design of an Integrated Low - Noise, Low - Power Charge Sensitive Preamplifier for Gamma and Particle Spectroscopy with Solid State Detectors

S. Capra[1], A. Pullia[1,2]
[1]University of Milano, Italy; [2]INFN, Italy

N03-24 A Novel Signal Compression Circuit for Charge Collecting Pixel Detectors

F. Erdinger, P. Fischer, *Heidelberg University, Germany*; M. Porro, *Max-Planck-Institut fuer extraterrestrische Physik, Germany*

N03-25 A Dedicated Analog Digital Converter for Silicon Photomultiplier Readout

W. Shen, K. Briggl, H. Chen, H.-C. Schultz-Coulon
University of Heidelberg, Germany

N03-27 A Dedicated Readout ASIC for Time-of-Flight Positron Emission Tomography Using Silicon Photomultiplier (SiPM)

H. Chen, K. Briggl, P. Fischer, A. Gil, T. Harion, Y. Munwes, M. Ritzert, H.-C. Schultz-Coulon, W. Shen, V. Stankova
University of Heidelberg, Germany

N03-28 Interfacing a SiPM to a Current-Mode Front-End: Effects of the Coupling Inductance

G. Matarrese, F. Ciciriello, F. Corsi, F. Licciulli, C. Marzocca
DEI - POLITECNICO DI BARI, Italy

N03-29 Dream: a 64-Channel Front-End Chip with Embeded Analog Trigger Latency Buffer for the Micromegas Tracker of the CLAS12 Experiment.
E. Delagnes, P. Baron, D. Besin, E. Montmarthe, I. Mandjavidze, S. Aune, S. Procureur, F. Sabatie
CEA/IRFU, France

N04 NSS Poster Session I - Computing and Software

Monday, Nov. 10   14:00-15:30   4B

Session Chair: TBD

N04-1 Dataset Definition for CMS Operations and Physics Analyses
M. Pierini, *CERN, Switzerland*
On behalf of the CMS Collaboration

N04-2 Persistent Monitoring with Distributed Semantics
J. Kornell, S. Weeks
Special Technologies Lab, NSTec, DOE, USA

N04-3 Validation of Beta Ray Scintillation Spectra in Liquid Scintillation Counter Using Geant4 Simulation
T. Aso[1], M. Hara[2], K. Ogiwara[3], T. Yoshimura[3], E. Takada[1]
[1]*Toyama National College of Technology, Japan;* [2]*Toyama University, Japan;* [3]*Hitachi Aloka Medical Ltd., Japan*

N04-4 Object Composition Identification via Mediated-Reality Supplemented Radiographs
E. S. Jimenez, L. J. Orr, K. R. Thompson
Sandia National Laboratories, USA

N04-5 ModCat: a Database of Nuclear Radiation Detection Computer Models
J. Schweppe, R. Devanathan, Z. Guillen, R. Kouzes, E. Siciliano
Pacific Northwest National Laboratory, USA

N04-6 The Calibration and System Simulation Software Package for the European XFEL DSSC Detector
G. Weidenspointner, M. Kuster, S. Schlee, *XFEL, Germany;* R. Andritschke, D. Moch, M. Porro, *MPE, Germany;* S. Aschauer, *PNSensor GmbH, Germany*

N04-7 CMS Alignment and Calibration Workflows: Lesson Learned and Future Plans
S. Di Guida, *CERN, Switzerland*
On behalf of the CMS Collaboration

N04-8 Monte Carlo Simulation of Energy Deposition by Neutron Reaction Products in Lithiated Foam Using Dynamic Path Generation
M. A. Reichenberger, R. G. Fronk, J. K. Shultis, D. S. McGregor
Kansas State University, United States of America

N04-9 Development of an Educational Game for Understanding Radiation Shielding Concepts
T. Kasuga, H. Tenzou, R. Johnston, S. Manabe, K. Motoki
Kagawa National College of Technology, Japan

N04-11 Assessing List-Mode Observer Performance in Classification and Localization Tasks When Imaging Nuclear Inspection Objects
C. J. MacGahan, M. A. Kupinski, *University of Arizona, United States;* N. Hilton, W. Johnson, *Sandia National Laboratories, United States*

N04-12 High-Level FPGA Programming Framework and Electronics Developments for High Speed Data Throughput and Processing
S. Hauf, B. Fernandes, M. Kuster, H. S. Namin, P. Gessler, C. Youngman
European XFEL GmbH, Germany

N04-13 Calibration and Calibration Data Processing Concepts at European XFEL
S. Hauf, D. Boukhelef, B. C. Heisen, M. Kuster, L. Maia, N. Raab, J. Sztuk-Dambietz, M. Turcato, K. Wrona, G. Weidenspointner, C. Youngman
European X-ray Free Electron Laser Facility GmbH, Germany

N04-14 Recent Developments in Transporting Charged Particles in MCNP6
H. G. Hughes, *Los Alamos National Laboratory, USA*

N04-15 Using Muons to Determine Densities
J. L. Cardenas-martinez, *UASLP, Mï¿½xico*

N04-16 Visualization Software for Multiple Data in Radiation Simulations
A. Kimura, *Ashikaga Institute of Technology, Japan;* S. Tanaka, *Rtsumeikan University, Japan;* T. Sasaki, *High Energy Accelerator Research Organization, Japan*

N04-17 Simulation Framework for Novel Medical Applications
A. Cserkaszky[1,2], M. Zvolsky[3], B. Frisch[2], T. Wendler[1]
[1]*SurgicEye Gmbh, Germany;* [2]*Technische Universität München, Germany;* [3]*DESY, Germany*

N05 NSS Poster Session I - Gaseous Detectors

Monday, Nov. 10   14:00-15:30   4B

N05-1 Gas Gain Stabilization System for the ATLAS Transition Radiation Tracker

B. Mindur, *AGH University of Science and Technology, Poland*
On behalf of the ATLAS TRT Collaboration

N05-2 Test Beam Results with a Full Size sTGC

Y. Benhammou, *Tel Aviv University, Israel*

N05-3 Simultaneous Measurement of Tritium and Carbon-14 in an Ultra-Low-Background Proportional Counter

E. K. Mace, C. E. Aalseth, A. R. Day, E. W. Hoppe, J. J. Moran, M. E. Panisko, A. Seifert, R. M. Williams
Pacific Northwest National Laboratory, USA

N05-4 Certification and Commissioning of the ATLAS Micromegas Quadruplet Prototype

M. Bianco, *CERN, Switzerland*
On behalf of the ATLAS Muon Collaboration and H. Danielsson, CERN, R. De Oliveira, CERN, F. Perez Gomez, CERN,

N05-5 Construction of sTGC Prototype for the ATLAS-MUON Upgrade

G. Mikenberg, *Weizmann Institute, Israel*
On behalf of the ATLAS Collaboration

N05-7 Optimisation of the Front-End Electronics of Drift Tube Chambers for High-Rate Operation

P. Schwegler, S. Abovyan, V. Danielyan, D. Fink, M. Fras, O. Kortner, H. Kroha, S. Nowak, S. Ott, R. Richter, Y. Zhao
Max-Planck-Institut für Physik, Germany

N05-8 Bulk-Micromegas Detector and Synchrotron Radiation Measurement

H. Qi[1,2], Y. Zhang[1,3], Q. Ouyang[1,2], Y. Chen[1,2], J. Zhang[1,2], B. Wang[1,2], P. Liu[1,2]
[1]*State Key Laboratory of Particle Detection and Electronics, China;* [2]*Institute of High Energy Physics, China;* [3]*University of Chinese Academy of Sciences, China*

N05-9 Construction and Test of High Precision Drift-Tube (sMDT) Chambers for the ATLAS Muon Spectrometer

P. Schwegler, H. Kroha, O. Kortner, F. Sforza
Max-Planck-Institut für Physik, Germany

N05-10 Simulation of a Low-Background Proton Detector for Studying Low-Energy Resonances Relevant in Thermonuclear Reactions

D. Perez Loureiro, C. Wrede, *Michigan State University, USA*

N05-11 Combined Gas Electron Multipliers and Micromegas as Gain Elements in a High Rate Time Projection Chamber

R. Majka, *Yale University, United States*

N05-12 Study of a Large-Area GEM Detector Read Out with Radial Zigzag Strips for Forward Tracking in Experiments at a Future Electron-Ion Collider

A. Zhang, V. Bhopatkar, M. Hohlmann, E. Hansen, M. Phipps, E. Starling, J. Twigger, K. Walton
Florida Institute of Technology, US

N05-13 Online Precision Gas Evaluation of the ATLAS Muon Spectrometer During LHC Run I

D. S. Levin, *University of Michigan, United States*
On behalf of the ATLAS MUON collaboration

N05-14 Performance Studies of a Large TPC with GEM-Based Gas Amplification

F. V. Bï¿½hmer, *Technische Universitï¿½t Mï¿½nchen, Germany*
On behalf of the GEM-TPC collaboration

N05-15 Research on the Angle Response of MRPC Detector and Corresponding Correction Method

Z. Luo, X. Wang, Z. Zeng, Y. Wang, M. Zeng, Z. Zhao, H. Yi, B. Yu, X. Yue
Tsinghua University, China

N05-16 Strategies for Reducing the Environmental Impact of Gaseous Detector Operation at the CERN-LHC Experiments

R. Guida, M. Capeans, B. Mandelli, *CERN, Switzerland*

N05-17 The Ultra-Pure Water Production System for the CLOUD Experiment at CERN

R. Guida, P. Carrie, L.-P. De Menezes, J. Duplissy, F. Fayet, S. Haider, J. Kirkby, S. Mathot, P. Minginette, A. Onnela, J. Rochez, G. Thomas, A. Wasem, M. Wilhelmsson
CERN, Switzerland

N05-18 High Rate, High Time Precisin RPC for LHC Upgrade Experiments

I. B. Laktineh[1], L. Mirabito[1], C. Combaret[1], A. Petrukhin[1], V. Buridon[1], N. Lumb[1], A. Eynard[1], L. Germani[1], P. Calabria[1], J.-C. Ianigro[1], H. Mathez[1], C. Gired[1], E. Bechtoile[1], D. Delaunay[1], G. Grenier[1], C. de La Taille[2], N. Seguin-Moreau[2], S. Carlier[2], W. Tromeur[1]
[1]*IPNL-UCBL-IN2P3, France;* [2]*OMEGA-Paris, France*

N05-19 Study of the Thermal-Bonding Micromegas

Z. Zhang
University of Science and Technology of China, China

N05-20 Design and Construction of Large Size Micromegas Chambers for the Muon Spectrometer Upgrade of the ATLAS Experiment

M. Iodice, *INFN Roma Tre, Italy*
On behalf of the ATLAS MUON collaboration

N05-22 Development of a Plasma Panel Detector

P. S. Friedman, *Integrated Sensor LLC, United States*; C. Ferretti, D. S. Levin, R. Ball, J. W. Chapman, B. Zhou, C. Weaverdyck, *University of Michigan, United States*; R. L. Varner, *Oak Ridge National Lab, United States*; Y. Silver, E. Etzion, M. B. Moshe, R. Bensimon, *University of Tel Aviv, Israel*

N05-23 Angular Dependence of Position Resolution for a Short Drift GEM Tracking Detector

B. Azmoun, A. Franz, R. Pak, M. L. Purschke, C. Woody
Brookhaven National Lab, USA

N05-24 Research and Development of Commercially Manufactured Large GEM Foils

M. Posik, B. Surrow, *Temple University, United States*

N05-25 Comparison of the Experimental Data with Simulation for the Micro-TPC with "InGrid" Pixel Readout and Future Studies Using a LAL/PHIL Facility

M. Titov[1], S. Barsuk[2], A. Chaus[1], D. Attie[1], P. Colas[1], O. Bezshyyko[3], O. Fedorchuk[3], L. Burmistrov[2], H. Monard[2], A. Variola[2]
[1]CEA Saclay, IRFU/SPP, France; [2]Laboratoire de l'Accélérateur Linéaire (LAL), France; [3]Taras Shevchenko National University of Kyiv, Ukraine

N06 NSS Poster Session I - Radiation Damage Effects and Radiation Hard Devices

Monday, Nov. 10   14:00-15:30   4B

Session Chair: **Christopher A. Betancourt**, University of Freiburg, Germany

N06-1 Effect of Co-Doping on the Radiation Hardness of Gd3Ga3Al2O12:Ce Scintillators

M. Tyagi[1], F. Meng[2], M. Koschan[2], A. K. Singh[1], C. L. Melcher[2], S. C. Gadkari[1]
[1]Bhabha Atomic Research Center, India; [2]University of Tennessee, USA

N06-2 Radiation and Magnetic Field Effects on Commercial DC-DC Converters for HL-LHC Experiments

S. Fiore[1,2], J. Ameel[3], D. Amidei[3], S. Baccaro[1,2], M. Citterio[2], R. Edgar[3], A. Lanza[2], S. Latorre[2], M. Lazzaroni[2,4], K. Sekhon[3]
[1]ENEA, Italy; [2]INFN, Italy; [3]University of Michigan, USA; [4]Universita' degli Studi di Milano, Italy

N06-3 Radiation Damage and Recovery of Medium Heavy and Light Inorganic Crystalline, Glass and Glass Ceramic Materials after Irradiation with 150MeV Protons and 1.2MeV Gamma-Rays

R. W. Novotny[1], K.-T. Brinkmann[1], A. Borisevich[2], V. Dormenev[1], V. Kalinov[3], M. Korjik[2], D. Kozlov[2], A. Voitovich[3], H.-G. Zaunick[1]
[1]Justus-Liebig-University, Germany; [2]Institute for Nuclear Problems, Belarus; [3]Institute of Physics of National Academy of Science, Belarus

N06-4 CERN-GIF++: a New Irradiation Facility to Test Large-Area Particle Detectors for the High-Luminosity LHC Program

R. Guida, *CERN, Switzerland*
On behalf of the CERN-GIF++ collaboration

N06-5 Photostimulated Luminescence of BaFBr:Eu and KCl:Eu under Ion Irradiation

M. Koshimizu, M. Hashima, H. Hori, K. Asai
Tohoku University, Japan

N06-6 Radiation Hardness and Positive Hysteresis of GSO and GSOZ Scintillators

T. Yanagida[1], Y. Fujimoto[2], K. Watanabe[3], M. Koshimizu[2]
[1]Kyushu Institute of Technology, Japan; [2]Tohoku Univ., Japan; [3]Nagoya Univ., Japan

N06-7 66 MeV Proton Testing of the and-or Multiplexer SET Filter Circuit Implemented on a Flash FPGA

F. Smith, S. van Aard, J.-P. Potgieter, *Nelson Mandela Metropolitan University, South Africa*; A. Brandt, *Cape Peninsula University of Technology, South Africa*; C. Nwosa, D. R. Faber, D. Wright, I. Tadadjeu Sonkeng, *Heliocentric Technologies ZA, South Africa*

N06-8 Overview of Main Results from the ATLAS Upgrade Planar Pixel Sensors R&D Project

D. Muenstermann, *University of Geneva, Switzerland*
On behalf of the ATLAS Upgrade Planar Pixel Sensors R&D collaboration

N06-9 Radiation Effects Test and SEL Protection Solution for the Front End ASICs of DAMPE BGO Calorimeter

S. Gao[1], C. Feng[1], D. Jiang[1], Z. Shen[1], D. Zhang[1], K. Xi[1], S. Liu[1], Q. An[1]
[1]University of Science and Technology of China, China; [2]Institute of Modern Physics, Chinese Academy of Sciences, China

N06-10 Radiation Damage in Transistors Fabricated with Lapis Semiconductor 200 nm FD-SOI Technology

S. Glab[1], Y. Arai[2], M. Baszczyk[1], P. Dorosz[1], M. Idzik[1], P. Kapusta[3], W. Kucewicz[1], T. Miyoshi[2], L. Mik[1], M. Sapor[1], A. Takeda[4], M. Turala[3]
[1]AGH University of Science and Technology, Poland; [2]Institute of Particle and Nuclear Studies, High Energy Accelerator Research Organization (KEK), Japan; [3]Institute of Nuclear Physics PAN, Poland; [4]The Graduate University for Advanced Studies (SOKENDAI), School of High Energy Accelerator Science, Japan

N06-11 Gamma Radiation Induced Effects on Optical and Electrical Properties of TeO_2, $(TeO_2)_{0\cdot8}$ $(In_2O_3)_{0\cdot2}$ and ZnO Thin Films

A. K. Gourishetty, P. Tomar, M. Mohil, M. Dhibar
Indian Institute of Technology Roorkee, INDIA

N06-12 Study of the ^{60}Co and Neutron Radiation Effects on MOSFETs Manufactured in a 150 and 180 nm Commercial Technology

M. Carna, M. Havranek, M. Marcisovsky, G. Neue, Z. Janoska, V. Kafka, M. Sedlackova, L. Tomasek, V. Vrba, *Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Czech Republic*; M. Koleska, *Research Centre Rez Ldt., Czech Republic*

N06-13 Radiation Damage Study and Characterization of Hamamatsu Silicon Photo-Multipliers

M. Fiorini[1], W. Baldini[1], M. Andreotti[1], R. Calabrese[1], A. Cotta Ramusino[1], F. Dalcorso[2], E. Luppi[1], R. Malaguti[1], L. Tomassetti[1]

[1]Università degli Studi di Ferrara and INFN Sezione di Ferrara, Italy; [2]INFN Sezione di Padova, Italy

N06-14 Investigation on the Radiation Tolerance of the Dosepix Detector

F. Bisello[1,2], W. Wong[3], E. Frojdh[3], J. Alozy[3], I. Ritter[2], A. Zang[2], M. Campbell[3], J. C. Celi[1], G. Anton[2], M. Thilo[2]
[1]IBA Dosimetry, Germany; [2]FAU University, Germany; [3]CERN, Switzerland

N06-15 Studies of Irradiated Alumina Layer for Development of Silicon Sensors with Slim Edges

J. M. Rafi, G. Pellegrini, *CNM, Spain*; V. A. Fadeyev, Z. Galloway, H. F. W. Sadrozinski, *UCSC, USA*; M. Christophersen, B. F. Phlips, *NRL, USA*; D. Lynn, J. Kierstead, *BNL, USA*; M. Hoeferkamp, S. Seidel, *UNM, USA*

N06-16 Characterisation of an Alternative Novel Diamond Based Microdosimeter Prototype

J. A. Davis[1], K. Ganesan[2], D. A. Prokopovich[3], M. Petasecca[1], M. L. F. Lerch[1], D. N. Jamieson[2], A. B. Rosenfeld[1]
[1]Centre for Medical Radiation Physics/University Of Wollongong, Australia; [2]University of Melbourne, Australia; [3]Australian Nuclear Science and Technology Organisation, Australia

N06-17 Characterization of Surface and Bulk Properties of 3D Sensors after Heavy Irradiation.

M. Bubna[1], D. Bortoletto[1], G.-F. Della Betta[2], M. Povoli[3], R. Mendicino[2], G. Bolla[1], K. Arndt[1], I. P. Shipsey[1], M. Boscardin[4], G. Giacomini[4], F. Mattedi[4], N. Zorzi[4]
[1]Purdue University, USA; [2]INFN Trento, Italy; [3]University of Oslo, Norway; [4]Fondazione Bruno Kessler, Italy

N06-18 Radiation-Hard Timepix Detector-Based Hodoscope for the Characterization of Harsh Mixed Radiation Environments

I. Caicedo[1], B. Bergmann[1], M. Krï¿½lï¿½k[2], V. Kraus[1], C. Leroy[3], S. Pospisil[1], M. Suk[1], Z. Vykydal[2]
[1]Institute of Experimental and Applied Physics, Czech Technical University in Prague, Czech Republic; [2]Czech Metrology Institute, Czech Republic; [3]Universitï¿½ de Montrï¿½al, Canada

N06-19 Radiation Hardness of Silicon Nitride Radiation Window and Filter Structures

J. Kostamo, P. Kostamo, E. Kostamo, P. T. Törmä, M. Mattila, H. Sipilä, *HS Foils Oy, Finland*; N. Nelms, *European Space Agency, The Netherlands*

N07 NSS Poster Session I - Photodetectors and Radiation Imaging Detectors

Monday, Nov. 10   14:00-15:30   4B

Session Chair: TBD

N07-1 X-ray Transmission Characteristics Measurement of a Polycapillary Lens Installed in an Analytical Electron Microscope

A. Takano, K. Maehata, N. Iyomoto, *Kyushu University, Japan*; T. Hara, *National Institute for Materials Science, Japan*; K. Mitsuda, N. Yamasaki, *Institute of Space and Astronautical Science, Japan*; K. Tanaka, *Hitachi High-Tech Science Corporation, Japan*

N07-3 Development of a Three-Layer Phoswich Alpha-Beta-Gamma Imaging Detector

S. Yamamoto, *Nagoya University Graduate School of Medicine, Japan*; H. Ishibashi, *Hitachi Chemical, Japan*

N07-4 Performance Studies of Hamamatsu R9800 Photomultiplier Tube with a New Active Base Designed for Use in Hall D Broadband Tagger Hodoscope

V. Popov, *Thomas Jefferson National Accelerator Facility, USA*; A. Somov, *homas Jefferson National Accelerator Facility, USA*; F. Klein, N. Walford, N. Sparks, *Catholic University of America, USA*

N07-5 Dual Storage SOI Monolithic Pixel Sensor

T. Miyoshi[1], Y. Arai[1], Y. Fujita[1], K. Hara[2], S. Honda[2], Y. Ikegami[1], Y. Ikemoto[1], I. Kurachi[1], S. Mitsui[1], K. Tauchi[1], T. Tsuboyama[1], M. Yamada[1]
[1]HIGH ENERGY ACCELERATOR RESEARCH ORGANIZATION, Japan; [2]Univ. of Tsukuba, Japan

N07-6 Study of the Detection Properties of a GYGAG(Ce) Scintillator Ceramic for Medical Imaging Application in Comparison to a LaBr3(Ce) Crystal

A. Fabbri[1], G. Hull[2], M. Galasso[1], N. J. Cherepy[3], M. N. Cinti[4], R. Pani[4]
[1]University of Roma Tre, Italy; [2]Institut de Physique Nucléaire, France; [3]Lawrence Livermore National Laboratory, USA; [4]University La Sapienza, Italy

N07-7 Position Sensitivity in a 3"x3" LaBr3 Crystal with a 2x2 PSPMTs Array

A. Fabbri[1], M. Galasso[1], A. Giaz[2], F. Camera[3,2]
[1]University of Roma Tre, Italy; [2]Istituto Nazionale di Fisica Nucleare, Italy; [3]Universita degli studi di Milano, Italy

N07-8 Development of a PET Detector Module

S. Adachi, S. Nakamura, M. Hirayanagi, T. Matsumoto, T. Baba, T. Kato, K. Hayatsu, Y. Okuwa, R. Ota
HAMAMATSU PHOTONICS K.K., Japan

N07-10 Gain Stabilization of SiPMs - Technical Part

I. Polak, *FZU, Institute of Physics ASCR, Prague, Czech republic*; G. Eigen, *University of Bergen, Norway, Norway*

N07-11 Results of Measurements of Photodetectors for the ECAL0 Calorimeter for the COMPASS-II Experiment.

A. Rychter, K. Zaremba, J. Marzec, M. Dziewiecki, M. Ziembicki, R. Kurjata, B. Konarzewski, G. Domanski
Warsaw University of Technology, Institute of Radioelectronics, Poland

N07-12 Breakthrough in the Lifetime of Microchannel-Plate PMTs

A. Lehmann, *Friedrich-Alexander-Universitï¿½t Erlangen-Nï¿½rnberg (FAU), Germany*
On behalf of the PANDA Cherenkov Group

N07-13 Measurement and Modeling of Silicon Photomultiplier Devices by Means of S-Parameter Techniques

D. Fink, R. Mirzoyan, M. Teshima, O. Reimann
Max Planck Institut fuer Physik, Germany

N07-14 Model for the Design of a Prompt Gamma Detection System Using Large Scintillators and Digital Silicon Photomultipliers

K. E. Roemer[1], G. Pausch[2], W. Enghardt[1,2], C. Golnik[2], F. Hueso-González[2], T. Kormoll[2], J. Petzoldt[2], H. Rohling[2], S. Schoene[1], F. Fiedler[1]
[1]Institute of Radiation Physics, Helmholtz-Zentrum Dresden-Rossendorf, Germany; [2]OncoRay — National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Helmholtz-Zentrum Dresden - Rossendorf, Germany

N07-15 Development of Large Area UV-Sensitive MPPCs to Detect Scintillation Light from Liquid Xenon

T. Iwamoto, The University of Tokyo, Japan
On behalf of the MEG II Collaboration

N07-16 Timing Performance of New Hamamatsu Silicon Photomultipliers

A. Mangu[1], J. Duarte[1], M. Spiropulu[1], C. Pena[1], S. Xie[1], A. Bornheim[1], A. Ronzhin[2], E. Ramberg[2], S. Los[2], A. Apresya[1]
[1]California Institute of Technology, USA; [2]Fermi National Accelerator Laboratory, USA

N07-17 Development of Photon-Counting High Energy X-Ray Imaging System with Silicon Strip Detector and Time-over-Threshold ASIC

X. Yan, H. Takahashi, K. Shimazoe, Y. Tian, T. Fujiwara, The University of Tokyo, japan; T. Ishikura, Fuji Electric Co. Ltd, japan; H. Tomita, Nagoya University, japan

N07-18 Strong Improvement of the Main Parameters of Classical PMTs

R. Mirzoyan[1], T. Toyama[1], Y. Hanabata[2], J. Hose[1], U. Menzel[1], D. Nakajima[2], M. Takahashi[2], M. Teshima[1,2], T. Yamamoto[3]
[1]Max-Planck-Institute for Physics, Germany; [2]ICRR, University of Tokyo, Japan; [3]Konan University, Japan

N07-19 Optimal SiPM Cell Size for Energy Measurements with Scintillator-Enhanced Optical Crosstalk

A. Gola, F. Acerbi, A. Ferri, G. Paternoster, N. Zorzi, C. Piemonte
Fondazione Bruno Kessler, Italy

N07-20 A Mixed-Field Imaging Approach to Reactor Monitoring

J. Beaumont[1], M. P. Mellor[2], M. J. Joyce[1]
[1]Lancaster University, UK; [2]Createc Ltd., UK

N07-21 High-Resolution Commercial CMOS Image Sensors as X-Ray Imagers and Low-Intensity Particle Beam Monitors

A. Castoldi[1,2], C. Guazzoni[1,2], S. Maffessanti[1], G. V. Montemurro[1], L. Carraresi[3,2]
[1]Politecnico di Milano, Italy; [2]INFN, Italy; [3]Universita' degli Studi di Firenze, Italy

N07-22 A Modified Measurement Method for Photon Detection Efficiency (PDE) of Different SiPM Devices

G. Fu, S. Dolinsky, A. Ivan, J. Guo
GE Global Research Center, USA

N07-23 New Shapes and Configurations of Compton Camera Detectors' to Mitigate the Negative Effects of Their Finite Spatial Resolution

B. D. Smith, University of Texas San Antonio, USA

N07-24 Stereographic Backscattered X-Ray Tomography with Scanning Pencil-Beam for One-Sided Nondestructive Inspection

T. Tohyama, A. Yamazaki, K. Watanabe, A. Uritani
Nagoya University, Japan

N07-25 A Noise Reduction Method for Single Photon Avalanche Diodes in 0.8 μm HV CMOS Technology

S. Parent[1], V.-P. Rhéaume[1], B.-L. Bérubé[1], S. Martel[2], R. Fontaine[1], S. A. Charlebois[1], J.-F. Pratte[1]
[1]Université de Sherbrooke, Canada; [2]Teledyne Dalsa, Canada

N07-26 Characterization of Silicon Photomultipliers for Calorimetry Applications

S. P. Stoll, C. L. Woody
Brookhaven National Laboratory, USA

N07-27 Characterization and Performance Assessment of a 4D PET Module Based on Continuous Crystals and Double Side SiPM Read-Out

M. Morrocchi[1,2], G. Ambrosi[3], M. G. Bisogni[1,2], P. Cerello[4], A. Del Guerra[1,2], M. Ionica[3], B. Liu[1,2], F. Pennazio[4], M. A. Piliero[1,2], G. Pirrone[1,2], V. Postolache[3], R. Wheadon[4]
[1]INFN Pisa, Italy; [2]University of Pisa, Italy; [3]INFN Perugia, Italy; [4]INFN Torino, Italy

N08 NSS Poster Session I - Detectors for Synchrotron Radiation and FEL Instrumentation

Monday, Nov. 10   14:00-15:30   4B

Session Chair: TBD

N08-1 Performance and Future Improvement Potentials of DEPFET Sensors with Nonlinear Amplification for Photon Counting Applications

S. Aschauer[1], K. Hermenau[1], P. Lechner[1], G. Lutz[1], P. Majewski[1], M. Porro[2], C. Sandow[1], L. Strüder[1]
[1]PNSensor GmbH, Germany; [2]Max-Planck-Institut für extraterrestrische Physik, Germany

N08-2 Spatial, Spectroscopic and Timing Performance of Pixellated Single X-Ray Photon Counting Devices

J. N. E. McGrath, J. Marchal, R. Plackett, I. Horswell, D. Omar, E. N. Gimenez, N. Tartoni
Diamond Light Source, UK

N08-3 A 960x960 Fast Frame Store CCD Detector for X-Ray Photon Correlation Spectroscopy

J. T. Weizeorick, T. Madden, S. Narayanan, S. Niu, A. Sandy, Argonne National Laboratory, United States; D. Contarato, P. Denes, D. Doering, J. Joseph, P. McVittie, V. Moeller-Chan, Lawrence Berkeley National Laboratory, United States

N08-4 Laboratory Infrastructure for Detector Calibration and Characterisation at the European XFEL - Status and First Results

J. Sztuk-Dambietz, M. Kuster, S. Hauf, N. Raab, M. Turcato

European XFEL GmbH, Germany

N08-5 Calibration of the Non-Linear System Characteristic of a Prototype of the DSSC Detector for the European XFEL

D. Moch, M. Porro, *Max-Planck-Institut fuer extraterrestrische Physik, Germany*; G. Weidenspointer, S. Schlee, *European XFEL GmbH, Germany*; S. Aschauer, *PNSensor GmbH, Germany*; F. Erdinger, P. Fischer, M. Kirchgessner, J. Soldat, *Universitaet Heidelberg, Germany*; K. Hansen, C. Reckleben, *Deutsches Elektronen-Synchrotron, Germany*

N08-6 Multi-Element Si(Li)- and HPGe-Detectors Used for High-Resolution Spectroscopy of X-Rays with Energies up to Several 100 keV

T. Krings, D. Protic, C. Ross
SEMIKON Detector GmbH, Germany

N08-7 Design and TCAD Simulations of Planar Active-Edge Pixel Sensors for Future XFEL Applications

G.-F. Dalla Betta[1,2], [1]*University of Trento, Italy;* [2]*INFN, Italy*
On behalf of the PixFEL Collaboration

N08-8 High Speed Electron Beam Profile Monitor for Sibir-2

A. I. Kotelnikov[1], A. D. Khilchenko[1,2], A. N. Kvasnin[1], O. I. Meshkov[1], A. A. Ivanova[1,2], E. A. Puryga[1,2], S. V. Ivanenko[1], P. V. Zubarev[1,2]
[1]*Budker Institute of Nuclear Physics SB RAS, Russian Federation;* [2]*Novosibirsk State Technical University, Russian Federation*

N08-9 Studies of the ePix100 Low-Noise X-Ray Camera at SLAC

G. A. Carini, S. Herrmann, K. Nishimura, P. Hart, G. Blaj, A. Tomada, J. Pines, M. Weaver, A. Dragone, P. Caragiulo, B. Markovic, R. Herbst, C. Kenney, J. Segal, J. Hasi, S. Osier, G. Haller, H. Lemke, S. Nelson, A. Robert, D. Zhu
SLAC National Accelerator Laboratory, USA

N08-10 Flip Chip Assembly of Thin Substrates, Fine Pitch, and Small Area Prototype Die

A. Tomada, G. Carini, S. Herrmann, G. Blaj, J. Segal, J. Hasi, C. Kenney
SLAC, USA

N08-11 High-Resolution High-Contrast X-Ray Radiography with Large Area Hybrid Pixel Detector as a Novel Ultimate Tool for Investigation of Painted Arts

J. Zemlicka[1], J. Jakubek[1], F. Krejci[1], I. Kumpova[2], D. Vavrik[1,2], J. Lauterkranc[3], J. Zivny[3]
[1]*Institute of Experimental and Applied Physics, Czech Technical University Prague, Czech Republic;* [2]*Centre of Excellence Telc, Czech Republic;* [3]*Private restorer, Czech Republic*

N08-12 LAMP and the Second Generation pnCCD X-Ray Imaging Detector Operational Experience at the LCLS

S. Carron, A. Mitra, G. Blaj, P. Hart, C. Kenney, C. Bostedt, K. Ferguson, J. C. Castagna, M. Swiggers, M. Bucher, *SLAC National Accelerator Laboratory, USA*; T. Osipov, *University of Western Michigan, USA*; N. Berrah, *University of Connecticut, USA*; L. Englert, G. Hauser, *Max Plank Institute for Extraterrestrial Physics, Germany*; R. Hartmann, *PNSensor GmbH, Germany*

N09 NSS Poster Session I - Instrumentation on Nuclear Security Applications

Monday, Nov. 10   14:00-15:30   4B

Session Chair: **Jennifer Ressler**, Lawrence Livermore National Laboratory,

N09-1 Status Report for the CRIPT Muon Tomography Project

D. Waller, *Defence Research and Development Canada, Canada*
On behalf of the CRIPT Collaboration

N09-2 Detection of Hidden Objects Using a Compton Camera

Y. Maghrbi[1], D. Al-Abdulmalik[2], I. Y. Al-Qaradawi[2], O. Bouhali[1], J. Gerl[3], M. E. Zayed[2]
[1]*Texas A&M University at Qatar, Qatar;* [2]*Qatar University, Qatar;* [3]*Gesellschaft fr Schwerionenforschung, Germany*

N09-4 Differential Die-Away Instrument: Benchmarking of Monte Carlo to Experiment

A. V. Goodsell, M. T. Swinhoe, V. Henzl, K. D. Ianakiev, M. Iliev, C. D. Rael, D. J. Desimone
Los Alamos National Laboratory, USA

N09-5 3D Imaging in Non Destructive Assays of Nuclear Waste Drums

M. A. Belzunce[1,2], L. Martinez Garbino[1,2], C. A. Verrastro[1,2], E. da Ponte[1]
[1]*CNEA, Argentina;* [2]*UTN-FRBA, Argentina*

N09-6 Radiographic Imaging Components for Dose Reduction in Cargoes

A. Danagoulian, W. Bertozzi, W. A. Franklin, S. E. Korbly, R. J. Ledoux, D. Swenson
Passport Systems, Inc., USA

N09-7 A Robust Simulation Look-up Library for Real-Time Airborne Gamma-Ray Spectroscopy

J. A. Kulisek, R. S. Wittman, W. J. Kernan, J. D. McCall, E. A. Miller, J. E. Schweppe, C. E. Seifert, S. C. Stave, T. N. Stewart
Pacific Northwest National Laboratory, USA

N09-8 Simulations of Material-Based Detector Responses for Airborne Gamma-Ray Spectroscopy

T. N. Stewart, W. J. Kernan, J. A. Kulisek, J. E. Schweppe, C. E. Seifert, R. S. Wittman
Pacific Northwest National Laboratory, United States

N09-9 Distributed Detector Radiation Networks: Static and Mobile Sensor Configurations

C. Shenton-Taylor, R. Murphy, N. Shute, *AWE, UK*

N09-10 Wavelet Analysis of Shielded Radiological Material: the Applicability of Wavelet Analysis for Homeland Security

K. Vaughan, R. L. Turner, P. A. Kendall, *AWE, UK*

N09-11 Actinide Assay of Post-Detonation Samples Using Alpha Coincidence Techniques

G. A. Warren, M. P. Dion, B. W. Miller
Pacific Northwest National Laboratory, USA

N09-12 Performance Evaluation of Californium Interrogation Prompt Neutrons (CIPN) Technique Using Fresh and Spent Nuclear Fuel

D. Henzlova[1], C. D. Rael[1], H. O. Menlove[1], R. M. Zedric[1], J. S. Hendricks[1], J. Hu[2], I. P. Martinez[1], S. J. Tobin[1], H. R. Trellue[1], R. A. Weldon[1]
[1]*Los Alamos National Laboratory, USA;* [2]*Oak Ridge National Laboratory, USA*

N09-13 Low-Profile Wearable Sensor Using CLYC Detectors

M. J. Myjak, B. S. McDonald, M. A. Zalavadia, J. E. Smart, P. C. Landgren, J. A. Willett
Pacific Northwest National Laboratory, USA

N09-14 Multiplicity Counter Development with LiF/ZnS

A. T. Lintereur, S. C. Stave, R. T. Kouzes, E. R. Siciliano, S. M. Robinson
Pacific Northwest National Laboratory, USA

N09-15 Neutron Multiplicity Distributions from a Configurable Multiplying Source

E. C. Miller[1], J. M. Kalter[1], D. L. Chichester[2], M. M. Kinlaw[2], S. M. Watson[2], C. M. Lavelle[1], W. A. Noonan[1]
[1]*Johns Hopkins University Applied Physics Laboratory, USA;* [2]*Idaho National Laboratory, USA*

N09-16 Benchmarking the Differential Die-Away Self-Interrogation Instrument

A. C. Kaplan[1], A. P. Belian[2], H. O. Menlove[2], M. Flaska[1], S. A. Pozzi[1]
[1]*University of Michigan, USA;* [2]*Los Alamos National Laboratory, USA*

N09-17 A Method for Improvement of Short-Lived Fission Product Nuclear Data Through Gamma Ray Spectroscopy

A. M. Prinke, L. R. Greenwood, D. A. Haas, S. C. Stave, *Pacific Northwest National Laboratory, USA;* S. R. Biegalski, K. J. Dayman,
M. T. Montgomery, *University of Texas at Austin, USA;* J. T. Burke, J. J. Ressler, A. P. Tonchev, *Lawrence Livermore National Laboratory, USA*

N09-18 A High-Throughput High-Resolution Gamma Spectroscopy System for the Measurement of Delayed G-Rays after Photon-Induced Fission

X. Wen[1], D. Nakazawa[2], H. Yang[1]
[1]*Oregon State University, USA;* [2]*Canberra Industries, USA*

N09-19 Design of a Cosmic-Ray Muon Radiography System for Dry Storage Cask Imaging

C. Liao, H. Yang, *Oregon State University, USA*

N09-20 Geant4 Simulation of Pulse Shape Discrimination with Plastic Scintillator and SiPM for Simultaneous Gamma/Neutron Measurements

C. Liao, H. Yang, *Oregon State University, USA*

N09-21 Real-Time Gamma-Ray Background Estimation for Aerial Surveys

J. E. Schweppe, B. E. Bernacki, D. V. Jordan, J. A. Kulisek, R. J. McConn, Jr., C. E. Seifert, S. C. Stave, T. N. Stewart
Pacific Northwest National Laboratory, USA

N09-22 Algorithm for Radionuclide Analysis Using Energy-Weighted Count with Plastic Scintillation Detector for Radiation Portal Monitor: A Monte Carlo Study

W. G. Shin[1], H. C. Lee[1], C. I. Choi[2], H. S. Hong[2], C. H. Min[1]
[1]*Yonsei University, Korea;* [2]*Korea Institute of Nuclear Safety, Korea*

N09-24 Identifying Neutron Source Type by Neutrons in High Scattering Environment`

J. A. Crow[1], E. R. Myers[1], C. B. Hoshor[1], B. J. Rogers[1], S. M. Young[1], J. E. Currie[1], T. M. Oakes[1], P. R. Scott[1], W. H. Miller[2,3], S. L. Bellinger[4],
D. S. McGregor[4], A. N. Caruso[1]
[1]*University of Missouri - Kansas City, USA;* [2]*University of Missouri - Columbia, USA;* [3]*Missouri University Research Reactor, USA;* [4]*Kansas State University, USA*

N09-25 Muon Tomography Using a Density-Based Clustering Technique

K. B. Perry, C. H. G. Wright, S. F. Barrett, D. Schwellenbach, W. Dreesen
University of Wyoming, Albany

N09-26 Development of Gamma-Ray Imager with Stacked Bar-Type Scintillators

J. Kawarabayashi, T. Takahashi, H. Sugano, H. Tomita, T. Iguchi, *Nagoya University, Japan;* E. Takada, D. Matsui, *Toyama National College of Technology, Japan*

N09-27 An MAP Algorithm with Edge-Preserving Prior for Muon Tomography

B. Yu[1,2], Z. Zhao[1,2], X. Wang[1,2], D. Wu[1,2], Z. Zeng[1,2], Y. Wang[1,2], M. Zeng[1,2], H. Yi[1,2], Z. Luo[1,2], X. Yue[1,2], J. Cheng[1,2]
[1]*Ministry of Education, China;* [2]*Tsinghua University, China*

N09-28 A Fast Neutron Detector for Homeland Security Based on Scintillation Light by a Noble Gas Sensed by Silicon Photomultiplier Arrays

M. Caccia, R. Santoro, V. Chmill, *Università dell'Insubria, Italy;* A. Martemyianov, *ITEP, Russia*

N09-29 Bayesian-Theory-Based Most Probable Trajectory Reconstruction Algorithm in Cosmic Ray Muon Tomography

H. Yi[1,2], Z. Zeng[1,2], B. Yu[1,2], J. Cheng[1,2], Z. Zhao[1,2], X. Wang[1,2], M. Zeng[1,2], Y. Wang[1,2]
[1]*Tsinghua University, China;* [2]*Ministry of Education, China*

N09-30 Fusion of Photon-Neutron Spectroscopies

C. B. Hoshor[1], T. M. Oakes[1], E. R. Myers[1], S. L. Bellinger[2], W. H. Miller[3], B. J. Rogers[1], S. M. Young[1], J. E. Currie[1], J. A. Crow[1], D. S. McGregor[2], A. N. Caruso[1]

[1]*University of Missouri - Kansas City, USA;* [2]*Kansas State University, USA;* [3]*University of Missouri - Columbia, USA*

N09-31 Use of Thermal-Neutron Time-Correlated Counting to Analyze Multiplying Assemblies of HEU

D. L. Chichester, M. T. Kinlaw, S. M. Watson, *Idaho National Laboratory, USA;* J. M. Kalter, E. C. Miller, W. A. Noonan, *Johns Hopkins University Applied Physics Laboratory, USA*

N09-32 Imaging Shielded Configurations Using near-Horizontal and near-Vertical Trajectory Cosmic-Ray Muons

D. Schwellenbach, W. Dreesen, J. A. Green, D. Aberle, A. Tibbitts
National Security Technologies, US

N09-33 Fast Neutron Backgrounds for Anti-Neutrino Based Nuclear Reactor Monitoring as a Function of Overburden

C. Roecker, *University California Berkeley, USA;* J. Brennan, M. Gerling, P. Marleau, *Sandia National Laboratory, USA;* O. B. O. the WATCHMAN collaboration, *Lawrence Livermore National Laboratory, USA*

N09-34 Momentum Estimation of Cosmic Ray Muons Through Multiple Scattering in Muon Tomography Scanner

P. Kurnadi, S. Simon, T. Taylor
Decision Sciences International Corporation, US

N09-35 X-Ray Radar Imaging Technique Using a 2 MeV Linear Electron Accelerator

W. Dreesen, D. Schwellenbach, *National Security Technologies, USA;* J. R. Wood, M. Browder, *Lockheed Martin, USA;* J. M. Potter, *JP Accelerator Works, USA*

N09-36 Detection of Petawatt Laser-Induced Muon Source for Rapid High-Z Material Detection

W. Dreesen, D. Schwellenbach, J. A. Green, *National Security Technologies, USA;* M. Browder, J. R. Wood, *Lockheed Martin, USA;* T. Ditmire, *National Energetics, USA;* C. Wagner, G. Tiwari, *University of Texas at Austin, USA*

N09-37 Non-Destructive Inspection System of Nuclear Material Hidden in Cargo

I. Daito[1], M. Kando[2], C. Angell[2], T. Shizuma[2], T. Hayakawa[2], R. Hajima[2], H. Ohgaki[1]
[1]*Institute of Advanced Energy, Kyoto University, Japan;* [2]*Japan Atomic Energy Agency, Japan*

N09-38 Plutonium Metal Spontaneous Fission Neutron Cross-Correlation Measurements

M. J. Marcath, T. Shin, S. D. Clarke, J. L. Dolan, M. Flaska, E. W. Larsen, S. A. Pozzi, *University of Michigan, USA;* P. Peerani, *Joint Research Centre, Italy*

N09-40 Development of Realtime 90Sr Counter Used in Low Rate Radioactive

S. Ijima[1], H. Ito[1], S. Han[1,2], H. Kawai[1], S. Kodama[1], D. Kumogoshi[1]
[1]*Graduate School of Science, Chiba Univ., Japan;* [2]*National Institute of Radiological Science, Japan*

N09-41 Image Reconstruction of Shielded Mixed-Oxide Fuel Using a Dual-Particle Imaging System

J. K. Polack, A. Poitrasson-Rivière, M. C. Hamel, S. D. Clarke, M. Flaska, S. Pozzi, *University of Michigan, USA;* A. Tomanin, P. Peerani, *Joint Research Centre, Italy*

N09-42 Development of Portable Compact Gamma-Ray Spectrometer with CsI(Tl)+MPPC

H. Takahashi, T. Nakagawa, T. Ohsugi, Y. Fukazawa, T. Mizuno, *Hiroshima University, Japan;* T. Takagaki, *TAC Inc., Kyoto*

N09-43 Development of Semiconductor Compton Camera GREI for Imaging Analysis of Radioactive Substances in the Environment

S. Motomura[1], T. Ida[1,2], T. Fukuchi[1], M. Hiromura[1], H. Haba[1], Y. Watanabe[1], S. Enomoto[1,2]
[1]*RIKEN, Japan;* [2]*Okayama University, Japan*

N09-44 Learning to See What Has Never Been Seen, an Effective Machine Learning Framework for Nuclear Security Applications

S. E. Labov[1], A. Dubrawski[2], P. Huggins[2], C. Mattoon[1], K. E. Nelson[1], S. Ray[2]
[1]*Lawrence Livermore National Laboratory, USA;* [2]*Carnegie Mellon University, USA*

N09-45 Development of Direction-Sensitive Radiation Detector using Ce:GAGG Scintillators and MPPCs

T. Nakamori[1], H. Sato[2], M. Takebe[1], S. Gunji[1], S. Ito[2], M. Yoshino[2], S. Kato[2], Y. Usuki[2], J. Kataoka[3]
[1]*Yamagata University, Japan;* [2]*Furukawa Co., Ltd., Japan;* [3]*Waseda University, Japan*

N09-46 Pulse Shape Analysis in Broad Energy Germanium Detectors, to Improve Minimum Detectable Activity in Safety and Security Applications

L. J. Harkness-Brennan, A. J. Boston, H. C. Boston, S. J. Colosimo, J. Dormand, J. R. Cresswell, D. S. Judson, P. J. Nolan, *University of Liverpool, UK;* A. Aderemi, J. Colaresi, J. Cocks, W. Mueller, *CANBERRA Industries Inc, USA*

N09-47 Optimizing the Coherent X-Ray Diffraction Signal for Identification of Liquids

M. Janecek, J. A. Kerner, E. Franco
Rapiscan Laboratories, Inc., USA

N10 NSS Poster Session I - Nuclear Physics Instrumentation

Monday, Nov. 10   14:00-15:30   4B

Session Chair: **Sara Pozzi**, University of Michigan, United States

N10-1 Growth of Co-Doped TeO2 Crystals with High Bi Doping for Scintillating Bolometers

Y. Zhu, Z. Ge, S. Yue, W. Wang, Y. Pan, X. Feng, *Shanghai Institute of Ceramics, Chinese Academy of Sciences, China;* I. Dafinei, *Sezione INFN di Roma and Universit, Italy*

N10-2 Construction and Characterization of the CLAS12 Central Neutron Detector

G. Hull, J. Bettane, A. Maroni, M. Imre, C. Theneau, G. Minier, S. Niccolai
Institut de Physique Nucleaire d'Orsay, France

N10-3 Clad Failure Detection System Based on Delayed Neutron Detection Without Photoneutron Noise Designed for Sodium-Cooled Fast Reactors

E. Rohee, R. Coulon, C. Jammes, S. Normand, F. Carrel, F. Laine, H. Hamrita
French Atomic Energy and Alternative Energies Commission, France

N10-4 Development of a Microcalorimeter for Measurement of L X-Rays Emitted from Transuranium Elements

K. Nakamura[1], M. Maeda[1], K. Maehata[2], N. Iyomoto[2], K. Ishibashi[2], K. Takasaki[1], K. Mitsuda[3]
[1]Japan Atomic Energy Agency, Japan; [2]Kyushu University, Japan; [3]Japan Aerospace Exploration Agency, Japan

N10-6 Position-Sensitive Coincidence Detection of Nuclear Reaction Products with Configurable Array of Timepix Detectors

C. Granja, V. Kraus, S. Pospisil, *Czech Technical University in Prague, Czech Republic*; V. Pugatch, *Kiev Institute for Nuclear Research, Ukraine*

N10-7 Development of a Front-End Electronics for an Innovative Monitor Chamber for High-Intensity Charged Particle Beams

L. Fanola[1,2], F. Marchetto[1], S. Giordanengo[1], M. Lavagno[3], R. Sacchi[1,2], R. Cirio[1,2], F. Fausti[2], A. Zampieri[1]
[1]INFN, Italy; [2]Torino University, Italy; [3]De.Tec.Tor.srl, Italy

N10-8 Optimization of the Sampling Process for the Close Orbit Data in the Digital Beam Position Measurement for SSRF

W. Wu, E. Chen, S. Liu, Q. An, *USTC, China*

N10-9 Detailed Mapping of the Interstrip Response in Double Sided Silicon Strip Detectors in Front and Back Injection by Means of IR Laser Irradiation

A. Castoldi[1,2], C. Guazzoni[1,2], T. Parsani[1,2], F. Riccio[1,2], P. Zambon[1,2]
[1]Politecnico di Milano, Italy; [2]INFN, Italy

N10-10 Future Upgrades for the sPHENIX Experiment at RHIC

C. Woody, *Brookhaven National Lab, USA*
On behalf of the PHENIX Collaboration

N10-12 Characterization of a NTD Double-Sided Silicon Strip Detector Using a Pulsed Ion Beam

A. Castoldi[1], C. Guazzoni[1], T. Parsani[1], F. Riccio[1], L. Carraresi[2,3], F. Taccetti[3], L. Acosta[4,3], I. Martel[4], J. A. Duenas[4]
[1]Politecnico di Milano and INFN, Italy; [2]Universita' degli Studi di Firenze, Italy; [3]INFN, Italy; [4]Universidad de Huelva, Spain

N10-13 Investigation of the Requirements of a Digital Holographic Interferometer for Proton Beam Dosimetry

A. Cavan, *University of Canterbury, New Zealand*; J. Meyer, E. Ford, P. Jing, L. Y. Lin, *University of Washington, USA*

N10-14 HyPix-3000 – a Large Area Single-Photon Counting Detector with Two Discriminator Thresholds

P. Maj, P. Grybos, R. Szczygiel, *AGH University of Science and Technology, Poland*; T. Taguchi, Y. Nakaye, *Rigaku Corportation, Japan*

N10-15 Real Time Digital Constant Fraction Discriminator for Fast Timing Measurements

P. Mutti, E. Ruiz-martinez, *Institut Laue-Langevin, France*; M. Alarcón Ortiz, *Universidad Politécnica de Cartagena, Spain*; C. De Cesare, *University of Milano, Italy*

N10-16 RICH with Hamamatsu MPPC Module S11834

R. Pestotnik[1], S. Korpar[2,1], P. Križan[3,1], E. Tahirovic[1]
[1]Jožef Stefan Institute, Slovenia; [2]University of Maribor, Slovenia; [3]University of Ljubljana, Slovenia

N10-17 A Selectable-Gain CMOS Frontend for Pulse Shape Analysis in Double Sided Silicon Microstrip Detectors

A. Castoldi, C. Guazzoni, T. Parsani
Politecnico di Milano and INFN, Italy

N10-18 Comparing Analog and Digital Pulse-Shape-Discrimination System Performance for Organic-Liquid Scintillators

C. S. Sosa, M. Flaska, S. A. Pozzi
University of Michigan, USA

N11 NSS Poster Session I - Semiconductors Tracking and Spectroscopy

Monday, Nov. 10   14:00-15:30   4B

Session Chair: **Georg Steinbrueck**, University of Hamburg, Germany

N11-1 Optimization of Proximity Charge Sensing Readout HPGe Detectors

M. Amman, A. Priest, J. S. Lee, P. N. Luke, K. Vetter, *Lawrence Berkeley National Laboratory, 94720*; S. Asztalos, K. Sabourov, *XIA LLC, 94544*

N11-2 Towards High-Fidelity Molecular Dynamics Simulations of Ionic Transport of TlBr

X. Zhou, M. E. Foster, R. E. Jones, P. F. Doty, P. Yang, H. Fan
Sandia National Laboratories, USA

N11-3 Design, Construction and Prototyping of the Silicon Strip Tracker for the Micro Vertex Detector of the PANDA Experiment

H.-G. Zaunick[1], R. Schnell[1], T. Quagli[1], K. T. Brinkmann[1], A. Rivetti[2], V. Di Pietro[1], A. Riccardi[1], A. Goerres[3], H. Sohlbach[4]
[1]2nd Physics Institute, University Giessen, Germany; [2]Istituto Nazionale di Fisica Nucleare, Italy; [3]IKP, Forschungszentrum Juelich, Germany; [4]Fachhochschule Suedwestfalen, Germany

N11-4 Ultra-Fast, Low-Power MAPS Prototype

P. Giubilato, S. Mattiazzo, D. Pantano, D. Bisello, *Padova University and INFN, Italy*; W. Snoeys, T. Kugathasan, C. Marin Tobon, J. Rousset, L. Musa, P. Riedler, *CERN, Switzerland*

N11-5 Charge Collection Efficiency Mapping of a Frisch-Collar BiI3 Device

N. S. Edwards, D. S. McGregor
Kansas State University, United States

N11-6 Track Analysis Techniques and Lineal Energy Transfer Measurements by Means of a Timepix Detector

B. Bergmann[1], S. Brons[2], I. Caicedo[1], M. Holik[1], V. Kraus[1], S. Pospisil[1]
[1]*Istitute for Experimental and Applied Physics at CTU in Prague, Czech Republic; [2]Heidelberger Ionenstrahl-Therapiezentrum (HIT), Germany*

N11-7 SiMPl - SiPMs with Bulk Integrated Quench Resistors

J. Ninkovic, L. Andricek, C. Jendrysik, R. Lehmann, S. Petrovics, R. Richter, F. Schopper
MPG Halbleiterlabor, Germany

N11-8 Weightfield: a Simulation Program to Evaluate the Performance of Silicon Detectors

N. Cartiglia[1], F. Cenna[1], A. Picerno[1], F. Ravera[1], V. Fadeyev[2], P. Freeman[2], H. Sadrozinski[2], A. Seiden[2], Z. Galloway[2], M. Friedl[3], B. Kolbinger[1]
[1]*INFN, Italy; [2]Santa Cruz Institute for Particle Physics, United States; [3]OEAW, Austria*

N11-9 Irradiation Effects of a Monolithic Pixel Sensor in FD-SOI Technology with 62 MeV-Protons

P. L. Alvarez-Rengifo[1,2], E. Cortina[1], L. Soung Yee[1]
[1]*Université Catholique de Louvain, Belgium; [2]Universitat Autònoma de Barcelona, Spain*

N11-10 Premium Resolution Performance at Low- to Mid-Energies with Semi-Planar HPGe Detectors

G. Geurkov, E. Roth, K. Schmitt, T. Twomey, T. Underwood
AMETEK - ORTEC, USA

N11-11 The Silicon Upstream Tracker for the LHCb Upgrade

M. Artuso, *syracuse university, USA*
On behalf of the LHCb Upstream Tracker Collaboration

N12 NSS Poster Session I - Trigger and Frontend Systems

Monday, Nov. 10   14:00-15:30   4B

Session Chair: TBD

N12-1 Demonstrator System for the Phase-I Upgrade of the Trigger Readout Electronics of the ATLAS Liquid-Argon Calorimeters

K. Chen, *Brookhaven National Laboratory, United States*
On behalf of the ATLAS Liquid Argon Calorimeter Group

N12-3 Concept of a Stand-Alone Muon Trigger with High Transverse Momentum Resolution for the ATLAS Detector at the High-Luminosity LHC

Y. Horii, *Nagoya University, Japan*
On behalf of the ATLAS MUON collaboration

N12-4 Design and Test of a Demonstrator for the New Level-1 Muon Trigger of the ATLAS Detector at the High-Luminosity LHC

P. Schwegler, H. Kroha, O. Kortner, R. Richter, M. Fras, V. Gabrielyan, V. Danielyan, D. Fink, S. Nowak, S. Abovyan, S. Ott
Max-Planck-Institut für Physik, Germany

N12-6 Linearity Improvement of the FPGA-Based Time-to-Digital Converter (TDC) Using Dual-Output Tapped-Delay Line

J. Y. Won, J. S. Lee
Seoul National University, South Korea

N12-7 Trigger of the Educational ALIBAVA System

J. Bernabeu[1], G. Casse[2], C. Garcia[1], A. Greenall[2], C. Lacasta[1], M. Lozano[3], S. Marti-Garcia[1], G. Pellegrini[3], J. Rodriguez[4], M. Ullan[3]
[1]*Instituto de Fisica Corpuscular (IFIC), Spain; [2]Univeristy of Liverpool, United Kingdom; [3]Institut de Microelectrï¿½nica de Barcelona IMB-CNM, Spain; [4]ALIBAVA Systems, Spain*

N12-8 An Optimization of the FPGA Trigger Based on the Artificial Neural Network for a Detection of Neutrino-Origin Showers

Z. Szadkowski, D. Glas, *University of Lodz, Poland*

N12-9 Upgrade of the ATLAS Level-1 Calorimeter Trigger

F. Mueller, *Ruprecht-Karls-Universitaet, Germany*
On behalf of the ATLAS

N12-10 The ATLAS FTK Auxiliary Card: a Highly Functional VME Rear Transition Module for a Hardware Track Finding Processing Unit

J. Alison, A. Boevia, M. Bogdan, P. Bryant, Y. Cheng, K. Krizka, M. Shochet, L. Tompkins, J. Webster
University of Chicago, USA

N12-11 The Input Mezzanine Card for the ATLAS Fast TracKer (FTK) System

A. Annovi[1], M. Beretta[1], M. Gatta[1], S. Gkaitatzis[2], T. Iizawa[3], N. Kimura[3], K. Kordas[2], T. Korikawa[3], T. Mitani[3], S. Nikolaidis[2], C. Petridou[2], D. Sampsonidis[2], D. Sampsonidou[2], C. Sotiropoulou[2], K. Yorita[3]
[1]*INFN, Italy; [2]Aristotle University of Thessaloniki, Greece; [3]Waseda University, Japan*

N12-12 The Serial Link Processor for the Fast TracKer (FTK) Processor at ATLAS

A. Annovi[1], A. Andreani[2], R. Beccherle[3], M. Beretta[1], N. Biesuz[2], M. Citterio[2], F. Crescioli[4], S. Donati[3], P. Giannetti[3], K. Kordas[5], A. Lanza[6], V. Liberali[2], P. Luciano[3], D. Magalotti[1], S. Nikolaidis[5], M. Piendibene[3], E. Rossi[7], S. Shojaii[2], C. Sotiropoulou[5], A. Stabile[2]

[1]INFN Frascati, Italy; [2]Università degli studi di Milano, Italy; [3]INFN Pisa, Italy; [4]LPNHE, France; [5]Aristotle University of Thessaloniki, Greece; [6]Universita degli Studi di Pavia, Italy; [7]Universita degli Studi di Napoli, Italy

N12-13 Development of DAQ board SEABAS2 for SOI pixel detectors

S. Mitsui, Y. Arai, Y. Fujita, Y. Ikegami, Y. Ikemoto, T. Miyoshi, K. Tauchi, T. Tsuboyama, M. Yamada, *High energy accelerator research organization, Japan*; K. Hara, S. Honda, *University of Tsukuba, Japan*

N12-14 An Artificial Retina Processor for Track Reconstruction at the LHC Bunch-Crossing Rate

S. Stracka[1], A. Abba[2], F. Bedeschi[1], F. Caponio[2], M. Citterio[2], A. Cusimano[2], A. Geraci[2], F. Lionetto[1], P. Marino[1], M. Morello[1], N. Neri[2], D. Ninci[1], M. Petruzzo[2], A. Piucci[1], G. Punzi[1], L. Ristori[3], F. Spinella[1], D. Tonelli[4], J. Walsh[1]

[1]INFN Sezione di Pisa, Scuola Normale Superiore, and University of Pisa, Italy; [2]INFN Sezione di Milano and Politecnico of Milano, Italy; [3]Fermilab, USA; [4]CERN, Switzerland

N13 Instrumentation for Nuclear Security Applications I

Monday, Nov. 10   16:00-18:00   6A

Session Chairs: **Timothy Ashenfelter**, DNDO,
                       Clair J. Sullivan, University of Illinois-Nuclear, Plasma, and Radiological Eng, United States

N13-1 (16:00) Mobile Outdoor SuperMISTI Compton Imager

E. A. Wulf[1], A. L. Hutcheson[1], B. E. Leas[2], L. J. Mitchell[1], R. Woolf[3], B. F. Phlips[1]

[1]Naval Research Laboratory, USA; [2]SRA International, USA; [3]National Research Council/NRL, USA

N13-2 (16:15) Polaris-H Measurements and Performance

C. G. Wahl, W. R. Kaye, W. Wang, F. Zhang, J. M. Jaworski, Y. A. Boucher, A. King, Z. He
H3D, Inc., USA

N13-3 (16:30) Development, Commissioning and First Results from a Modular Detection System for Special Nuclear Material (MODES-SNM)

R. Santoro, *Universita dell'Insubria, Italy*
On behalf of the MODES-SNM Collaboration

N13-4 (16:45) Enhanced Data Analysis for an Imaging Neutron/Gamma-Ray Spectrometer

A. C. Madden, P. F. Bloser, J. S. Legere, E. Linder, M. L. McConnell, R. J. M
University of New Hampshire, USA

N13-5 (17:00) Improved Nuclear Material Detection Using Joint Neutron and Gamma Ray Detections and Analysis

J. M. Ryan, P. F. Bloser, J. S. Legere, E. Lindner, A. C. Madden, M. L. McConnell
UNH, USA

N13-6 (17:15) Multi-Level, Multi-Modal Data Fusion for Improved Vehicular Radiation Detection and Tracking

D. A. Cooper, R. J. Ledoux, K. Kamieniecki, S. E. Korbly, J. Batcheler, J. Costales, J. Dey, R. Niyazov
Passport Systems, Inc., USA

N13-7 (17:30) Improvements in the Method of Radiation Anomaly Detection by Spectral Comparison Ratios

D. M. Pfund, K. D. Jarman, B. D. Milbrath
Pacific Northwest National Laboratory, U.S.A.

N13-8 (17:45) Wireless Radiation Sensor Network with Directional Radiation Detectors

D. Waller, *Defence Research and Development Canada, Canada*; C. Liu, P.-L. Drouin, *Calian, Canada*; G. St-Jean, M. Deziel, *Communications Research Centre, Canada*

N14 Astrophysics and Space Instrumentation I

Monday, Nov. 10   16:00-18:00   606 & 607

Session Chairs: **Kaixuan Ni**, Shanghai Jiao Tong University, China
                       Meng Su, MIT, United States

N14-1 (16:00) The 2013 Flight of the PoGOLite Balloon-Borne Hard X-Ray Polarimeter

M. Pearce, *KTH Royal Institute of Technology, Sweden*
On behalf of the PoGOLite Collaboration

N14-2 (16:15) Development of Superconducting Tunnel Junction Detector Using Hafnium for Neutrino Radiative Decay Search

K. Takemasa, S. Kim, Y. Takeuchi, K. Kiuchi, K. Nagata, K. Kasahara, T. Okudaira, T. Ichimura, M. Kanamaru, R. Senzaki, K. Moriuchi, *University of Tsukuba, Japan*; H. Ikeda, S. Matsuura, T. Wada, *JAXA/ISAS, Japan*; H. Ishino, A. Kibayashi, *Okayama university, Japan*; H. Sato, S. Mima, *RIKEN, Japan*; T. Yoshida, R. Hirose, *University of Fukui, Japan*; Y. Kato, *Kinki university, Japan*; M. Hazumi, Y. Arai, *KEK, Japan*; E. Ramberg, J. Yoo, M. Kozlovsky, P. Rubinov, D. Sergatskov, *Fermilab, USA*; S. Kim, *Seoul national university, South Korea*

N14-3 (17:30) The 2014/15 Antarctic Balloon Campaign of the Compton Spectrometer and Imager (COSI)

A. Zoglauer[1], S. E. Boggs[1], J.-L. Chiu[2], C. Kierans[1], A. Lowell[1], J. A. Tomsick[1]
[1]University of California at Berkeley, USA; [2]National Tsing Hua University, Taiwan

N14-4 (17:45) Effectiveness and Performance of a Full Ray-Tracing Sub-MeV Compton Imager

Y. Mizumura[1], A. Takada[1], S. Iwaki[1], S. Komura[1], H. Kubo[1], Y. Matsuoka[1], K. Miuchi[2], T. Mizumoto[1], K. Nakamura[1], S. Nakamura[1], M. Oda[1], J. D. Parker[1], S. Sonoda[1], T. Sawano[3], T. Tanimori[1], D. Tomono[1]
[1]Kyoto University, Japan; [2]Kobe University, Japan; [3]Kanazawa University, Japan

N14-5 (17:00) R&D Results for a Solid Xenon Particle Detector
E. J. Ramberg, J. Yoo, *Fermi National Accelerator Laboratory, USA*; M. Filipenko, *University of Erlangen, Germany*

N14-6 (17:15) Ionization/Scintillation Yields and Energy Scale in Noble Element Detectors
B. G. Lenardo, M. Tripathi, M. Szydagis
University of California, Davis, United States

N14-7 (17:30) Athena, the Next Large ESA Mission to Study the Hot and Energetic Universe
D. Haas, *SRON, Netherlands Institute for Space Research, Netherlands*
On behalf of the Athena collaboration

N14-8 (17:45) Preflight Model Performance of the Soft Gamma-Ray Detector Onboard the ASTRO-H
K. Hayashi[1], H. Tajima[2], Y. Fukazawa[3], S. Watanabe[1], M. Ohta[1], K. Nakazawa[4], K. Yamaoka[2], H. Uchiyama[5], H. Odaka[1], T. Yuasa[6], S. Saito[1], S. Takeda[1], M. Kawaharada[1], A. Harayama[1], T. Mizuno[3], H. Takahashi[3], Y. Tanaka[3], J. Kataoka[7], R. Sato[1], Y. Yatsu[8], G. Sato[7], M. Kokubun[1], T. Takahashi[1], K. Makishima[4]
[1]ISAS/JAXA, Japan; [2]Nagoya University, Japan; [3]Hiroshima University, Japan; [4]The University of Tokyo, Japan; [5]Shizuoka University, Japan; [6]Institute of Physical and Chemical Research (RIKEN), Japan; [7]Waseda University, Japan; [8]Tokyo Institute of Technology, Japan

N15 Detectors for Synchrotron Radiation and FEL Instrumentation I

Monday, Nov. 10   16:00-18:00   608 & 609

Session Chairs: **Gabriella A. Carini**, SLAC National Accelerator Laboratory, United States
Farah F. Fahim, Fermi National Accelerator Laboratory, United States

N15-1 (16:00) The LAMBDA Photon-Counting Pixel Detector: Development of High-Z Sensors and Edgeless Modules
D. Pennicard[1], S. Smoljanin[1], B. Struth[1], H. Hirsemann[1], M. Sarajlic[1], J. Zhang[1], H. Graafsma[1,2], M. Zuvic[3], M.-O. Lampert[3], T. Fritzsch[4], M. Rothermund[4]
[1]DESY, Germany; [2]Mid Sweden University, Sweden; [3]Canberra France, France; [4]Fraunhofer IZM, Germany

N15-2 (16:15) The Large Pixel Detector for XFEL.EU
M. D. Hart, T. Nicholls, C. Angelsen, J. Coughlan, M. French, S. Burge, J. Lipp, P. Seller, M. Prydderch, *STFC - Rutherford Appleton Laboratory, United Kingdom*; M. Kuster, S. Hauf, A. Koch, *European XFEL GmbH, Germany*; G. A. Carini,, M. Chollet, S. C. Herrmann, H. T. Lemke, S. Nelson, S. Song, M. Weaver, D. Zhu, *SLAC National Accelerator Laboratory, USA*

N15-3 (16:30) PERCIVAL: the Design and Characterisation of a CMOS Image Sensor for Direct Detection of Low-Energy X-Rays
B. Marsh[1], D. Das[1], I. Sedgwick[1], R. Turchetta[1], M. Bayer[2], J. Correa[2], S. Lange[2], A. Marras[2], I. Shevyakov[2], S. Smoljanin[2], M. Viti[2], C. B. Wunderer[2], Q. Xia[2], M. Zimmer[2], G. Cautero[3], D. Giuressi[3], R. Menk[3], L. Stebel[3], H. Yousef[3], J. Marchal[4], N. Rees[4], N. Tartoni[4], J. Thompson[4], H. Graafsma[2,5]
[1]Rutherford Appleton Laboratory, UK; [2]DESY, Germany; [3]Elettra – Sincrotrone Trieste, Italy; [4]Diamond Light Source, UK; [5]Mid Sweden University, Sweden

N15-4 (16:45) Novel Lutetium-Iodide Scintillators for High-Energy X-Ray Imaging Applications
P. Kenesei[1], M. D. Moore[1], Z. Marton[2], R. Woods[1], A. Miceli[1], S. Ross[3], J. D. Almer[1], V. V. Nagarkar[2], B. Singh[2]
[1]Argonne National Laboratory, USA; [2]Radiation Monitoring Devices, Inc., USA; [3]Northern Illinois University, USA

N15-5 (17:00) Latest Results and Prospects of the Development of the DSSC Camera for the European XFEL
M. Porro, *Max Planck Institut fuer Extraterrestrische Physik, Germany*
On behalf of the DSSC Collaboration

N15-6 (17:15) Expanding the Dynamic Range of X-Ray pnCCDs for Free Electron Laser and Synchrotron Applications
L. W. J. Strueder[1,2], R. Hartmann[1], J. Schmidt[1], M. Huth[1], P. Holl[1], J. A. Soltau[3], D. Kalok[1], D. Steigenhoefer[1], H. Soltau[3]
[1]PNSensor GmbH, Germany; [2]University of Siegen, Germany; [3]PNDetector GmbH, Germany

N15-7 (17:30) Improved Rate Resolution Performance in Monolithic Segmented HPGe Detectors
G. J. Dennis[1], W. I. Helsby[2], D. B. S. Omar[1], I. C. Horswell[1], N. Tartoni[1], S. Diaz-Moreno[1]
[1]Diamond Light Source, UK; [2]Science & Technology Facilities Council, UK

N15-8 (17:45) The AGIPD Detector for the European XFEL
D. Greiffenberg, *Paul-Scherrer-Institut (PSI), Switzerland*
On behalf of the AGIPD collaboration

N16 Instrumentation for Nuclear Security Applications II

Tuesday, Nov. 11   08:00-10:00   6A

Session Chairs: **Leif A. Hansen**, DTRA,
Nathan Hilton, Sandia National Labs, United States

N16-1 (08:00) MINER - A Mobile Imager of Neutrons for Emergency Responders
M. D. Gerling, J. E. M. Goldsmith, J. S. Brennan
Sandia National Laboratories, USA

N16-2 (08:15) Improved Metallic Magnetic Calorimeters for Gamma-Ray Spectroscopy

C. R. Bates, S. Friedrich, *Lawrence Livermore National Laboratory, United States*; D. Hengstler, C. Pies, A. Fleischmann, L. Gastaldo,
C. Enss, *Universität Heidelberg, Germany*

N16-3 (08:30) Characterization of Construction Materials for Improved Radiation Background Assessments in Complex Environments
B. R. Kowash, J. D. Casebolt, D. J. Bunker, T. W. Johannes, J. W. McClory
Air Force Institute of Technology, USA

N16-4 (08:45) Wandering Pixels: Evaluating Moving Sources from an Aerial Platform Using Adaptively Reevaluated Bayesian Localization (ARBL)
S. M. Robinson, E. Miller, K. Anderson, J. Webster, J. McCall, C. Seifert
Pacific Northwest National Laboratory, USA

N16-5 (09:00) Radioactive Source Localization from an Aerial Platform Using Adaptively Reevaluated Bayesian Localization (ARBL)
E. A. Miller, S. M. Robinson, K. K. Anderson, J. D. McCall, J. B. Webster, C. E. Seifert
Pacific Northwest National Laboratory, USA

N16-6 (09:15) Low Altitude Measurements of the Neutron Background
L. J. Mitchell, B. F. Phlips, A. L. Hutcheson, E. A. Wulf, R. S. Woolf, *Naval Research Laboratory, USA*; D. R. Polaski, *Praxis Inc., USA*

N16-7 (09:30) Automated Isotope Identification of Single-Source and Mixed-Sources
J. B. Stinnett, C. J. Sullivan
University of Illinois at Urbana-Champaign, 61801

N16-8 (09:45) An Affordable Gamma-Ray Spectrometer for General Population
A. T. Farsoni, E. M. Becker, *Oregon State Universtiy, USA*

N17 High Energy Physics Instrumentation I

Tuesday, Nov. 11   08:00-10:00   606 & 607

Session Chairs: **Erika Garutti**, University of Hamburg, Germany
                       Frank Simon, Max-Planck-Institut fuer Physik, Germany

N17-1 (08:00) CMS Electromagnetic Calorimeter Calibration and Timing: Performance during LHC Run I and Future Prospects
E. Di Marco, *CERN, Switzerland*
On behalf of the CMS Collaboration

N17-2 (08:15) CMS Forward Calorimeters Phase II Upgrade
B. Bilki, *University of Iowa, USA*
On behalf of the CMS Collaboration

N17-3 (08:30) Technological Prototype of a Fully Instrumented Silicon-Tungsten Electromagnetic Calorimeter Featuring 5000 Channels/dm3
.
R. Cornat, *Laboratoire Leprince-Ringuet - Ecole Polytechnique / IN2P3-CNRS, FRANCE*
On behalf of the CALICE Collaboration

N17-4 (08:45) A Prototype Silicon-Tungsten Calorimeter with Integrated Readout
R. Frey, J. Brau, S. David, D. Mead, K. Travis, G. Craig, *Univ. of Oregon, USA*; M. Breidenbach, D. Freytag, G. Haller, R. Herbst, *SLAC National Accelerator Center, USA*; B. Holbrook, C. Neher, M. Tripathi, *Univ. of California, USA*

N17-5 (09:00) Response of the Shashlyk Forward Spectrometer of PANDA to Photons below 800MeV Energy
R. W. Novotny[1], S. Diehl[1], V. Dormenev[1], P. Drexler[1], S. Bukreeva[2], D. Morozov[2], S. Ryzhikov[2], P. Semenov[2]
[1]*Justus-Liebig-University, Germany;* [2]*Kurchatov Institute, Russia*

N17-6 (09:15) Beam Test Results for a Tungsten-Cerium Fluoride Sampling Calorimeter with Wavelength-Shifting Fiber Readout
P. Meridiani[1], G. Dissertori[2], M. Donega[2], W. Lustermann[2], F. Nessi-Tedaldi[2], M. Quittnat[2], F. Pandolfi[2], M. Peruzzi[2], A. Martelli[3], T. Tabarelli[3], F. Cavallari[1], R. Paramatti[1], I. Dafinei[1], M. Diemoz[1], C. Rovelli[1], G. D'imperio[4], D. Del Re[4], S. Gelli[4], C. Jorda Lopez[4], F. Micheli[4], G. Organtini[4], S. Rahatlou[4], F. Santanastasio[4], L. Soffi[4], N. Pastrone[5], G. Della Ricca[6], V. Candelise[6]
[1]*INFN Sezione di Roma, Italy;* [2]*Eidgenössische Technische Hochschule, Switzerland;* [3]*Universita` di Milano-Bicocca e INFN-Sezione di Milano-Bicocca, Italy;* [4]*Universita` di Roma, Italy;* [5]*INFN Sezione di Torino, Italy;* [6]*Universita` di Trieste e INFN-Sezione di Trieste, Italy*

N17-7 (09:30) The SDHCAL Technological Prototype : Construction, First Results and Ongoing R&D.
L. Mirabito, *IPNL-UCBL-IN2P3, France*
On behalf of the CALICE Collaboration

N17-8 (09:45) A Design of Dimpled Scintillator Tiles Read Out by Surface-Mounted Silicon Photomultipliers for a Future Hadron Calorimeter
Y. Liu, *University of Mainz, Germany*
On behalf of the CALICE Collaboration

N18 Analog and Digital Circuits I

Tuesday, Nov. 11   08:00-10:00   608 & 609

Session Chairs: **Valerio Re**, Università di Bergamo, Italy
                       Farah F. Fahim, Fermi National Accelerator Laboratory, United States

N18-1 (08:00) Front-End ASIC for Charge-Interpolating Trackers and Spectrometry
G. De Geronimo, A. D'Andragora, N. Nambiar, E. Vernon, V. Polychronakos
Brookhaven National Laboratory, USA

N18-2 (08:15) Low-Noise Readout Channel with a Novel Dynamic Signal Compression for Future XFEL Applications
D. Comotti[1,2], [1]*University of Pavia, Italy;* [2]*INFN, Italy*
On behalf of the PixFEL Collaboration

N18-3 (08:30) MARC: a Fast Current-Readout CMOS Front-End for n-Substrate, Fully-Depleted Scientific CCDs
F. Schembari[1,2], F. Lazzari[1], C. Fiorini[1,2], M. Uslenghi[3], M. Fiorini[3]
[1]*Politecnico di Milano, Italy;* [2]*INFN, Sezione di Milano, Italy;* [3]*IASF, Istituto Nazionale di Astrofisica, Italy*

N18-4 (08:45) Low Noise Single Photon Counting Chip with Energy Window for Hybrid Pixel Detector with Precise Offset and Gain Correction
P. Maj, P. Grybos, P. Kmon, R. Szczygiel
AGH University of Science and Technology, Poland

N18-5 (09:00) A Low Noise and High Dynamic Range CMOS Integrated Electronics associated with Double Sided Silicon Strip Detectors for a Compton Camera gamma-ray Detecting System.
M. Dahoumane, D. Dauvergne, R. Della Negra, F. Doizon, J. Krimmer, J. L. Ley, H. Mathez, E. Testa, W. Tromeur, Y. Zoccarato
IPNL, Universiï¿½ de Lyon, F-69003 Lyon, France; Universiï¿½ Lyon 1 and CNRS/IN2P3, UMR 5822 F-69622, France

N18-6 (09:15) A CMOS Charge Sensitive Amplifier with Sub-Electron Equivalent Noise Charge
G. Bertuccio, D. Macera, C. Graziani, M. Ahangarianabhari
Politecnico di Milano, Italy

N18-7 (09:30) A New Circuit Technology for Improving the Performance of CMOS Preamplifiers for Semiconductor Radiation Detectors
A. Pullia[1,2], S. Capra[2], F. Zocca[2]
[1]*University of Milano, Italy;* [2]*INFN, Italy*

N18-8 (09:45) Development of a 64-Channel Readout ASIC for an 8x8 SiPM Array for PET Applications
X. Zhu[1,2], Z. Deng[1,2], Y. Chen[1,2], Y. Liu[1,2], Y. Liu[1,2]
[1]*Ministry of Education, China;* [2]*Tsinghua University, China*

N19 Trigger and Front-end Systems I
Tuesday, Nov. 11   10:30-12:00   6A
Session Chairs: **Hans-Christian Schultz-Coulon**, Heidelberg University, Germany
Nigel P. Hessey, Nikhef, Netherlands

N19-1 (10:30) Installation and Commissioning of the CMS Level-1 Calorimeter Trigger Upgrade
D. A. Belknap[1], P. Klabbers[1], J. Brooke[2], M. Cepeda Hermida[1], I. A. Cali[3], S. Dasu[1], S. Fayer[4], R. Fobes[1], R. Frazier[2], C. Ghabrous[5], T. Gorski[1], Z. Guo[1], G. Hall[4], C. Hunt[4], G. Iles[4], G. M. Innocenti[3], J. Jones[6], C. Lucas[2], R. Lucas[4], M. Magrans de Abril[5], D. Newbold[2,7], I. Ojalvo[1], S. Paramesvaran[2], A. Rose[4], D. Sankey[6], W. H. Smith[1], A. Svetek[1], A. Thea[7], J. Tikalsky[1], A. Tapper[4], M. Vicente[1], T. Williams[2]
[1]*University of Wisconsin, USA;* [2]*University of Bristol, UK;* [3]*Massachusetts Institute of Technology, USA;* [4]*Imperial College, UK;* [5]*CERN, Switzerland;* [6]*Iceberg Technology, UK;* [7]*Rutherford Appleton Laboratory, UK*

N19-2 (10:45) The ATLAS Trigger System: Past, Present and Future
E. Pianori, *University of Warwick, UK*
On behalf of the ATLAS

N19-3 (11:00) The Design, Performance and Preliminary Commissioning of the ATLAS Fast TracKer
J. Stelzer, *CERN, Switzerland*
On behalf of the ATLAS

N19-4 (11:15) First Prototype of a Tracking System with ``Artificial Retina'' for Fast Track Finding
N. Neri[1], A. Abba[1,2], F. Bedeschi[3], F. Caponio[2], M. Citterio[1], S. Coelli[1], J. Fu[1,4], A. Geraci[1,2], P. Marino[3,5], M. Monti[1], M. J. Morello[3,5], M. Petruzzo[1], A. Piucci[3], G. Punzi[3,6], L. Ristori[3], F. Spinella[3], S. Stracka[3,4], D. Tonelli[4], J. Walsh[3]
[1]*INFN, Sezione di Milano, Italy;* [2]*Politecnico di Milano, Italy;* [3]*INFN, Sezione di Pisa, Italy;* [4]*CERN, Switzerland;* [5]*Scuola Normale Superiore di Pisa, Italy;* [6]*Universita' di Pisa, Italy*

N19-5 (11:30) ANGUS: a Multichannel CMOS Circuit for Large Capacitance Silicon Photomultiplier Detectors for SPECT Applications
P. Trigilio[1,2], R. Quaglia[1,2], C. Fiorini[1,2], F. Schembari[1,2]
[1]*Politecnico di Milano, Italy;* [2]*Istituto Nazione di Fisica Nucleare, Italy*

N19-6 (11:45) Readout System for the Belle II imaging Time of Propagation Detector
K. Nishimura, *SLAC National Accelerator Laboratory, USA*; M. Andrew, M. Barrett, S. Dubey, B. Kirby, B. Macek, G. Varner, *Univ. of Hawaii, USA*; G. Visser, *Indiana University, USA*; L. Wood, *Pacific Northwest National Laboratory, USA*

N20 Scintillators and Scintillation Detectors I: Scintillators - Fabrication and Processing
Tuesday, Nov. 11   10:30-12:00   606 & 607
Session Chairs: **Etiennette Auffray**, CERN, Switzerland
Chuck Melcher, University of Tennessee, United States

N20-1 (10:30) Comparison of Nanosecond and Femtosecond Pulsed Laser Ablation for the Creation of Thick Segmented CdWO4 Scintillator Arrays.

S. A. Richards[1,2], M. A. Baker[2], A. Lohstroh[2], D. Neely[1], P. Seller[1], M. D. Wilson[1]
[1]STFC-Rutherford Appleton Laboratory, United Kingdom; [2]University of Surrey, United Kingdom

N20-2 (10:45) Directionally Solidified Eu3+ and Y3+ Co-Doped HfO2/a-Al2O3 Eutectic Scintillators

K. Hishinuma[1], K. Kamada[2,3], S. Kurosawa[1,2], A. Yamaji[1], J. Pejchal[1,4], Y. Yokota[2], Y. Ohashi[1], A. Yoshikawa[1,2,3]
[1]Tohoku University, IMR, Japan; [2]NiCHe Tohoku University, Japan; [3]C&A Corp, Japan; [4]Institute of Physics ASCR, Czech Republic

N20-3 (11:00) Scintillation Characteristics of 90%Lu LGSO with Different Decay Times

F. Loignon-Houle, C. M. Pepin, R. Lecomte
Universite de Sherbrooke, Canada

N20-4 (11:15) Development of Wavelength Shifter Coated Reflector for the CDEX-10 Liquid Argon Detector

Q. Chen, J. Cheng, Q. Yue, Tsinghua University, China; X. Yu, H. Xing, Sichuan University, China

N20-5 (11:30) Scintillation Properties and Electronic Structure of Intrinsic and Extrinsic Mixed Elpasolites $Cs_2NaREBr_xI_{6-x}$ (0 < x < 6, RE = La, Y)

H. Wei[1], M.-H. Du[2], L. Stand[1], M. Zhuravleva[1], J. A. Stewart[1], G. K. Schweitzer[1], C. L. Melcher[1]
[1]University of Tennessee, Knoxville, United States; [2]Oak Ridge National Laboratory, United States

N20-6 (11:45) Characterization and Optimization of New High-Quality Inorganic Fibers Made of LuAG:Ce and LYSO:Ce

S. Diehl, R. W. Novotny, 2nd Physics Institute, University Giessen, Germany; N. Aubry, S. Faraj, Societe Fibercryst, France; G. Ferro, Universite Claude Bernard Lyon 1, CNRS, France

N21 Computing and Software I - Controlling, Data Monitoring and Concurrent Processing

Tuesday, Nov. 11   10:30-12:00   608 & 609

Session Chairs: **Ron A. Soltz**, LLNL, United States
Steffen Hauf, European X-ray Free Electron Laser Facility GmbH, Germany

N21-1 (10:30) Karabo: Integrating Control, Data Management, and Scientific Computing Tasks into a Single Software Framework

B. C. Heisen, D. Boukhelef, S. Esenov, S. Hauf, I. Kozlova, M. Kumar, L. Maia, A. Parenti, J. Szuba, M. Teichmann, K. Weger, K. Wrona, C. Youngman
European XFEL GmbH, Germany

N21-2 (10:45) The Data Quality Monitoring Software for the CMS Experiment at the LHC

L. Borello, University of Wisconsin, USA
On behalf of the CMS Collaboration

N21-3 (11:00) CMS Data Preparation for Run II

F. Fabozzi, CERN, Switzerland
On behalf of the CMS Collaboration

N21-4 (11:15) Graph-Based Decision Making for Task Scheduling in Concurrent Gaudi

I. Shapoval[1,2,3,4], M. Clemencic[1], B. Hegner[1], D. Funke[1,5], D. Piparo[1], P. Mato[1]
[1]CERN, Switzerland; [2]KIPT, Ukraine; [3]INFN-FE, Italy; [4]UNIFE, Italy; [5]KIT, Germany

N21-5 (11:30) Real-Time MPI-Based Software for Processing of XPCS Data

T. J. Madden, S. Niu, S. Narayanan, A. R. Sandy, J. Weizeorick, Argonne Laboratory, USA; P. Denes, J. Joseph, V. Moeller-Chan, D. Doering, P. McVittie, D. Contararto, Lawrence Berkeley Laboratory, USA

N21-6 (11:45) Cluster-Based Approach to a Multi-GPU CT Reconstruction Algorithm

L. J. Orr, E. S. Jimenez, K. R. Thompson
Sandia National Laboratories, USA

N22 NSS Poster Session II - Astrophysics and Space Instrumentation

Tuesday, Nov. 11   14:00-15:30   4B

Session Chair: **Frank Simon**, Max-Planck-Institut fuer Physik, Germany

Astrophysics and Space Instrumentation

N22-1 Verification of Dosimetry Measurements with Timepix Pixel Detectors for Space Applications

M. Kroupa[1], L. S. Pinsky[2], J. Idarraga-Munoz[2], S. M. Hoang[2], E. J. Semones[3], A. A. Bahadori[3], N. N. Stoffle[1], R. R. Rios[1], Z. Vykydal[4], J. Jakubek[4], S. Pospisil[4], D. Turecek[4], H. Kitamura[5]
[1]Lockheed-Martin, USA; [2]University of Houston, USA; [3]NASA JSC, USA; [4]Institute of Experimental and Applied Physics, Czech Technical University in Prague, Czech Republic; [5]National Institute for Radiological Sciences, Japan

N22-2 Design of the Time Assignment System for ASTRO-H and Its Performance Before Launch

Y. Terada[1], S. Yamaguchi[1], S. Sugimoto[1], T. Inoue[1], S. Nakaya[1], M. Ogawa[2], T. Dotani[2], Y. Ishisaki[3], K. Mizushima[4], T. Kominato[4], H. Mine[4], H. Hihara[5], K. Iwase[5], T. Kouzu[1,5], M. S. Tashiro[1], C. Natsukari[2], M. Ozaki[2], M. Kokubun[2], T. Takahashi[2], S. Kawakami[1], M. Kasahara[5], S. Kumagai[5], L. Angelini[6], M. Witthoeft[6]
[1]Saitama University, Japan; [2]JAXA, Japan; [3]Tokyo Metropolitan University, Japan; [4]NEC, Japan; [5]NEC TOSHIBA Space Systems, Japan; [6]NASA, US

N22-3 Characterization of Silicon Photomultipliers for the Cherenkov Telescope Array Medium-Sized Telescopes

J. Biteau, *University of California Santa Cruz, USA*
On behalf of the CTA Consortium

N22-4 Energy Response of Protons on CCD236

J.-Q. Zhang[1], Y.-J. Yang[2], Y.-S. Wang[2], Y. Wang[1], Y. Chen[2]
[1]China Institute of Nuclear Information & Economics, China; [2]Chinese Academy of Sciences, China

N22-5 The Dynamic Digital Radiography System Design and Data Calibration Method for Monitoring the Running Aero-Engine

M. Chang[1,2], Y. Xiao[1,2], Z. Chen[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

N22-6 Development of Superconducting Tunnel Junction Photon Detector with SOI Preamplifier Board to Search for Radiative Decays of Cosmic Background Neutrino

T. Okudaira, S. Kim, Y. Takeuchi, K. Kasahara, R. Senzaki, K. Takemasa, K. Kiuchi, T. Ichimura, M. Kanamaru, K. Moriuchi, *University of Tsukuba, Japan*; H. Ikeda, S. Matsuura, T. Wada, *JAXA/ISAS, Japan*; H. Ishino, A. Kibayashi, *Okayama University, Japan*; S. Mima, *RIKEN, Japan*; T. Yoshida, R. Hirose, *University of Fukui, Japan*; Y. Kato, *Kinki University, Japan*; M. Hazumi, Y. Arai, *KEK, Japan*; E. Ramberg, J. Yoo, M. Kozlovsky, P. Rubinov, D. Sergatskov, *Fermilab, USA*; S. Kim, *Seoul National University, korea*

N22-7 Active Particle-Induced X-Ray Spectrometer with Distant Sensing for CHANG'E-3 YuTu Rover Mission and Its Primary Results

H. Wang, *Institute of high energy physics, China*
On behalf of the APXS group of Lunar exploration Project in Beijing

N22-8 FACT -- Calibration of the First G-APD Cherenkov Telescope

T. Bretz, *ETH Zurich, Switzerland*
On behalf of the FACT Collaboration

N22-10 Recent Progress in Spectral Performances of SOI Pixel Sensors for X-Ray Astronomy

T. Tanaka, A. Takeda, H. Matsumura, T. G. Tsuru, *Kyoto University, Japan*; S. Nakashima, *Japan Aerospace Exploration Agency (JAXA), Japan*; Y. Arai, *High Energy Accelerator Research Organization (KEK), Japan*; K. Mori, Y. Nishioka, R. Takenaka, *University of Miyazaki, Japan*; T. Kohmura, *Tokyo University of Science, Japan*

N22-12 Study of the Low Energy Electron Recoil Response of Liquid Xenon with a Position-Sensitive Dual-Phase Xenon TPC

B. Beskers, P. Sissol, M. Scheibelhut, R. Othegraven, U. G. Oberlack
Johannes Gutenberg University Mainz, Germany

N23 NSS Poster Session II - Data Acquisition and Analysis System

Tuesday, Nov. 11   14:00-15:30   4B
Session Chair: TBD

N23-1 Prototypes of the Data Acquisition System for Thomson Scattering Diagnostic

E. A. Puryga[1,2,3], A. A. Ivanova[1], S. V. Ivanenko[1,3], A. I. Kotelnikov[1], A. N. Kvashnin[1], P. V. Zubarev[1,2], A. D. Khilchenko[1,2]
[1]Institute of Nuclear Physics, Russian Federation; [2]Novosibirsk State Technical University, Russian Federation; [3]Novosibirsk State University, Russian Federation

N23-2 Pile-up Discrimination Method Applied to Novel Gamma-Ray Detectors Based on SiPMs Arrays

J. Barberá[1], A. J. González[2], V. Carrilero[1], C. Correcher[1], L. Hernandez[2], C. Molinos[1], F. Sánchez[2], J. M. Benlloch[2]
[1]Oncovision, SA, Spain; [2]Institute for Instrumentation in Molecular Imaging, Spain

N23-3 A Real-Time Neutron/Gamma Discrimination Algorithm for a Low Cost LiF:ZnS(Ag) Neutron Detector

K. Pritchard[1], A. Osovizty[1,2], N. Maliszewskyj[1], C. Majkrzak[1], J. Ziegler[1], C. Hurlbut[3], M. Jackson[3], A. Thompson[1]
[1]NIST Center for Neutron Research, USA; [2]Rotem Industries Ltd, Israel; [3]Eljen Technologies, USA

N23-5 Absolute Measurement of Tc-99m using Liquid Scintillation Digital Coincidence Counting Method

K. B. Lee, J. M. Lee, S. H. Lee, T. S. Park
KRISS, Republic of Korea

N23-6 Feasibility Study of PERCIVAL Data Acquisition Backend Architecture

U. K. Pedersen[1], N. Tartoni[1], J. Marchal[1], J. Thompson[1], N. Rees[1], N. De Maio[1], A. Greer[1], C. B. Wunderer[2], A. Marras[2], M. Bayer[2], J. Correa[2], S. Lange[2], I. Shevyakov[2], S. Smoljanin[2], M. Viti[2], Q. Xia[2], M. Zimmer[2], G. Cautero[3], D. Giuressi[3], R. Menk[3], L. Stebel[3], H. Yousef[3], T. Nicholls[4], R. Turchetta[4], I. Sedgwick[4], D. Das[4], B. Marsh[4], H. Graafsma[2]
[1]Diamond Light Source, United Kingdom; [2]DESY, Germany; [3]Elettra, Italy; [4]Rutherford Appleton Laboratory, United Kingdom

N23-7 General Purpose Digital Processors for Scintillation Spectroscopy

R. H. Redus, A. C. Huber, D. J. Sperry, *Amptek, Inc., USA*; P. Schotanus, *Scionix Holland BV, The Netherlands*; W. Westmeier, *Dr. Westmeier GmbH, Germany*

N23-8 Quantization Noise in Non-Homogeneous Calibration Table of a TCD Implemented in FPGA

N. Lusardi, A. Abba, F. Caponio, A. Geraci
Politecnico di Milano, Italy

N23-9 A Ultra-Compact and Portable Digital Pulse Processor for Gamma and X-Ray Spectroscopy

F. Caponio, A. Abba, N. Lusardi, A. Cusimano
Politecnico di Milano, Italy

N23-10 Resolution Improvements on the Novel VCO Based Time Measurements Technique

F. Caponio, A. Abba, M. Ran, N. Lusardi, A. Geraci, G. Ripamonti
Politecnico di Milano, Italy

N23-12 Fully Programmable Emulator of Fast Events from Setups for Radiation Detection

A. Abba, F. Caponio, N. Lusardi, A. Geraci
Politecnico di Milano, Italy

N23-13 Electronic Readout System for Retina-Based Cosmic-Ray Telescope

A. Abba, F. Caponio, N. Lusardi, A. Geraci, *Politecnico di Milano, Italy*; N. Neri, *INFN, Italy*

N23-14 A Digital System for Artificial Generation of Images from Radiation Detectors

F. Caponio, A. Abba, N. Lusardi, A. Geraci
Politecnico di Milano, Italy

N23-15 A New Data Acquisition System for Silicon Photomultipliers

J. T. Anderson, P. M. De Lurgio, Z. Djurcic, G. R. Drake, W. N. Haberichter, A. S. Kreps, M. B. Oberling
Argonne National Laboratory, United States of America

N23-16 Development of a Multichannel Signal Processing System using MPPCs

D. Matsui, E. Takada, H. Uehori, M. Takasaki, *Toyama National Colleage of Technology, Japan*; H. Sugano, T. Takahashi, J. Kawarabayashi, T. Iguchi, *Nagoya University, Japan*

N23-17 Using IDT Analog-to-Digital Converter "ADC1413D" for High-Resolution Gamma-Ray Spectroscopy

A. Pullia[1,2], D. Barrientos[2], D. Bazzacco[2], M. Bellato[2], F. Recchia[3]
[1]*University of Milano, Italy;* [2]*INFN, Italy;* [3]*University of Padova, Italy*

N23-18 Open-Source Diagnostic Tool with GUI for the New AGATA/GALILEO Digitizer Cards

A. Pullia[1,2], D. Barrientos[2], S. Capra[1]
[1]*University of Milano and INFN, Italy;* [2]*INFN, Italy*

N23-20 8-Channel 14-Bit 125MHz FADC Electronics with 1G Ethernet Readout Based on ZYNQ for HPGe Detector

T. Xue, M. Zeng, G. Gong, J. Li, *Tsinghua University, China*

N23-21 Energy Calibration Method for an All-Digital High Resolution Gamma-Ray Spectroscopy

L. Anwen[1,2], Z. Qiude[1], X. Zhangjing[1], X. Peng[1,3], X. Qingguo[1,3]
[1]*HuaZhong university of science & technology, China;* [2]*Jinggangshan University, China;* [3]*Wuhan National Laboratory for Optoelectronics, China*

N23-22 A Volume Clearing Algorithm for Muon Tomography

D. Mitra, K. Day, M. Hohlmann
Florida Institute of Technology, USA

N23-23 Data Analysis Software for Radionuclide Standardization with a Digital Coincidence Counting System

F. Brancaccio, M. D. S. Dias, M. F. Koskinas
IPEN-CNEN/SP, Brazil

N23-25 Gamma Ray Tracking Modeling Using a Hidden Markov Model

S. S. Huh, B. Quiter, R. Cooper, M. Quinlan, M. Bandstra, J. Kua, D. Chivers, L. Mihailescu, K. Vetter
Lawrence Berkeley National Lab, USA

N23-26 Development of a FPGA Based Multichannel Scalable DAQ System for PET

G. Kim, Y. Choi, S. Kim, *Sogang University, Korea*

N23-27 Timing and Data Acquisition Systems for a Multichannel X-Ray Smart Pixel Array Detector

D. M. Kline, Y. Li, D. A. Walko, *Argonne National Laboratory, USA*; S. Ross, *Northern Illinois University, USA*; G. M. Williams Jr, J. Rhee, H. Zou, A. Lee, *Voxtel, Inc., USA*; E. C. Landahl, *DePaul University, USA*

N23-28 Slow Control and Environmental Monitoring System for the Majorana Demonstrator

W. Xu[1], J. A. Detwiler[2], J. Goett[1], M. P. Green[3], M. A. Howe[4,5], S. Meijer[4,5], C. O'Shaughnessy[4,5], D. G. Phillips II[6,5], B. Shanks[4,5], J. F. Wilkerson[4,5,3]
[1]*Los Alamos National Laboratory, USA;* [2]*University of Washington, USA;* [3]*Oak Ridge National Laboratory, USA;* [4]*University of North Carolina, USA;* [5]*Triangle Universities Nuclear Laboratory, USA;* [6]*North Carolina State University, USA*

N23-29 Upgrade of the Minos+ Experiment Data Acquisition for the High Energy NuMI Beam Run

W. Badgett, S. R. Hahn, D. Torretta, *Fermi National Accelerator Laboratory, U.S.A.*; J. Meier, J. Gunderson, D. Osterholm, D. Saranen, *Soudan Underground Laboratory, U.S.A.*

N23-30 Image Based Object Identification in Muon Tomography

R. Patnaik, Y. Lee, D. Dorroh
Decision Sciences International Corporation, U.S.A.

N23-31 Realtime Photo-Peak Searching Method Implemented on Digital Circuit

S. Kim, Y. Choi, J. H. Jung, J. Jung
Sogang University, Korea

N23-32 Evaluation of an FPGA-Based Fuzzy Logic Feed-Water Controller for ABWR under Automatic Power Regulating Mode

J.-J. Lu, H.-H. Huang, H.-P. Chou
National Tsing Hua University, Taiwan

N23-33 A New Approach for a Cameraï¿½s Back-End Design Used for the 75 ï¿½m Pitch Hybrid Pixel Detector

P. Maj, P. Grybos, R. Szczygiel, K. Kasinski, M. Zoladz, J. Rauza, A. Koziol

AGH University of Science and Technology, Poland

N24 NSS Poster Session II - High Energy Physics Instrumentation

Tuesday, Nov. 11   14:00-15:30   4B

Session Chair: **Daniel Haas**, SRON Netherlands Institute for Space Research, Netherlands

N24-1 Development of a New Fast Shower Maximum Detector Based on Micro Channel Plates Photomultipliers (MCP-PMT) as an Active Element.

A. Ronzhin, *Fermi National Accelerator Laboratory, USA*

N24-2 Large Area Position-Sensitive Plastic Scintillator Detector with Wavelength-Shifting Fiber Readout

J. Dong[1,2], Y. Zhang[1,2], Z. Zhang[1,2], D. Liu[1,2], S. Wen[1,2], Z. Xu[1,2], X. Wang[1,2], X. Jin[1,2], S. Liu[1,2]

[1]*State Key Laboratory of Particle Detection and Electronics(IHEP-USTC), China;* [2]*University of Science and Technology of China, China*

N24-3 Scintillating Fibre Tracker Front-End Electronics for LHCb upgrade

A. Comerma, *Physikalisches Institut - Heidelberg Universitat, Germany*

On behalf of the LHCb Scintillating Fibre Tracker Group

N24-4 APD readout for Belle II Endcap Calorimeter Upgrade with Undoped Cesium Iodide Crystals

S. Fiore[1,2], A. Aloisio[3,2], S. Baccaro[1,2], P. Branchini[2], S. Cavaliere[3,2], C. Cecchi[4,2], A. Cemmi[1,2], E. De Lucia[2], G. De Nardo[3,2], R. de Sangro[2], G. Felici[2], G. Finocchiaro[2], R. Giordano[3,2], P. Lubrano[2], E. Manoni[2], M. Montecchi[1,2], A. Ordine[2], A. Passeri[2], P. Patteri[2], I. Peruzzi[2], M. Piccolo[2], A. Rossi[2], C. Sciacca[3,2], G. Corradi[2], D. Tagnani[2]

[1]*ENEA, Italy;* [2]*INFN, Italy;* [3]*Universita' degli Studi di Napoli "Federico II, Italy;* [4]*Universita' degli Studi di Perugia, Italy*

N24-5 Validation of Cmos Active Pixel Sensor with Double Readout Rolling Shutter Architecture for Charged Particles Tracking

F. Orsini, Y. Degerli, C. Flouzat, F. Guilloux, P. Venault

CEA Saclay, FRANCE

N24-6 The Design and Construction of a Liquid Argon TPC for the LBNE 35ton Cryostat

B. Yu, *Brookhaven National Laboratory, USA*

On behalf of the LArTPC group of the LBNE Collaboration

N24-7 New Area for High Rate Tracking

A. Soha, S. Hahn, *Fermilab, United States*

N24-9 A Scintillating Fiber Tracking Detector for LHCb Upgrade

R. Lindner, *CERN, CH*

On behalf of the LHCb SciFi group

N24-10 Imaging Detector for Particle Identification with Large Liquid Scintillator Detector

T. Mitsui, K. Ishidoshiro, H. Watanabe, S. Ishio, Y. Shirahata

Research Center for Neutrino Science, Tohoku University, Japan

N24-11 Development of High-Speed, Low-Fixed Latency Serial Links for the Router of ATLAS NSW sTGC Detector

X. Hu[1,2], [1]*University of Science and Technology of China, China;* [2]*University of Michigan, USA*

On behalf of the ATLAS MUON collaboration

N24-12 Performance of the ALICE Zero Degree Calorimeters at LHC

N. De Marco, *INFN - sezione di Torino, Italy*

On behalf of the ALICE Collaboration

N24-32 Proof-of-Principle of a New Geometry for Sampling Calorimetry Using Inorganic Scintillator Plates

F. Nessi-Tedaldi, G. Dissertori, Q. Huang, W. Lustermann, D. Luckey, S. Lutterer, F. Pandolfi, F. Pauss, M. Peruzzi, M. Quittnat, R. Wallny

ETH Zurich, Switzerland

N24-13 Maximization of the Acceptance and Momentum Resolution of the ATLAS Muon Spectrometer with Novel Drift-Tube and Resistive Plate Chambers

P. Schwegler, *Max-Planck-Institut für Physik, Germany*

On behalf of the ATLAS Collaboration

N24-14 The Design of a New Electromagnetic Calorimeter for COMPASS II Experiment

M. Dziewiecki[1], N. Anfimov[2], V. Anosov[2], V. Chalyshev[2], I. Chirikov-Zorin[2], D. Fedoseev[2], O. Gavrishchuk[2], B. Grinyov[3], A. Guskov[2], Z. Krumshteyn[2], R. Kurjata[1], J. Marzec[1], G. Meshcheryakov[2], A. Nagaytsev[2], A. Olchevskiy[2], I. Orlov[2], T. Rezinko[2], V. Rodionov[2], A. Rybnikov[2], A. Rychter[1], Z. Y. O. Sadygov[2], I. Savin[2], A. Selyunin[2], K. Zaremba[1], P. Zhmurin[3], M. Ziembicki[1]

[1]*Warsaw University of Technology, Poland;* [2]*Joint Institute for Nuclear Research, Rusia;* [3]*Institute for Scintillation Materials, National Academy of Sciences of Ukraine, Ukraine*

N24-15 The CMS Electromagnetic Calorimeter Barrel Upgrade for High-Luminosity LHC

E. Di Marco, *CERN, Switzerland*

On behalf of the CMS Collaboration

N24-16 The 5x5mm^2 Granular Electromagnetic Calorimeter Using 45x5mm^2 Scintillator Strips and SiPMs

K. Kotera, *Shinshu university, Japan*

N24-17 Construction, Performance and Modeling of a Compact SciFi Hodoscope for Use in Detector Testing at Various Test Beams

M. Ziembicki[1], M. Dziewiecki[1], N. Anfimov[2], J. Barth[3], G. Domanski[1], B. Konarzewski[1], R. Kurjata[1], J. Marzec[1], A. Rychter[1], A. Selyunin[2], K. Zaremba[1]

[1]*Warsaw University of Technology, Poland;* [2]*Joint Institute for Nuclear Research, Russian Federation;* [3]*Physikalisches Institut der Universität Bonn, Germany*

N24-18 Design and Response of a Close to Final Prototype for the Barrel of the PANDA Electromagnetic Calorimeter to Photons at Energies below 1 GeV

S. Diehl[1], D. Bremer[1], P. Drexler[1], V. Dormenev[1], T. Eissner[1], C. Le Gallard[2], M. Imre[2], M. Kavatsyuk[3], T. Kuske[1], D. Marchand[2], R. W. Novotny[1], P. Rosier[2], A. Ryantsev[4], C. Rosenbaum[1], P. Wieczorek[5], A. Wilms[5], H.-G. Zaunick[1]

[1]*2nd Physics Institute, University Giessen, Germany;* [2]*IPN Orsay, France;* [3]*KVI Groningen, The Netherlands;* [4]*IHEP Protvino, Russia;* [5]*GSI Helmholtzzentrum für Schwerionenforschung, Germany*

N24-19 Commissioning of the New Multilayer Integration Prototype with SiPM Readout of the CALICE Tile Hadron Calorimeter

M. Reinecke, *DESY, Germany*
On behalf of the CALICE Collaboration

N24-21 The Upgrade of the Laser Calibration System for the Atlas Tile Hadron Calorimeter

C. Bohm, *University of Stockholm, Department of physics, Sweden*
On behalf of the On behalf of the Atlas Tile Calorimeter System

N24-22 Status of the CALICE Digital Hadron Calorimeter

B. Bilki[1,2], [1]*Argonne National Laboratory, USA;* [2]*University of Iowa, USA*
On behalf of the CALICE Collaboration

N24-23 Monitoring LSO/LYSO Crystal Calorimeters

F. Yang, L. Zhang, R.-Y. Zhu
California Institute of Technology, USA

N24-24 Secondary Emission Calorimetry R&D

B. Bilki[1,2]

[1]*University of Iowa, USA;* [2]*Argonne National Laboratory, USA*

N24-25 Functional and Performance Evaluation of Low-Resistance Strip Sensors for Beam-Loss Event Protection

V. Benitez, M. Ullan, D. Quirion, M. Zabala, G. Pellegrini, M. Lozano, *Centro Nacional de Microelectronica (IMB-CNM, CSIC), Spain;* C. Lacasta, U. Soldevila, C. Garcia, *Instituto de Fisica Corpuscular (IFIC, CSIC-UV), Spain;* V. Fadeyev, J. Wortman, M. Domingo, J. Defilippis, M. Shumko, A. Grillo, H. F.-W. Sadrozinski, *Santa Cruz Institute for Particle Physics (SCIPP, UCSC), United States*

N24-26 Measurement of the DAFNE Beam Test Facility's Microbunching Dtructure with Micro-Channel Plate Based Cherenkov Detector

F. Iacoangeli, G. Cavoto, L. Foggetta, *INFN, Italy*

N24-27 The LBNE 35 Ton Prototype Cryostat

A. A. Hahn, M. Adamowski, D. Montanari, B. Norris, R. Rucinski, T. Tope, *Fermi National Accelerator Laboratory, USA;* J. Reichenbacher, *University of Alabama (Tuscaloosa), USA;* J. Stewart, *Brookhaven National Laboratory, USA*

N24-28 On-Detector High Voltage Multiplexing for the ATLAS SCT Upgrade

L. B. A. Hommels, *Cavendish Laboratory, University of Cambridge, United Kingdom;* G. E. Villani, P. W. Phillips, J. Matheson, *STFC Rutherford Appleton Laboratory, United Kingdom;* D. Lynn, *Brookhaven National Laboratory, USA;* I. M. Gregor, M. Bessner, K. Tackmann, *DESY, Germany;* M. F. Newcomer, *University of Pennsylvania, USA;* E. Spencer, *University of California Santa Cruz (SCIPP-UCSC), USA;* A. Greenall, *Oliver Lodge Laboratory, The University of Liverpool, United Kingdom*

N24-29 A Novel Design for a Highly Granular Hadron Calorimeter Scintillator-SiPM Tile

E. Garutti, M. Ramilli, S. Laurien
University of Hamburg, Germany

N24-30 Progress in 3D Diamond Detector Development

M. D. Richardson, E. Lukosi, T. Wulz, G. Riley, S. Spanier
University of Tennessee, United States

N24-31 A Disc-DIRC Cherenkov Detector with High Resolution Micro Channel Plate Photomultiplier Tubes

J. Rieke, *JLU Gießen, Germany*
On behalf of the PANDA Cherenkov Group

N25 NSS Poster Session II - Neutron Detectors and Instrumentation

Tuesday, Nov. 11   14:00-15:30   4B
Session Chair: TBD

N25-1 High Effective Fast Neutron Detectors Based on Inorganic Scintillators

V. D. Ryzhikov[1], S. V. Naydenov[2], G. M. Onyshchenko[1], L. A. Piven[1], T. Pochet[3], C. F. Smith[4]

[1]*Institute for Scintillation Materials, Ukraine;* [2]*Institute for Single Crystals, Ukraine;* [3]*DETEC-Europe, France;* [4]*Naval Postgraduate School, USA*

N25-2 A Broad-Band Neutron Source Facility for Detector Characterization

J. Scherzinger[1,2], J. R. M. Annand[3], K. G. Fissum[1,2], R. Hall-Wilton[2,4], R. Jebali[3]

[1]Lund University, Sweden; [2]European Spallation Source ESS AB, Sweden; [3]University of Glasgow, UK; [4]Mid-Sweden University, Sweden

N25-3 Evaluation of Light Transport Property in Alternative He-3 Neutron Detectors Using ceramic Scintillators by a Ray-Tracing Simulation

A. Ohzu, M. Takase, N. Kurata, N. Kobayashi, H. Tobita, M. Haruyama, M. Kureta, T. Nakamura, H. Suzuki, K. Toh, K. Sakasai, K. Soyama, M. Seya
Japan Atomic Energy Agency, Japan

N25-4 Efficiency Measurements of Two Boron Straw Detector Designs

P. R. Arthur, M. Owen, P. Kendall, *AWE, UK*; A. Athanasiades, *Proportional Technologies Inc, USA*

N25-5 Comparative Study of the Pulse Shape Discrimination (PSD) Performance of Fast Neutron Detectors

P. A. Kendall, K. Duroe, P. R. Arthur, M. Ellis, M. C. Owen, *AWE, UK*; R. S. Woolf, *National Research Council Postdoctoral Fellow, USA*; E. A. Wulf, A. L. Hutcheson, B. F. Phlips, *U.S. Naval Research Laboratory, USA*

N25-6 Stilbene Scintillators for Fast Neutron Detection

C. Lynch, S. Selin, A. Inzalaco, T. Caughey
Inrad Optics, USA

N25-7 High-Energy Background Measurements at SNS

D. D. Di Julio[1], N. Cherkashyna[1], A. Khaplanov[1], D. Pfeiffer[1,2], J. Scherzinger[1,3], C. Cooper-Jensen[1,4], K. G. Fissum[1,3], E. B. Iverson[5], G. Ehlers[5], F. X. Gallmeier[5], K. Kanaki[1], R. J. Hall-Wilton[1,6], P. M. Bentley[1,4]
[1]European Spallation Source ESS AB, Sweden; [2]CERN, Switzerland; [3]Lund University, Sweden; [4]Uppsala University, Sweden; [5]ORNL, USA; [6]Mid-Sweden University, Sweden

N25-8 High Energy Background Measurements at SINQ

N. Cherkashyna[1], D. D. DiJulio[1], T. Panzner[2], E. Rantsiou[2], U. Filges[2], P. M. Bentley[1,3]
[1]European Spallation Source ESS AB, Sweden; [2]Paul Scherrer Institute, Switzerland; [3]Uppsala University, Sweden

N25-9 A Compact Readout System for the R³B High-Resolution Neutron Time-of-Flight Spectrometer (NeuLAND)

K. Koch, J. Hoffmann, C. Ugur, M. Heil
GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany

N25-10 Characterization of Secondary Neutron Production During Proton Therapy

S. D. Clarke, B. M. Wieger, E. Pryser, R. Arghal, S. A. Pozzi, *University of Michigan, USA*; R. Halg, *Paul Scherrer Institut, Switzerland*; V. A. Bashkirov, *Loma Linda University, USA*; R. W. Schulte, *Loma Linda University Medical Center, USA*

N25-11 Comparison Between Silicon Photomultipliers and Photomultiplier Tubes for Pulse Shape Discrimination with Stilbene

M. L. Ruch, C. Sivels, S. Czyz, M. Flaska, S. A. Pozzi
University of Michigan, USA

N25-12 Spatial Pulse Shape Discrimination Response of an Organic-Liquid Scintillator Using a Collimated Source

S. F. Naeem, S. D. Clarke, S. A. Pozzi, Y. Lagisetty, T. Schwarz
University of Michigan, United States

N25-13 Neutron and Gamma Ray Discrimination for CLYC Using Cross Correlation Analysis

P. Chandhran, K. E. Holbert, *Arizona State University, USA*; E. B. Johnson, S. Vogel, *Radiation Monitoring Devices, USA*

N25-14 Receiver Operating Characteristic (ROC) Curves for EJ-299-33 Plastic and EJ-309 Liquid Scintillators

W. A. Noonan, J. M. Kalter, C. M. Lavelle, E. C. Miller
Johns Hopkins University Applied Physics Laboratory, USA

N25-15 A Time-of-Flight Neutron Imaging Detector Using a ZnS Scintillator and Wavelength-Shifting Fiber with a High Spatial Resolution and a Low Gamma-Ray Sensitivity

T. Nakamura, K. Toh, T. Kawasaki, K. Honda, A. Birumachi, M. Ebine, K. Sakasai, K. Soyama, *Japan Atomic Energy Agency, Japan*; M. Katagiri, *Ibaraki University, Japan*

N25-16 First Order Numerical Optimization of Fission Chamber Coatings Using Natural Uranium and Thorium

M. A. Reichenberger, J. A. Roberts, D. S. McGregor
Kansas State University, United States of America

N25-17 LiF-Based Eutectic Scintillators for Thermal Neutron Detection

K. Fukuda, *Tokuyama Corporation, Japan*; T. Yanagida, *Kyushu Institute of Technology, Japan*; N. Kawaguchi, *A&T Corporation, Japan*

N25-18 Semiconductor Neutron Detector for Harsh Radiation Applications

Y. M. Abubakar[1,2], P. Sellin[1], A. Lohstroh[1]
[1]University of Surrey, United Kingdom; [2]Ahmadu Bello University, Nigeria

N25-19 Defining Performance and Standards for Neutron Detectors at the European Spallation Source

R. J. Hall-Wilton[1,2], M. Anastasopoulos[1], R. Andersson[1], M. Echegary[1], K. Fissum[1,3], C. Hoglund[1,4], M. Imam[1,4], K. Kanaki[1], A. Khaplanov[1], O. Kirstein[1,5], T. Kittelmann[1], S. Kolya[1], B. Nilsson[1,6], L. Ortega[1], D. Pfeiffer[1,7], F. Piscitelli[1,8], J. Scherzinger[1,3], I. Stefanescu[1,9]
[1]European Spallation Source ESS AB, Sweden; [2]Mid-Sweden University, Sweden; [3]Lund University, Sweden; [4]Linkoping University, Sweden; [5]University of Newcastle, Australia; [6]MAX-IV Laboratory, Sweden; [7]CERN, Switzerland; [8]ILL, France; [9]FRM-II Laboratory, Germany

N25-20 Development and Evaluation of Activation Neutron Detectors for Spectrum Measurements of Quasi-Monoenergetic High-Energy Neutron Fields

A. Masuda[1], T. Matsumoto[1], H. Harano[1], H. Yoshitomi[2], Y. Tanimura[2], Y. Shikaze[2], S. Kurashima[2], H. Seito[2], M. Hagiwara[3], Y. Unno[1], J. Nishiyama[4], M. Yoshizawa[2]

[1]National Institute of Advanced Industrial Science and Technology, Japan; [2]Japan Atomic Energy Agency, Japan; [3]High Energy Accelerator Research Organization, Japan; [4]Tokyo Institute of Technology, Japan

N25-21 Study on Neutron Imaging Technique Using Transparent RUbber SheeT (TRUST) LiCaAlF$_6$ Neutron Scintillator
D. Sugimoto, K. Watanabe, A. Yamazaki, T. Yamazaki, A. Uritani, T. Iguchi, *Nagoya University, Japan*; K. Fukuda, S. Ishidzu, *Tokuyama Corporation, Japan*; T. Yanagida, *Kyusyu Institute of Technology, Japan*

N25-23 Development of a Real-Time Processing System for Pulsed Neutron Imaging System Using a High-Speed Camera
K.-I. Mochiki, K. Ishizuka, *Faculty of Engineering, Tokyo City University, JAPAN*; T. Kai, T. Shinohara, M. Segawa, *Japan Atomic Energy Agency, Japan*

N25-24 Development of a Novel Neutron Energy Spectrometer Using Onion-like Multi-Shell Single Bonner Sphere
K. Watanabe, M. Ushida, A. Yamazaki, A. Uritani, T. Iguchi, *Nagoya University, Japan*; T. Ogata, T. Muramatsu, *Mitsubishi Heavy Industries. Ltd., Japan*

N25-25 Neutron Detection Signatures at Zero Bias in Novel Semiconducting Boron Carbide Containing Pyridine Polymers
E. M. Echeverria[1], R. James[2], F. L. Pasquale[2], J. A. Colón[3], S. Adenwalla[1], A. Enders[1], J. A. Kelber[2], P. A. Dowben[1]

[1]University of Nebraska - Lincoln, United States; [2]University of North Texas, United States; [3]Center for Energy Sciences Research, United States

N25-27 Can a Semiconductor-Based Neutron Detector Replace an Equivalent Volume of High Pressure 3-He?
B. Rogers, C. Hosher, P. Scott, J. Crow, A. Caruso, T. Soberig, *University of Missouri-Kansas City, United States*; S. Bellinger, *Kansas State University, United States*

N25-28 Development of a New Type of Manganese Bath for Determination of Neutron Emission Rate of a Neutron Source
T. Matsumoto, H. Harano, A. Masuda, *National Institute of Advanced Industrial Science and Technology, Japan*; J.-I. Hori, *Kyoto University, Japan*

N25-29 Response Studying of Photodiode Coupled with Boron for Neutron Detection
H. J. Hyun[1], H. B. Jeon[1], D. H. Kah[2], K. H. Kang[1], G. N. Kim[1], H. J. Kim[1], M. K. Moon[3], H. Park[1]

[1]Kyungpook National University, South Korea; [2]Agency for Defense Development, South Korea; [3]Korea Atomic Energy Research Institute, South Korea

N25-30 New Technology for Production of Large-Area 10B-Based Thin-Film Neutron Converters
S. Alimov, A. Styervoyedov, T. Wilpert
Helmholtz-Zentrum-Berlin, Germany

N25-31 Study of neutron-gamma Discrimination by Zero-Crossing Method with SiPM Based Scintillation Detectors
M. Grodzicka, T. Szczesniak, M. Moszynski, D. Wolski, L. Swiderski, *National Centre for Nuclear Research (NCBJ), Poland*; J. Baszak, *Hamamatsu Photonics Deutschland GmbH,, Germany*

N25-32 In-Situ Regeneration of BF3-Filled Linear-Position Sensitive Neutron Detectors
T. Wilpert, S. Alimov, C. Schulz, C. Rethfeldt, J. Schleuer
Helmholtz-Zentrum Berlin, Germany

N25-33 Results and Potential Applications of Handheld, Mid-Sized, and Large-Area Low-Cost Li Foil MPWC Neutron Detectors
K. A. Nelson[1], N. J. Hinson[1], M. R. Kusner[1], M. R. Mayhugh[2], B. W. Montag[1], A. J. Schmidt[1], D. S. McGregor[1]

[1]Kansas State University, USA; [2]Saint Gobain Crystals, USA

N25-34 Fabrication of Present-Generation Microstructured Semiconductor Neutron Detectors
R. G. Fronk[1], S. L. Bellinger[2], L. C. Henson[2], T. R. Ochs[1], C. J. Rietcheck[1], T. J. Sobering[1], R. D. Taylor[1], D. S. McGregor[1]

[1]Kansas State University, USA; [2]Radiation Detection Technologies, Inc., USA

N25-35 Neutron Detection Using a Mobile Liquid Activation Material
R. O'Brien, W. Culbreth
University of Nevada, Las Vegas, United States

N26 NSS Poster Session II - New Concepts in Solid-State Detectors

Tuesday, Nov. 11   14:00-15:30   4B

Session Chair: **Peter Fischer**, Institute for Computer Engineering, Heidelberg University, Germany

N26-1 Mechanisms of Electric Field and Temperature Dependent Effective Mobility and Impact Ionization in Amorphous Selenium
M. Z. Kabir, N. Hijazi, *Concordia University, Canada*

N26-2 Fundamental Study on Applying Organic Photodiodes Fabricated on Plastic Scintillator to X-Ray Distribution Measurement
E. Takada, K. Fujii, H. Imai, *Toyama National College of Technology, Japan*; Y. Namito, *High Energy Accelerator Research Organization, Japan*; T. Nakamura, *Tohoku University, Japan*; H. Okada, *University of Toyama, Toyama*

N26-3 Timing Resolution Dependence on MPPC Performance Parameters
T. Nagano, N. Hosokawa, A. Ishida, R. Tsuchiya, K. Sato, K. Yamamoto
HAMAMATSU PHOTONICS K.K., Japan

N26-4 Modeling and Optimization of the Timing Resolution of Digital SiPM PET Detectors
L. H. C. Braga, L. Gasparini, D. Stoppa
Fondazione Bruno Kessler (FBK), Italy

N26-6 Thermally Stimulated Luminescence Property of Ceramic AlN

K. Fukuda, *Tokuyama Corporation, Japan*; T. Yanagida, *Kyushu Institute of Technology, Japan*; N. Kawaguchi, *A&T Corporation, Japan*

N26-7 Luminescence and dosimetric properties of Ce3+-doped CaB2O4 crystal

Y. Fujimoto, *Tohoku University, Japan*; T. Yanagida, *Kyushu Institute of Technology, Japan*

N26-8 Radiation Response Properties of Lumilass-B Fluorescent Glass

Y. Fujimoto, *Tohoku University, Japan*; T. Yanagida, *Kyushu Institute of Technology, Japan*

N26-9 Design of High-Spatial Resolution Neutron Imager Using Single Crystal LiInSe2

E. H. Herrera, E. D. Lukosi, *The University of Tennessee Knoxville, USA*; A. Stowe, *Y-12 National Security Complex, USA*; A. Burger, *Fisk University, USA*

N26-10 Dynamic Range Measurements of a Dual Camera Complementary Metal-Oxide-Semiconductor (CMOS) Active Pixel Sensor (APS) X-Ray Detector

Y. Zheng[1], N. Vassiljev[1], A. Konstantinidis[2], T. Anaxagoras[3], J. Griffiths[1], R. Speller[1]

[1]*University College London, UK;* [2]*Barts Health NHS Trust, UK;* [3]*ISDI Ltd (Image sensor design and innovation), UK*

N26-11 A Novel Concept for Radiation-Hard Large-Area Strip Detectors Based on Active HV/HR-CMOS Sensors

D. Muenstermann, *University of Geneva, Switzerland*
On behalf of the ATLAS Upgrade HV/HR-CMOS collaboration

N26-12 Integrated High Voltage Photo-Voltaic Device for Radiation Detector Systems

J. Segal[1], C. Kenney[1], M. Breidenbach[1], G. Gratta[2], A. Tomada[1], C.-E. Chang[2], J. Corbett[1]

[1]*SLAC, USA;* [2]*Stanford University, USA*

N26-13 Progress in the Development of Low-Gain Avalanche Detectors (LGAD)

H. F. F-W. Sadrozinski, *Univ. of California Santa Cruz, USA*
On behalf of the LGAD Collaboration

N26-14 Consideration of Primary Recoiled Electrons and Incomplete Charge Collection in the Spectral Response Simulation of Thin-Film Based Radiation Detectors

G. Kim, C. J. Park, *Sejong University, South Korea*

N26-15 Characterisation of a Novel 3D Silicon Strip Detector for Microbeam Radiation Therapy (MRT) Quality Assurance

M. J. Cameron, I. M. Cornelius, S. Guatelli, M. L. F. Lerch, M. Petasecca, A. B. Rosenfeld
Centre for Medical Radiation Physics, University of Wollongong, Australia

N26-16 Dosimetric Characterization of a Novel Epitaxial Silicon Array

C. Talamonti[1,2,3], M. Zani[1], D. Menichelli[4], F. Bisello[4,5], M. Scaringella[1], M. Bucciolini[1,2,3], M. Bruzzi[1,2]

[1]*University of Florence, Italy;* [2]*INFN, Italy;* [3]*Azienda Ospedaliera Universitaria Careggi, Italy;* [4]*IBA, Germany;* [5]*FAU University Erlangen-Nürnberg, Germany*

N26-17 A Simplified Process for the Fabrication of Monolithic Silicon Diode Arrays

A. K. Rumaiz[1], D. Elliott[1], T. Krings[2], D. P. Siddons[1]

[1]*Brookhaven National Laboratory, USA;* [2]*Semikon Detectors, GmbH, Germany*

N27 NSS Poster Session II - Scintillators and Scintillation Detectors

Tuesday, Nov. 11   14:00-15:30   4B

Session Chair: TBD

N27-1 The Effects of Thermal Processing on the Luminescence of Y_2O_3:Tm Transparent Ceramic

M. G. Chapman, M. R. Marchewka, S. A. Roberts, J. M. Schmitt, C. J. Kucera, J. Ballato, T. A. DeVol, L. G. Jacobsohn
Clemson University, USA

N27-2 Investigation of Pr Incorporation in LuAG Powders and Ceramics

M. R. Marchewka, M. G. Chapman, H. Qian, L. G. Jacobsohn
Clemson University, USA

N27-3 Physical and Scintillation Degradation of Hygroscopic Scintillators

M. Zhuravleva[1], L. Stand[1], H. Wei[1], C. Hobbs[1], G. Schweitzer[1], L. Boatner[2], D. Leonard[2], K. Shah[3], A. Burger[4], C. L. Melcher[1]

[1]*University of Tennessee, USA;* [2]*Oak Ridge National Laboratory, USA;* [3]*Radiation Monitoring Devices, USA;* [4]*Fisk University, USA*

N27-4 Properties of $CeBr_{3-x}Cl_x$ Single Crystal Scintillators

H. Wei, V. Martin, A. Lindsey, M. Zhuravleva, C. L. Melcher
University of Tennessee, Knoxville, United States

N27-5 Optical Transmittance and Temperature-Dependent Photoluminescence of Eu^{2+} Doped Strontium Iodide

J. Chen[1,2], S. Wang[1], Y. Du[1], H. Ni[1], L. Chen[1]

[1]*Shanghai Institute of Ceramics, Chinese Academy of Sciences, China;* [2]*University of Chinese Academy of Sciences, China*

N27-6 A Novel Method to Create an Intrinsic Reflective Layer on a $Gd_3Ga_3Al_2O_{12}$:Ce Scintillation Crystal

F. Meng[1,2], M. Koschan[2], M. Tyagi[3], C. L. Melcher[1,2], P. Cohen[4]

[1]*Materials Science and Engineering, USA;* [2]*Scintillation Materials Research Center, USA;* [3]*Bhabha Atomic Research Center, India;* [4]*Siemens Medical Solutions Molecular Imaging, USA*

N27-7 3"x 3" LaBr3:Ce position sensitivity with multi-anode PMT readout

A. Giaz[1], F. Camera[1,2], N. Blasi[1], C. Boiano[1], S. Brambilla[1], B. Million[1], S. Riboldi[1,2]
[1]INFN sezione di Milano, Italy; [2]Università degli studi di Milano, Italy

N27-8 Measurement of Beta Decay Continuum Spectrum of 138La

A. Giaz[1], G. Gosta[2], F. Camera[1,2], S. Riboldi[1,2], S. Brambilla[1], N. Blasi[1], B. Million[1]
[1]INFN sezione di Milano, Italy; [2]Università degli studi di Milano, Italy

N27-10 A Cognitive Filter to Stabilize Peak Positions and Widths of a Scintillation Detector and to Determine Its Material

E. Jacobs[1], C. Henke[2], M. J. Neuer[1]
[1]smartoptics GmbH., Germany; [2],

N27-11 Evolutionary Ensembles That Learn Spectroscopic Characteristics of Scintillation and CZT Detectors

M. J. Neuer, N. Teofilov, Y. Kong, *VDEh-Betriebsforschungsinstitut GmbH., Germany*; E. Jacobs, *smartoptics GmbH., Germany*

N27-12 Effect of Annealing Atmosphere on the Cerium Valence State in Ca Codoped GGAG:Ce Single Crystals

F. Meng[1], Y. Wu[1], M. Koschan[1], C. L. Melcher[1], P. Cohen[2]
[1]University of Tennessee, USA; [2]Siemens Medical Solutions Molecular Imaging, USA

N27-13 Suppression of YAG Phase Formation in YAP:Ce Pellets

F. Meng, M. Koschan, S. B. Donnald, Y. Wu, C. L. Melcher
University of Tennessee, USA

N27-14 A Compact Detector for Sr/Y-90 Radioactivity Measurements with a Through Hole NaI(Tl) Scintillator

Y. Unno[1], T. Sanami[2], S. Sasaki[2], M. Hagiwara[2], A. Yunoki[1]
[1]National Institute of Advanced Industrial Science and Technology, Japan; [2]High Energy Accelerator Research Organization, Japan

N27-15 Study on Optical Transmission Properties of 600 mm Long $Bi_4Ge_3O_{12}$ (BGO) Crystals

H. Ni[1], Z. Ji[2], L. Yuan[1], J. Chen[1,2], S. Wang[1]
[1]Shanghai Institute of Ceramics, Chinese Academy of Sciences, China; [2]University of Chinese Academy of Sciences, China

N27-16 Performance Test of Photodiode coupled with a CdWO4

K. H. Kang[1], G. H. Chae[1], H. J. Hyun[1], H. B. Jeon[1], B. B. Kim[1], H. J. Kim[1], M. K. Moon[2], H. Park[1]
[1]Kyungpook National University, Korea; [2]Korea Atomic Energy Research Institute, Korea

N27-17 Thermal and Fast Neutron Detection with Two CLYC Scintillators

A. Giaz[1], L. Pellegri[1], F. Camera[1,2], N. Blasi[1], S. Brambilla[1], B. Million[1], S. Riboldi[1,2]
[1]INFN sezione di Milano, Italy; [2]Università degli studi di Milano, Italy

N27-18 Performances of New Scintillator Detectors: SrI2:Eu, CeBr3, GYGAG:Ce

A. Giaz[1], G. Hull[2], F. Camera[1,3], V. Fossati[3], S. Brambilla[1], B. Million[1], S. Riboldi[1,3]
[1]INFN sezione di Milano, Italy; [2]Institut de Physique Nucléaire d'Orsay, France; [3]Università degli studi di Milano, Italy

N27-19 Luminescence and Scintillation Properties of Tm and Nd-Doped LuF_3 Single Crystals

J. Pejchal[1,2], K. Fukuda[3], S. Kurosawa[1], Y. Yokota[1], A. Yoshikawa[1]
[1]Tohoku University, Japan; [2]Academy of Sciences of the Czech Republic, Czech Republic; [3]Tokuyama Corporation, Japan

N27-20 Preparation of Translucent $Gd_2Si_2O_7$:Ce Thin Plates by Liquid-Phase Sintering and Their Scintillation Performance for Alpha-Particles

M. Nishikata, M. Higuchi, A. Ueda, Y. Tsubota, J. H. Kaneko, *Hokkaido university, Japan*; H. Ishibashi, *Hitachi Chemical Co., Japan*

N27-21 $SrBPO_5$:Eu^{2+} Storage Phosphors for Wide-Range Neutron Detection

K. Sakasai, K. Toh, T. Nakamura, K. Ochiai, C. Konno
Japan Atomic Energy Agency, Japan

N27-22 Development of a Detector Based on Silicon Drift Detectors and Large (2" × 2") Lanthanium Bromide Scintillator for Gamma-Ray Spectroscopy and Imaging Applications

A. D. Butt[1,2], R. Quaglia[1,2], C. Fiorini[1,2], P. Busca[1,2], M. Occhipinti[1,2], G. Giacomini[3], C. Piemonte[3], N. Nelms[4], B. Shortt[4], F. Camera[2,5], B. Million[2]
[1]Politecnico di Milano, Italy; [2]INFN Sezione di Milano, Italy; [3]Fondazione Bruno Kessler, Italy; [4]European Space Agency, The Netherlands; [5]Università degli Studi di Milano, Italy

N27-23 Common Approach to Study Scintillators Response to Gamma-Rays and Protons

L. Swiderski[1], M. Szawlowski[1], M. Moszynski[1], A. Para[2], W. Czarnacki[1], M. Grodzicka[1], J. Wojtkowska[1]
[1]National Centre for Nuclear Research, Poland; [2]Fermi National Accelerator Laboratory, USA

N27-24 Development of Li-loaded liquid scintillator for anti-neutrino directional measurement

Y. Shirahata, H. Watanabe, H. Ikeda, T. Mitsui, K. Ishidoshiro, K. Inoue, S. Ishio
Research Centrer for Neutrino Science,Tohoku University, Japan

N27-25 Design of a Low Background Liquid Scintillation Counter for a Shallow Underground Laboratory

J. L. Orrell[1], J. Erchinger[1,2], C. E. Aalseth[1], B. E. Bernacki[1], M. Douglas[1], E. S. Fuller[1], E. Finn[1], M. E. Keillor[1], S. M. Morley[1], M. E. Panisko[1], S. M. Shaff[1], G. A. Warren[1], M. E. Wright[1]
[1]Pacific Northwest National Laboratory, USA; [2]Texas A&M University, USA

N27-26 Crystal Growth and Scintillation Properties of Eu:SrI_2 Co-Doped with La^{3+} and Lu^{3+}

S. Lam, A. Datta, S. Swider, S. Motakef, *Capesym, Inc., USA*

N27-27 Scintillation Performance of Ce Only and Sr Co-Doped Cs2LiYCl6 Crystals up to 180° C

K. Yang, P. R. Menge, *Saint-Gobain Crystals, USA*; V. Ouspenski, J. Lejay, *Saint-Gobain Recherche, France*

N27-28 Longitudinal Pores in Cesium Iodide Produced by the Edge-Defined Film-Fed Growth Method

A. Yeckel[1], S. Podowitz[2], C. Guguschev[2], R. S. Feigelson[2], J. J. Derby[1]
[1]*University of Minnesota, U.S.A.; [2]Stanford University, U.S.A.*

N27-29 Modify the Scintillation Center in Lead Tungstate by Doping

C. He, Y. Li, L.-E. Dai, C. Wu, R. Mao, *Shanghai Institute of Ceramics, Chinese Academy of Sciences, CHINA*; L. Zhang, R.-Y. Zhu, *California Institute of Technology, USA*; Q. Tang, *Sun Yat-sen University, CHINA*

N27-30 Growth and Scintillation Properties of Large Size YSO:Ce Crystal

L.-E. Dai, C. He, C. Wu, Y. Li, R. Mao, *Shanghai Institute of Ceramics, Chinese Academy of Sciences, CHINA*; Q. Tang, *Sun Yat-sen University, CHINA*

N27-31 Study of Fluorescence Quenching in BGO Crystal

Y. Zhang, Z. Zhang, C. Wang, Y. Wei, X. Wang, Z. Xu, G. Huang
USTC, China

N27-32 Evaluation of Afterglow of Inorganic Scintillators by Pulse X-Ray Irradiation

T. Yanagida, *Kyushu Institute of Technology, Japan*; Y. Fujimoto, *Tohoku Univ., Japan*; T. Ito, K. Uchiyama, K. Mori, *Hamamatsu Photonics, Japan*

N27-33 Scintillation Responses of Transparent Ceramic Bi-Doped LaZrO3.5

T. Yanagida, *Kyushu Institute of Technology, Japan*; S. Kuretake, K. Murayama, N. Tanaka, *Murata Manufacturing Co. Ltd., Japan*

N27-34 Evaluation of Composite Transparent Ceramic Ce:YAG/nondoped YAG for Scintillator Use

T. Yanagida, *Kyushu Institute of Technology, Japan*; K. Watanabe, *Nagoya Univ., Japan*; H. Yagi, T. Yanagitani, *Konoshima Chemical Co. Ltd., Japan*

N27-35 OSL, TSL, and Scintillation Properties of Sn2+-Doped 60ZnO-40P2O5 Glass

T. Yanagida, *Kyushu Institute of Technology, Japan*; H. Masai, *kyoto Univ., Japan*

N27-36 Scintillator Characterization at Energies Relevant for a Prompt Gamma Detection System in Particle Therapy

K. E. Roemer[1], G. Pausch[2], M. Berthel[2], A. Dreyer[2], W. Enghardt[1,2], C. Golnik[2], F. Hueso-González[2], T. Kormoll[2], J. Petzoldt[2], F. Fiedler[1]
[1]*Institute of Radiation Physics, Helmholtz-Zentrum Dresden-Rossendorf, Germany; [2]OncoRay — National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Helmholtz-Zentrum Dresden – Rossendorf, Germany*

N27-37 Evaluation of Scintillation Properties of Mg^{2+} Co-Doped Ce:(La, Gd)$_2$Si$_2$O$_7$ Crystal Grown by the Czochralski Process

R. Murakami[1], S. Kurosawa[1], Y. Shoji[1,2], Y. Ohashi[1], J. Pejchal[1,3], Y. Yokota[1], K. Kamada[1], A. Yoshikawa[1,2]
[1]*Tohoku University, Japan; [2]C&A Corporation, Japan; [3]The Academy of Sciences of the Czech Republic, Czech Republic*

N27-38 Effect of Y Co-Doping to Eu:LiCaAlF$_6$ on TSL and OSL Responses

K. Fukuda, *Tokuyama Corporation, Japan*; T. Yanagida, *Kyushu Institute of Technology, Japan*; N. Kawaguchi, *A&T Corporation, Japan*

N27-39 Scintillation Responses of Nd[3+]-Doped LiYF$_4$

K. Fukuda, *Tokuyama Corporation, Japan*; T. Yanagida, *Kyushu Institute of Technology, Japan*; N. Kawaguchi, *A&T Corporation, Japan*

N27-40 Temperature-Dependent Radioluminescence of Undoped and Eu^{2+} Doped Strontium Iodide Crystals

J. Chen[1,2], S. Wang[1], Y. Du[1], H. Ni[1], L. Chen[1]
[1]*Shanghai Institute of Ceramics, Chinese Academy of Sciences, China; [2]University of Chinese Academy of Sciences, Beijing, China, China*

N27-41 Wavelength-Based Neutron/Gamma Ray Discrimination in CLYC

Z. W. Bell, D. E. Hornback, M. Z. Hu, J. S. Neal
Oak Ridge National Laboratory, USA

N27-42 Growth of Transparent Microstructured Lu$_2$O$_3$:Eu Thin Film Scintillator for Hard X-Ray Imaging

Z. Marton[1], S. R. Miller[1], C. Brecher[1], P. Kenesei[2], S. Ross[3], J. D. Almer[2], B. Singh[1], V. V. Nagarkar[1]
[1]*Radiation Monitoring Devices, Inc., USA; [2]Argonne National Laboratory, USA; [3]Northern Illinois University, USA*

N27-43 Chemical Polishing on Garnet Scintillators and Their Scintillation Properties

K. Kamada[1,2], Y. Shoji[2,1], S. Yamamoto[3], A. Nagura[1], K. Hishinuma[1], S. Kurosawa[1], Y. Ohashi[1], J. Pejchal[1,4], Y. Yokota[1], A. Yoshikawa[1,2]
[1]*Tohoku University, Japan; [2]C&A Corporation, Japan; [3]Nagoya University, Japan; [4]Institute of Physics AS CR, Czech Republic*

N27-44 Growth and Scintillation Properties of Neodymium Doped (Lu, Y, Gd)3(Al,Ga)5O12 Single Crystals

K. Kamada[1,2], S. Kurosawa[1], A. Yamaji[1], Y. Ohashi[1], J. Pejchal[1,3], Y. Yokota[1], A. Yoshikawa[1,2]
[1]*Tohoku University, Japan; [2]C&A Corporation, Japan; [3]Institute of Physics AS CR, Czech Republic*

N27-45 Comparative Investigation of near-Infrared Scintillation Properties of Nd3+-Doped YVO4 Crystals with Several Concentrations

Y. Fujimoto, *Tohoku University, Japan*; T. Yanagida, *Kyushu Institute of Technology, Japan*

N27-46 New X-Ray Imaging Sensor - Microcolumnar Ba$_2$CsI$_5$:Eu

H. B. Bhandari, O. Ovechkina, S. R. Miller, S. C. Rose, V. V. Nagarkar
RMD Inc., USA

N27-49 Development of Bar-Type Scintillator for Energy and Position Measurement

J. Kawarabayashi, H. Sugano, T. Takahashi, H. Tomita, T. Iguchi, *Nagoya University, Japan*; E. Takada, *Toyama National College of Technology, Japan*

N27-50 Scintillation Properties of Na2O-Al2O3-B2O3 Based Glasses for Thermal Neutron Detection

Y. Fujimoto, *Tohoku University, Japan*; T. Yanagida, *Kyushu Institute of Technology, Japan*

N27-51 Characterization of Three LYSO Crystal Batches

F. Yang, R. Mao, L. Zhang, R. Zhu
California Institute of Technology, USA

N27-52 Radiation Damage in BaF2, CsI and CeF3 Crystals

F. Yang, L. Zhang, R. Zhu
California Institute of Technology, USA

N27-53 Next Generation LYSO:Ce,Ca Single Crystals

S. Blahuta, V. Ouspenski, *Saint-Gobain Recherche, France*; P. Menge, K. Yang, *Saint-Gobain Crystals, USA*

N27-54 Detection of Fast Moving Objects from Response of Inorganic Scintillators

S. Banerjee, V. Yadav, R. I. Bakhtsingh, K. P. Dixit, K. C. Mittal
Bhabha Atomic Research Center, India

N27-55 Development of Large Area Sintered GPS:Ce Scintillator Plate Aiming for Application of Alpha Particle Dust Monitor and Position Detection, Energy Discrimination Type Radiation Detector.

S. Nabeta, J. H. Kaneko, Y. Tsubota, K. Toi, M. Nishikata, M. Higchi, T. Shimaoka, *Hokkaido university, Japan*; Y. Morishita, K. Izaki, *Japan Atomic Energy Agency, Japan*

N27-56 True Coincidence Summing Correction in NaI(Tl) and LaBr3(Ce) Scintillation Detectors: a Comparative Study

M. Dhibar, C. K. Singh, L. Mittal, A. K. Gourishetty
Indian Institute of Technology Roorkee, India

N27-57 Fabrication of Organic-Inorganic Hybrid Scintillators by Sol-Gel Method

M. Koshimizu[1], Y. Sun[1], H. Kitajima[1], F. Nishikido[2], R. Haruki[3], S. Kishimoto[3], K. Asai[1]
[1]Tohoku University, Japan; [2]Natinoal Institute of Ragiological Sciences, Japan; [3]High Energy Accelerator Research Organization, Japan

N27-58 Temperature Dependence on Scintillation Properties of Orthorhombic Yttrium-GPS Scintillators

Y. Tsubota, J. H. Kaneko, M. Higuchi, M. Minagawa, *Hokkaido University, Japan*; H. Ishibashi, *Hitachi Chemical co. ltd?, Japan*

N27-59 Scintillation Response and Energy Transfer in Ce^{3+} Doped GdGa-LuAG Garnet Scintillators

M. Kucera, Z. Onderisinova, M. Hanus, *Charles University, Czech Republic*; J. Bok, *ISI ASCR, Czech Republic*; M. Nikl, *Institute of Physics ASCR, Czech Republic*

N27-60 Impurities in Zone-Refined Precursors for Halide Scintillators

S. E. Swider, S. Lam, S. Motakef, *Capesym, Inc., USA*; E. Donohoe, L. Coers, S. Spencer, *SAFC-Hitech, USA*

N27-61 New Eu^{2+} Doped Mixed Scintillators $CsSrBrI_2$, $CsCaBrI_2$ and $CsSrClBr_2$

L. M. Stand, M. Zhuravleva, H. Wei, W. McAlexander, C. L. Melcher
University of Tennessee, 37919

N27-62 Czochralski Growth and Scintillation Properties of Mg^{2+} and Zr^{4+} Co-Doped $Ce:Gd_3Ga_3Al_2O_{12}$ Single Crystals

A. Nagura[1], K. Kamada[1,2], V. V. Kochurikhin[3], K. Hishinuma[1], A. Yamaji[1], S. Kurosawa[1], J. Pejchal[1,4], Y. Yokota[1], Y. Ohashi[1], A. Yoshikawa[1,2]
[1]Tohoku University, Japan; [2]C&A Corporation, Japan; [3]General Physics Institute, Russia; [4]The Academy of Sciences of the Czech Republic, Czech Republic

N27-63 Improvement of Eu Segregation on Eu:LiCaAlF6 Scintillator Crystals by Al Metal and Their Scintillation Properties

Y. Yokota[1], S. Kurosawa[1,2], K. Fukuda[3], J. Pejchal[1], Y. Ohashi[2], K. Kamada[1,4], A. Yoshikawa[1,2,4]
[1]New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan; [2]Institute for Materials Research, Japan; [3]Tokuyama Corporation, Japan; [4]C&A Corporation, Japan

N27-64 Growth of Eu:SrI2 Bulk Crystals by Modified Bridgeman Method and Scintillation Properties

Y. Yokota[1], S. Kurosawa[1,2], Y. Shoji[1], J. Pejchal[1], Y. Ohashi[2], K. Kamada[1,3], A. Yoshikawa[1,2,3]
[1]New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan; [2]Institute for Materials Research, Japan; [3]C&A Corporation, Japan

N27-65 Preparation of GPS:Ce sintered compacts composed of grains 100 μm by the addition of Ti and their scintillation properties for alpha particles

M. Minagawa, J. H. Kaneko, Y. Tsubota, M. Higuchi, M. Nishikata, *Hokkaido University, Japan*; H. Ishibashi, *Hitachi Chemical co. ltd., Japan*

N27-66 Investigation of Anisotropy in Anthracene Crystals Through Cosmic Muon Events

P. Schuster, *UC Berkeley, USA*

N27-67 Gamma-Ray Suppression with Pulse Shape Discrimination Technique for Transparent RUbber SheeT (TRUST) LiCaAlF6 Neutron Scintillator with Wavelength-Shifting Fiber Readout

T. Yamazaki, K. Watanabe, A. Yamazaki, D. Sugimoto, A. Uritani, T. Iguchi, *Nagoya University, Japan*; K. Fukuda, S. Ishidu, *Tokuyama Corporation, Japan*; T. Yanagida, *Kyusyu Institute of Technology, Japan*

N27-68 SiPM Based PET Detector Modules with Air-Gapped Pixelated LYSO

Q. Wei[1], T. Ma[1], D. Li[2], T. Xu[1], N. Jiang[3], F. He[3], C. Jia[3], S. Wang[1], X. Jiang[1], Y. Liu[1]
[1]Tsinghua University, China; [2]National Institute of Metrology, China; [3]Nucmed Inc, China

N27-69 Boron-Loaded Plastic Scintillators Containing Inexpensive Borate Esters

P. Meysing, A. Mahl, C. Pecinovsky, U. Greife, J. Dorgan
Colorado School of Mines, USA

N27-70 Study on Factors Degrading the Scintillation Properties of Eu-Doped SrI2

S. Kurosawa[1], Y. Yokota[1], Y. Homma[1], K. Shirasaki[1], K. Nishimoto[1], T. Ito[1], Y. Shoji[1,2], J. Pejchal[1,3], Y. Ohashi[1], K. Kamada[1,3], T. Yamamura[1], D. Aoki[1], A. Yoshikawa[1,2]

[1]Tohoku University, Japan; [2]C&A Corporation, Japan; [3]AS CR, Czech Republic

N27-71 Near Infra-Red Imaging with New Scintillators

S. Kurosawa[1], A. Yamaji[1], A. Suzuki[1], V. V. Kochurikhin[2], Y. Ohashi[1], J. Pejchal[1,3], Y. Yokota[1], K. Kamada[1,4], A. Yoshikawa[1,4]

[1]Tohoku University, Japan; [2]General Physics Institute, Russia; [3]AS CR, Czech Republic; [4]C&A Corp, Japan

N27-72 The OFFSET3 Scintillation-Fiber Tracker for Real-Time Charged Particle Imaging

D. Lo Presti, INFN Catania, Italy

N27-73 Characterization of a YAG:Ce Calorimeter with High-Energy Proton Beam

V. Sipala[1,2], N. Randazzo[3], M. Bruzzi[4,5], M. Bucciolini[4,5], M. Carpinelli[1,2], C. Civinini[5], G. A. P. Cirrone[6], G. Cuttone[6], D. Lo Presti[3,7], S. Pallotta[4,5], C. Pugliatti[3,7], F. Romano[6], M. Scaringella[4], C. Stancampiano[6], C. Talamonti[4,5], E. Vanzi[4,5], M. Zani[4,5]

[1]University of Sassari, Italy; [2]INFN Cagliari, Italy; [3]INFN Catania, Italy; [4]University of Florence, Italy; [5]INFN Florence, Italy; [6]INFN-Laboratori Nazionali del Sud, Italy; [7]University of Catania, Italy

N28 NSS Poster Session II - Ultra Fast Detectors

Tuesday, Nov. 11   14:00-15:30   4B

Session Chair: TBD

N28-1 Analytical Model for the Timing Resolution of SiPM-Based Scintillation Detectors for PET

J. Breuer, Siemens, Germany

On behalf of the COMET Collaboration

N28-2 Simulations of Low-Energy Electron Interactions with Matter

A. M. M. G. Theulings, Nikhef/TU Delft, Netherlands

On behalf of the MEMBrane group

N28-3 Ab Initio Simulations of the Electron Affinity of Silicon Nitride-Effects of Various Surface Terminations

S. Tao, Nikhef, The Netherlands

On behalf of the MEMBrane group

N28-4 MD-SiPM PET Detector Module Design

E. Venialgo[1,2], S. Mandai[1], E. Charbon[1]

[1]TUDelft, Netherlands; [2]Instituto Sabato, Argentina

N28-5 Fabrication of Large Area Microchannel Plates (MCPs) for Vacuum Electron Amplifiers

A. U. Mane, J. W. Elam, R. G. Wagner, Argonne National Laboratory, USA; O. H. W. Siegmund, J. McPhate, Space Sciences Laboratory, University of California, USA; M. J. Wetstein, A. Elagin, H. J. Frisch, Enrico Fermi Institute, University of Chicago, USA; A. O'Mahony, M. J. Minot, Incom, Inc.,, USA

N28-6 Characterization of TSV MPPC Arrays (4x4 ch and 8x8 ch) in Scintillation Spectrometry

M. Grodzicka, T. Szczesniak, M. Moszynski, National Centre for Nuclear Research (NCBJ), Poland; J. Baszak, Hamamatsu Photonics Deutschland GmbH,, Germany

N28-7 Fast Timing with Large-Area Microchannel-Plate Photomultiplier Modules

M. Wetstein[1], B. Adams[2], A. Elagin[1], E. Oberla[1], H. J. Frisch[1]

[1]University of Chicago, USA; [2]Argonne National Laboratory, USA

N29 Instrumentation for Nuclear Security Applications III

Tuesday, Nov. 11   16:00-18:00   6A

Session Chairs: **James Peltz**, NNSA,
                       Daniel Stephens Jr., Pacific Northwest National Laboaotry, United States

N29-1 (16:00) Time-Correlated Pulse-Height Analysis of a Multiplying HEU Assembly

E. C. Miller[1], D. L. Chichester[2], J. M. Kalter[1], S. M. Watson[2], M. T. Kinlaw[2], C. M. Lavelle[1], W. A. Noonan[1]

[1]Johns Hopkins University Applied Physics Laboratory, USA; [2]Idaho National Laboratory, USA

N29-2 (16:15) 235U and 239Pu Characterization in Radioactive Waste Using Neutron-Induced Fission Delayed Gamma Rays

T. Nicol[1], B. Perot[1], C. Carasco[1], E. Brackx[2], A. Mariani[1], C. Passard[1], E. Mauerhoffer[3]

[1]CEA, DEN, Cadarache, France; [2]CEA, DEN, Marcoule, France; [3]FZJ Institute for Energy and Climate Research, Germany

N29-3 (16:30) Correlation Analysis Techniques for Real-Time Neutron Source Identification with a Hand-Held Moderating Type Neutron Spectrometer

C. B. Hoshor[1], T. M. Oakes[2], E. R. Myers[1], B. J. Rogers[1], J. E. Currie[1], S. M. Young[1], J. A. Crow[1], P. R. Scott[1], W. H. Miller[2], S. L. Bellinger[3], D. S. McGregor[3], A. N. Caruso[1]

[1]University of Missouri - Kansas City, United States of America; [2]University of Missouri - Columbia, United States of America; [3]Kansas State University, United States of America

N29-4 (16:45) Spherical Moderating Neutron Spectrometers for Locating Induced Fission Sources

E. R. Myers[1], S. M. Young[1], C. B. Hoshor[1], B. R. Rogers[1], T. M. Oaks[1,2], W. H. Miller[2,3], D. S. McGregor[4], S. L. Bellinger[4], A. N. Caruso[1]

[1]*University of Missouri - Kansas City, United States;* [2]*University of Missouri - Columbia, United States;* [3]*Missouri University Research Reactor, United States;* [4]*Kansas Sate University, United States*

N29-5 (17:00) Performance of a Neutron Coincidence Counter Based on Boron-Coated Straws

J. L. Lacy, A. Athanasiades, L. Sun, C. S. Martin, G. J. Vazquez-Flores, M. Regmi, *Proportional Technologies, Inc., USA*; S. Croft, *Oak Ridge National Laboratory, USA*

N29-6 (17:15) Nuclear Material Detection by One-Short-Pulse-Laser-Driven Neutron Source

A. Favalli[1], J. Bridgewater[1], S. Croft[2], K. Falk[1], J. Fernandez[1], D. Gautier[1], J. Goettee[1], N. Guler[1], C. Hamilton[1], D. Henzlova[1], K. Ianakiev[1], M. Iliev[1], R. Jonhson[1], D. Jung[1], M. Roth[3], T. Shimada[1], M. Swinhoe[1]

[1]*Los Alamos National Laboratory, USA;* [2]*Oak Ridge National Laboratory, USA;* [3]*Technische Universitat- Darmstadt, Germany*

N29-7 (17:30) Scoping Study for High-Energy Fission Neutrons as a Signature for Active Detection with an Intense Interrogating Neutron Source*

S. L. Jackson[1], J. P. Apruzese[2], R. J. Commisso[1], J. W. Schumer[1], S. B. Swanekamp[1], B. V. Weber[1], J. C. Zier[1], C. N. Boyer[2], A. N. Caruso[3], E. R. Myers[3]

[1]*Naval Research Laboratory, USA;* [2]*Engility Corporation, USA;* [3]*University of Missouri-Kansas City, USA*

N29-8 (17:45) Adaptive Pulse Shape Discrimination Techniques for Multiplicity Counting

S. M. Robinson, S. Stave, A. Lintereur, E. Siciliano, R. Kouzes

Pacific Northwest National Laboratory, 99354

N30 Astrophysics and Space Instrumentation II

Tuesday, Nov. 11   16:00-18:00   606 & 607

Session Chairs: **Daniel Haas**, SRON Netherlands Institute for Space Research, Netherlands
                       Mark Pearce, KTH Stockholm,

N30-1 (16:00) PANGU: a High Resolution Gamma-Ray Space Telescope

A. Bravar[1], M. Pohl[1], M. Su[2], R. Walter[3], X. Wu[1]

[1]*University of Geneva, Switzerlands;* [2]*MIT, United State;* [3]*University of Geneva, Switzerland*

N30-2 (16:15) Quantum Imaging Monitoring and Directional Visualization of Space Radiation with the Timepix Based SATRAM Payload in Open Space on board the ESA Proba-V Satellite

C. Granja, S. Polansky, S. Pospisil, D. Turecek, Z. Vykydal, *Czech Technical University in Prague, Czech Republic*; A. Owens, K. Mellab, P. Nieminen, *European Space Agency (ESA), The Netherlands*; Z. Dvorak, M. Simcak, *Czech Space Research Center (CSRC), Czech Republic*

N30-3 (16:30) The X-Ray Scattering Polarimeter X-Calibur

F. Kislat[1], M. G. Baring[2], S. Barthelmy[3], M. Beilicke[1], A. Bodaghee[4], R. Cowsik[1], Q. Guo[1], Y. Haba[5], T. Hams[3], H. Kunieda[6], T. Maccarone[7], H. Matsumoto[6], T. Miyazawa[6], T. Okajima[3], M. Sasaki[3], J. D. Schnittman[3], K. Tamura[6], A. Zajczyk[1], H. Krawczynski[1]

[1]*Washington University in St. Louis, USA;* [2]*Rice University, USA;* [3]*NASA Goddard Space Flight Center, USA;* [4]*University of California, USA;* [5]*Aichi University of Education, Japan;* [6]*Nagoya University, Japan;* [7]*Texas Tech University, USA*

N30-4 (16:45) Development of High Spatial Resolution Detector for at-Wavelength Metrology of X-Ray Optics

J. K. Vogel, M. J. Pivovaroff, *Lawrence Livermore National Laboratory (LLNL), USA*; B. Singh, S. R. Miller, V. V. Nagarkar, *Radiation Monitoring Devices, Inc, USA*; B. D. Ramsey, *NASA Marshall Space Flight Center, USA*

N30-5 (17:00) China's Future X-Ray Timing and Polarization Satellite

Y. Dong, *Institute of High Energy Physics, Chinese Academy of Sciences, China*
On behalf of the XTP Collaboration

N30-6 (17:15) Nuclei Identification with the AMS-02 Silicon Tracker

P. E. Saouter, *Université de Genève, Switzerland*
On behalf of the AMS-02 Collaboration

N30-7 (17:30) The JEM-EUSO Mission and Pathfinders Status.

F. S. Cafagna, *INFN, Bari section, Italy*
On behalf of the JEM-EUSO Collaboration

N30-8 (17:45, invited) Solar Flare Measurements with STIX and MiSolFA

D. Casadei, *Fachhochschule Nordwestschweiz, Switzerland*

N31 Detectors for Synchrotron Radiation and FEL Instrumentation II

Tuesday, Nov. 11   16:00-18:00   608 & 609

Session Chairs: **Cornelia B. Wunderer**, DESY, Germany
                       D Peter Siddons, National Synchrotron Light Source, United States

N31-1 (16:00) Ultimate 3D for a Pixel Detector - Tests of X-Rays Detection

G. W. Deptuch[1], G. Carini[2], P. Grybos[3], S. Holm[1], R. Lipton[1], P. Maj[3], D. P. Siddons[4], A. Shenai[1], R. Szczygiel[3], M. Trimpl[1], R. Yarema[1]
[1]*Fermilab, USA;* [2]*SLAC, USA;* [3]*AGH-UST, Poland;* [4]*BNL, USA*

N31-2 (16:15) Detectors in Extreme Conditions

G. Blaj, G. Carini, S. Herrmann, P. Hart, A. Tomada, S. Carron, A. Mitra, C. Kenney, G. Haller
SLAC National Accelerator Laboratory, USA

N31-3 (16:30) PixFEL: Enabling Technologies, Building Blocks and Architectures for Advanced X-Ray Pixel Cameras at the Next Generation FELs

L. Ratti, *University of Pavia, Italy*
On behalf of the PixFEL Collaboration

N31-4 (16:45) Development of Multi-Port Charge-Coupled Device Detector with a 300 um Thick Depletion for X-Ray Free-Electron Laser Experiments

S. Ono[1], K. Ozaki[1], K. Kobayashi[1,2], Y. Kirihara[1], N. Teranishi[1,3], T. Kameshima[1,2], T. Hatsui[1,2]
[1]*RIKEN, Japan;* [2]*Japan Synchrotron Radiation Research Institute, Japan;* [3]*University of Hyogo, Japan*

N31-5 (17:00) 2nd Generation Cameras for LCLS and the New Challenges of High Repetition Rates at LCLS-II

S. C. Herrmann, K. Nishimura, M. Weaver, A. Dragone, G. A. Carini, J. Pines, A. Tomada, S. Osier, R. Herbst, P. Caragiulio, B. Markovic, J. Thayer,, C. Kenney, J. Segal, J. Hasi, B. Reese, G. Blaj, G. Haller
SLAC National Accelerator Laboratory, USA

N31-6 (17:15) Superconducting Ultra-High Resolution Tunnel Junction X-Ray Detectors

S. Friedrich[1], F. Ponce[1,2], J. Harris[3], W. K. Warburton[3], M. H. Carpenter[1,2,4], R. Cantor[4]
[1]*Lawrence Livermore National Laboratory, USA;* [2]*University of California, USA;* [3]*XIA LLC, USA;* [4]*STAR Cryoelectronics, USA*

N31-7 (17:30) Characterization of the Epix10k X-Ray Camera at SSRL and LCLS

P. A. Hart, G. Carini, S. Herrmann, K. Nishimura, G. Blaj, A. Tomada, J. Pines, M. Weaver, A. Dragone, P. Caragiulo, B. Markovic, R. Herbst, C. Kenney, J. Segal, J. Hasi, G. Haller, H. Lemkie, S. Nelson, D. Zhu
SLAC National Accelerator Laborator, US

N31-8 (17:45) Terbium Doped Gadolinium Garnet Single Crystal Films for X-Ray Micro-Imaging

P.-A. Douissard, T. Martin, E. Mathieu, *ESRF, France*

J01 NSS-RTSD Joint

Wednesday, Nov. 12   08:00-10:00   6A

Session Chairs: **Douglas S. McGregor**, Kansas State University, United States
                    Paul J. Sellin, University of Surrey, United Kingdom

J01-1 (08:00) Direct Measurement of 235U in Spent Fuel Rods with Gamma-Ray Mirrors

J. Ruz[1], N. F. Brejnholt[1], T. A. Decker[1], M. A. Descalle[1], R. M. Hill[1], R. Soufli[1], K. Ziock[2], M. J. Pivovaroff[1]
[1]*Lawrence Livermore National Laboratory, US;* [2]*Oak Ridge National Laboratory, US*

J01-2 (08:15) Microstructured Semiconductor Neutron Detector (MSND)-Based Helium-3 Replacement Technology

S. L. Bellinger, *Radiation Detection Technologies, Inc., USA;* R. G. Fronk, T. J. Sobering, D. S. McGregor, *Kansas State University, USA*

J01-3 (08:30) Characterisation of Silicon Carbide and Diamond Neutron Detectors for Active Interrogation Security Applications.

M. Hodgson, A. Lohstroh, P. Sellin, *University of Surrey, U.K.;* D. V. Lewis, *AWE, U.K.*

J01-4 (08:45) Ultra Low Noise Silicon Drift Detector and CMOS Front-End for X-Ray Spectroscopy with Less than 100 eV Energy Resolution at Room Temperature

G. Bertuccio[1,2], M. Ahangarianabhari[1,2], C. Graziani[1], D. Macera[1,2], Y. Shi[1,2], A. Rachevski[3], I. Rashevskaya[3], A. Vacchi[3], G. Zampa[3], N. Zampa[3], P. Belluti[4], G. Giacomini[4], A. Picciotto[4], C. Piemonte[4]
[1]*Politecnico di Milano, Italy;* [2]*National Institute of Nuclear Physics, INFN sez. Milano, Italy;* [3]*National Institute of Nuclear Physics, INFN sez. Trieste, Italy;* [4]*Fondazione Bruno Kessler - FBK, Italy*

J01-5 (09:00, invited) Fabrication and Development of BGaN Device for the Novel Neutron Semiconductor Detector

T. Nakano, Y. Inoue, H. Mimura, T. Aoki
Shizuoka University, Japan

J01-6 (09:15) Design of Time-Encoded Thermal Neutron Imaging System for a 3-D Position-Sensitive CdZnTe Array

S. T. Brown, Z. He, *University of Michigan, US*

J01-7 (09:30) Production of Large Area 10B Neutron Detectors

J.-C. Buffet[1], J.-F. Clergeau[1], S. Cuccaro[1], B. Guerard[1], R. Hall-Wilton[2,3], C. Hoglund[2,4], S. Jonchery[1], A. Khaplanov[2,1], F. Piscitelli[2,1], P. Van Esch[1]
[1]*Institut Laue-Langevin ILL, France;* [2]*European Spallation Source ESS AB, Sweden;* [3]*Mid-Sweden University, Sweden;* [4]*Link oping University, Sweden*

J01-8 (09:45, invited) Crystal Growth and Its Effect on Radiation Detection Properties for 6LiInSe2

A. C. Stowe[1,2], B. Wiggins[1,2], J. Tower[3], H. Hong[3], A. Kargar[3], Z. Bell[4], P. Bhattacharya[5], E. Tupitsyn[5], L. Matei[5], M. Groza[5], A. Burger[5]
[1]*Y-12 National Security Enterprise, USA;* [2]*Vanderbilt University, USA;* [3]*Radiation Monitoring Devices, Inc, USA;* [4]*Oak Ridge National Laboratory, USA;* [5]*Fisk University, USA*

N32 New Concepts in Solid-State Detectors

Wednesday, Nov. 12   08:00-10:00   606 & 607

Session Chairs: **Marc Winter**, IPHC - IN2P3/CNRS, France
                    Grzegorz W. Deptuch, Fermilab, United States

N32-1 (08:00) High Gain, Low Noise, and Large Linear Dynamic Range Nanocomposite UV-NIR Photodetectors Based on Interfacial Trap-controlled Charge Injection

F. Guo, R. Dong, Y. Fang, J. Huang

University of Nebraska Lincoln, United States

N32-2 (08:15) Improved Efficiency at Low Energies with P-Type HPGe Detectors

G. Geurkov, E. Roth, K. Schmitt, T. Twomey, T. Underwood

AMETEK - ORTEC, USA

N32-4 (08:45) Nanopattern Multi-Well Avalanche Selenium Detector with Picosecond Time Resolution

A. H. Goldan[1], J. A. Rowlands[1], M. Lu[2], W. Zhao[1]

[1]Stony Brook University, USA; [2]Brookhaven National Lab, USA

N32-5 (09:00) 3D-Mesa "Bridge" Silicon Microdosimeter for RBE Studies in 12C Radiation Therapy

L. T. Tran[1], D. A. Prokopovich[2], L. Chartier[1], M. I. Reinhard[2], M. Petasecca[1], M. L. F. Lerch[1], V. Perevertaylo[3], M. Zaider[4], N. Matsufuji[5], A. B. Rosenfeld[1]

[1]University of Wollongong, Australia; [2]Australian Nuclear Science and Technology Organisation, Autralia; [3]SPA-BIT, Ukraine; [4]Memorial Sloan-Kettering Cancer Center, USA; [5]National Institute of Radiological Science, Japan

N32-6 (09:15) HL-LHC/ATLAS New Hybrid Pixel Detector Approach. A First Review of Several HV-CMOS Solutions.

P. Pangaud, *CPPM/IN2P3/CNRS - AIX MARSEILLE UNIVERSITY, FRANCE*

On behalf of the HVCMOS collaboration

N32-7 (09:30) 3D Sensors with Fast, High-Resolution, Low-Mass and Embedded Cooling Capabilities: First Prototypes Test Results

C. Da Via[1], M. Borri[2], M. Boscardin[3], G. Dalla Betta[4], I. Haughton[1], C. Kenney[5], A. Kluge[6], A. Mapelli[6], S. Parker[7], P. Petagna[6], M. Povoli[8], G. Romagnoli[6]

[1]University of Manchester /CERN, UK; [2]STFC, UK; [3]FBK, Italy; [4]Trento University, Italy; [5]SLAC, USA; [6]CERN, Switzerlsnd; [7]University of Hawaii, USA; [8]University of Oslo, Norway

N32-8 (09:45) Development of a Time and Position Detectable Detector for a Stigmatic Imaging Mass Spectrometer

Y. Fujita, Y. Ikemoto, Y. Arai, *High Energy Accelerator Research Organization, KEK, Japan*; Y. Kawai, H. Matsuoka, H. Hazama, J. Aoki, M. Toyoda, K. Awazu, *Osaka University, Japan*

N33 Computing and Software II - Monte Carlo Methods, Analysis and Reconstruction

Wednesday, Nov. 12   08:00-10:00   608 & 609

Session Chairs: **Steffen Hauf**, European X-ray Free Electron Laser Facility GmbH, Germany
                       Ron A. Soltz, LLNL, United States

N33-1 (08:00) MCNP 6.1.1 - New Features Demonstrated

G. W. McKinney, F. B. Brown, H. G. Hughes, M. R. James, R. L. Martz, G. E. McMath, T. A. Wilcox

Los Alamos National Laboratory, USA

N33-2 (08:15) A Universal Detector Calibration Framework Within MEGAlib

A. Zoglauer, *University of California at Berkeley, USA*

N33-3 (08:30) Dose Enhancement of a Proton Beam by Nanoparticles Investigated by Geant4 Monte Carlo Simulation

S. McKinnon[1], S. Guatelli[1], S. Incerti[2], K. Konstantinov[1], M. Tehei[1], M. Lerch[1], A. Rosenfeld[1]

[1]University of Wollongong, Australia; [2]Bordeaux 1 University, France

N33-4 (08:45) Simulation Environment for the Evaluation of Nuclear Object Classification Performance

A. D. Kaplan, S. E. Labov, P. R. Beck, K. E. Nelson

Lawrence Livermore National Laboratory, United States

N33-5 (09:00) X-CSIT: a Toolkit for Simulating 2D Pixel Detectors

A. Joy[1], M. Kuster[2], S. Hauf[2], M. Wing[1]

[1]University College London, UK; [2]European X-ray Free Electron Laser Facility GmbH, Germany

N33-6 (09:15) Novel Bonner Sphere Response Function Calculations Using MCNP6

A. W. Decker, *Air Force Institute of Technology, USA*

N33-7 (09:30) Efficient Network Detection of Radiation Sources Using Localization

C. Q. Wu, *Univesity of Memphis, USA*; S. Sen, N. S. V. Rao, *Oak Ridge National Laboratory, USA*; R. R. Brooks, *Clemson University, USA*

N33-8 (09:45) Model-Based Least Squares Reconstruction of Coded Source Neutron Radiographs: Integrating the ORNL HFIR CG1D Source Model

H. J. Santos-Villalobos, P. R. Bingham, *Oak Ridge National Laboratory, USA*; J. Gregor, *University of Tennessee, USA*

N34 Trigger and Front-end Systems II

Wednesday, Nov. 12   08:00-10:00   602 & 603 & 604

Session Chairs: **Martin L. Purschke**, Brookhaven National Lab, United States
                       Stefan Ritt, Paul Scherrer Institute,

N34-1 (08:00) Front-End Electronics with Fast Signal Shaper for Silicon Photomultipliers

P. Dorosz, M. Baszczyk, S. Glab, W. Kucewicz, L. Mik, M. Sapor

AGH University of Science and Technology, Poland

N34-2 (08:15) Pulsar II: an FPGA-Based Full Mesh ATCA General Purpose Processor Board

T. T. Liu[1], J. Olsen[1], Y. Okumura[2], H. Yin[1], Z. Xu[3]
[1]Fermilab, USA; [2]University of Chicago, USA; [3]Peking University, China

N34-3 (08:30) On-Detector Electronics for the ATLAS TileCal Demonstrator
H. Akerstedt[1], K. Andersson[2], C. Bohm[1], G. Drake[3], S. Muschter[1], M. Oreglia[2], A. Paramonov[3], F. Tang[2]
[1]University of Stockholm, Sweden; [2]University of Chicago, USA; [3]Argonne National Laboratory, USA

N34-4 (08:45) A New Generation of Integrated Trigger and Read Out System for the MEG-II Experiment
L. Galli[1], U. Hartmann[2], F. Morsani[1], D. Nicolo'[1], S. Ritt[2]
[1]Istituto Nazionale di Fisica nucleare, Italy; [2]Paul Scherrer Institute, Switzerland

N34-5 (09:00) Capacitor Based Multiplexing Readout Method for Solid State Photon-Multiplier Array Readout
X. Sun, K. Lou, Y. Shao, *UT MD Anderson Cancer Center, USA*

N34-6 (09:15) Status and Performances of the NA62 Liquid Krypton Electromagnetic Calorimeter Level 0 Trigger
D. Badoni[1], M. Bizzarri[2], V. Bonaiuto[3], B. Checcucci[1], N. De Simone[3], L. Federici[3], A. Fucci[4], G. Paoluzzi[1], A. Papi[1], M. Piccini[1], A. Salamon[1],
G. Salina[1], E. Santovetti[3], F. Sargeni[3], S. Venditti[4]
[1]INFN, Italy; [2]University of Perugia, Italy; [3]University of Rome Tor Vergata, Italy; [4]CERN, Switzerland

N34-7 (09:30) An Embedded Processor-Based Front-End Architecture for the Daq System of a Kinetic Inductance Detector
L. Capasso[1], P. Branchini[1,2], A. Budano[1], D. Marchetti[1,2]
[1]INFN, Italy; [2]University "Roma Tre", Italy

N34-8 (09:45) Upgrade Prototype Design for TREND Experiment
Z.-A. Liu[1], F. Guo[1,2], H. Lin[1], Z. Liu[1,2], F. Deng[1,2], C. Wang[1,2], J. Zhao[1], K. Wang[1], O. Martineau-Huynh[3,4]
[1]Inst. of High Energy Physics, Chinese Academy of Sciences, China; [2]University of Chinese Academy of Scienses, China; [3]National Astronomical Observatories, Chinese Academy of Sciences, China; [4]LPNHE, IN2P3-CNRS and University Paris 6, France

N35 Scintillators and Scintillation Detectors II: Scintillators - Mechanisms

Wednesday, Nov. 12   10:30-12:00   606 & 607

Session Chairs: **Paul Lecoq**, CERN, Switzerland
                       Stephen A. Payne, LLNL, United States

N35-1 (10:30) Scintillation, Photon Density Response, and Track Modeling in the Semiconductor Materials LiInSe2, ZnSe:Te, CdTe, CdSe/CdS, and ZnO
R. T. Williams, X. Lu, Q. Li, *Wake Forest University, USA*; A. Burger, E. Rowe, E. Tupitsyn, M. Groza, P. Bhattacharya, *Fisk University, USA*; K. Biswas, R. Adhikari, *Arkansas State University, USA*; J. Q. Grim, I. Moreels, *Istituto Italiano Tecnologia, Italy*; V. Ryzhikov, *Institute for Single Crystals, Ukraine*

N35-2 (10:45) DX-like Centers in NaI:Tl Codoped with Ca
K. Biswas, R. Adhikari, *Arkansas State University, USA*; A. Burger, *Fisk University, USA*; Q. Li, R. T. Williams, *Wake Forest University, USA*

N35-3 (11:00) Non-Proportionality Components in Doped CsI
A. Syntfeld-Kazuch, L. Swiderski, M. Moszynski, *National Centre for Nuclear Research, Poland*; A. V. Gektin, *Institute for Scintillation Materials, Ukraine*

N35-4 (11:15) The Role of Ce4+ in Scintillation Mechanism: Codoped Gd3Ga3Al2O12:Ce as a Case Study
Y. Wu[1], F. Meng[1], Q. Li[2], M. Koschan[1], C. L. Melcher[1]
[1]University of Tennessee, USA; [2]Wake Forest University, USA

N35-5 (11:30) Fracture Mechanics of Strontium Iodide: Causes and Remedies
S. Motakef, A. Datta, S. Swider, S. Lam, *Capesym, Inc., USA*

N35-6 (11:45) Comparison of the Scintillation Detector Leading Edge Timing Precision with the Statistical Lower Bound
S. E. Derenzo, W. Choong, W. W. Moses
Lawrence Berkeley National Laboratory, U.S.A.

N36 Photodetectors and Radiation Imaging Detectors I

Wednesday, Nov. 12   10:30-12:00   608 & 609

Session Chairs: **Anna Erickson**, Georgia Tech, United States
                       Peter Marleau, Sandia National Laboratories, United States

N36-1 (10:30) Delayed Crosstalk and Afterpulsing Evaluation in Silicon Photomultipliers
F. Nagy, M. Mazzillo, L. Renna, G. Valvo, D. Sanfilippo, G. Fallica, *STMicroelectronics, ITALY*; J. Molnar, *Institute for Nuclear Research - Hungarian Academy of Sciences, HUNGARY*

N36-2 (10:45) A Dense SPAD Array with Full Frame Readout and Fast Cluster Position Reconstruction
P. Fischer, T. Armbruster, R. Blanco, M. Ritzert, I. Sacco, *Heidelberg University, Germany*; S. Weyers, *Fraunhofer Institute, Germany*

N36-3 (11:00) Evaluating SPADnet-I Detector Module: 8×16 Digital SiPM Pixels Coupled to a 3×6 LYSO:Ce Crystal Matrix
L. H. C. Braga[1], B. Jatekos[2], L. Gasparini[1], F. Ujhelyi[2], G. Erdei[2], E. Lorincz[2], D. Stoppa[1]
[1]Fondazione Bruno Kessler (FBK), Italy; [2]Budapest University of Technology and Economics (BME), Hungary

N36-4 (11:15) Impact of a 3D Microfabrication Process on the Dark Count Rate of Single Photon Avalanche Diodes

L. Maurais, S. A. Charlebois, S. Parent, V.-P. Rhéaume, J.-F. Pratte
Université de Sherbrooke, Canada

N36-5 (11:30) New Methods and Circuits for Gain Stabilization of Photomultipliers with Scintillators
J. R. Stein, Y. Kong, K. Ruhnau, F. Scherwinski, A. Wolf
Target Systemelektronik, Germany

N36-6 (11:45) Digital SiPM in HV CMOS with Adjustable Analog Dynamic Range
F. Nolet, V.-P. Rhéaume, S. Parent, R. Fontaine, J.-F. Pratte
Université de Sherbrooke, Canada

N37 Instrumentation for Nuclear Security Applications IV

Wednesday, Nov. 12   10:30-12:00   602 & 603 & 604
Session Chairs: **Mark Wrobel**, DNDO, United States
                      William Pitts, Pacific Northwest National Laboratory, United States

N37-1 (10:30) Combining Radiography and Passive Measurements for Radiological Threat Localization in Cargo
E. A. Miller, T. A. White, K. D. Jarman, R. T. Kouzes, J. A. Kulisek, S. M. Robinson, R. A. Wittman
Pacific Northwest National Laboratory, USA

N37-2 (10:45) Nuclear Reaction Based Monoenergetic Gamma Ray Radiography System for Detection of Nuclear Materials
R. C. Lanza[1], A. Erickson[2], J. Fisher[1], I. Jovanovic[3], M. Mayer[3], G. McKinney[4], A. B. Meddeb[3], J. Nattress[3], B. O'Day[1], Z. Ounaies[3],
G. Papachristoudis[1], P. B. Rose, Jr[2], R. Sheffield[4], C. Trivelpiece[3]
[1]Massachusetts Institute of Technology, USA; [2]Georgia Institute of Technology, USA; [3]Pennsylvania State University, USA; [4]Los Alamos National Laboratory, USA

N37-3 (11:00) Identification of Nuclear Materials Using Cosmic-Ray Muons and Neutrons
T. B. Blackwell, V. A. Kudryavtsev
University of Sheffield, United Kingdom

N37-4 (11:15) Passive 3D Imaging of Nuclear Waste Containers with Cosmic Muons
C. Thomay, J. Velthuis, P. Baesso, D. Cussans
University of Bristol, UK

N37-5 (11:30) Development of a Low-Noise Front-End ASIC for Si/CdTe Detectors in a Radioactive Substance Visualizing System
A. Harayama[1], H. Ikeda[1], S. Takeda[1], G. Sato[2], S. Watanabe[1], T. Takahashi[1]
[1]Institute of Space Astronautical Science, JAXA, Japan; [2]Waseda University, Japan

N37-6 (11:45) Material Discrimination Using Scattering and Stopping of Cosmic Ray Muons and Electrons and Detection of Gamma Radiation
G. S. Blanpied, S. Kumar, D. Dorroh, C. Morgan, I. Blanpied, M. Sossong, S. McKenney, B. Nelson
Decision Sciences International Corporation, USA

J02 NSS-MIC-RTSD Joint Session

Wednesday, Nov. 12   14:00-15:30   6B
Session Chairs: **Maxim P. Titov**, CEA Saclay, IRFU/SPP,
                      Dimitris Visvikis, LaTIM, France

J02-1 (14:00) Application of Subpixelated CZT Detectors to Gamma-Ray Imaging
G. Montemont, O. Monnet, S. Stanchina, L. Verger
CEA, LETI, France

J02-2 (14:15) Microscopic SPECT Imaging with Inverted Compound Eye Cameras
X.-C. Lai[1], J. George[1], H. Li[2], Q. Li[2], L.-J. Meng[1]
[1]University of Illinois at Urbana-Champaign, USA; [2]Harvard Medical School, USA

J02-3 (14:30) Investigation of Trapping and Bulk Damage in Silicon Photomultipliers
E. Garutti, M. Ramilli, R. Klanner, *University of Hamburg, Germany*; C. Xu, *DESY Hamburg, Germany*

J02-4 (14:45) Development of Ultrahigh Resolution Monolithic Si-PM-Based Block Detectors Using 0.32mm Pixel Scintillators
S. Yamamoto, *Nagoya University Graduate School of Medicine, Japan*; H. Watabe, *Tohoku University CYRIC, Japan*; H. Sato, T. Endo, Y. Usuki, *FURUKAWA Co., LTD, Japan*

J02-5 (15:00) EndoTOFPET-US: Commissioning of a Multi-Modal Endoscope for Ultrasound and Time of Flight PET
J. Varela, *LIP, Portugal*
On behalf of the EndoTOFPET-US Collaboration

J02-6 (15:15) Challenges for Intra-Operative SPECT
B. Frisch, M. Eiber, J. Gardiazabal, P. Matthies, T. Maurer, A. Okur, T. Lasser, N. Navab
Technische Universität München, Germany

N38 Neutron Detectors and Instrumentation I - Applications

Wednesday, Nov. 12   14:00-15:30   606 & 607

Session Chairs: **Robert C. Runkle**, PNNL, United States
    John Mattingly, North Carolina State University, United States

N38-1 (14:00) Imaging of Gases Enclosed Within High-Z Materials Through Neutron Resonance Absorption
A. S. Tremsin[1], A. Losko[2], S. C. Vogel[2], M. Mocko[2], D. D. Byler[2], K. J. McClellan[2], J. B. McPhate[1], J. V. Vallerga[1], O. H. W. Siegmund[1], W. B. Feller[3]
[1]*Space Sciences Laboratory, UC Berkeley, USA;* [2]*Los Alamos National Laboratory, USA;* [3]*Nova Scientific, USA*

N38-2 (14:15) A Water-Based Neutron Multiplicity Counter
S. Dazeley[1], A. Asghari[2], A. Bernstein[1], N. S. Bowden[1], V. Mozin[1]
[1]*LLNL, USA;* [2]*UC Berkeley, USA*

N38-3 (14:30) Progress in Development of a ^{6}LiF/ZnS-Based Neutron Multiplicity Counter
S. C. Stave, M. Bliss, R. T. Kouzes, A. T. Lintereur, S. M. Robinson, E. R. Siciliano
Pacific Northwest National Laboratory, 99352

N38-4 (14:45) Monte Carlo Simulation of a a Very High Resolution Thermal Neutron Detector Composed of Glass Scintillator Microfibers
Y. Song, *Harbin Engineering University, China*; J. Conner, X. Zhang, J. Hayward, *University of Tennessee, USA*

N38-5 (15:00) Mixed-Field Neutron-Gamma Dosimetry Using Low Pressure Proportional Counters
S. Al-Bayati, G. M. Orchard, A. J. Waker
University of Ontario Institute of Technology (UOIT), Canada

N38-6 (15:15) Digital Neutron-Gamma Discrimination Methods: Charge Comparison versus Zero-Crossing
T. Szczesniak, M. Grodzicka, M. Moszynski, D. Wolski, L. Swiderski, M. Szawlowski
National Centre for Nuclear Research, Poland

N39 Scintillators and Scintillation Detectors III: Scintillators - Applications I

Wednesday, Nov. 12   14:00-15:30   608 & 609
Session Chairs: **Alex Gektin**, Institute for Scintillation Materials, Ukraine
    Arnold Burger, Fisk University, United States

N39-1 (14:00) Performance Comparison of Scintillators for Alpha Particle Detectors
Y. Morishita, S. Yamamoto, *Nagoya University, Japan*; K. Izaki, *Japan Atomic Energy Agency, Japan*; J. H. Kaneko, K. Toi, Y. Tsubota, M. Highchi, *Hokkaido University, Japan*

N39-2 (14:15) Enhanced Alpha-Gamma Discrimination in Co-Doped LaBr3(Ce)
K. Yang, P. R. Menge, *Saint-Gobain Crystals, USA*; V. Ouspenski, *Saint-Gobain Recherche, France*

N39-3 (14:30) Advancements in Gamma Spectrometers Based on Europium-Doped Strontium Iodide and Characterization of Its Gamma and Electron Response
P. R. Beck, N. J. Cherepy, S. A. Payne, S. L. Hunter, E. L. Swanberg, P. A. Thelin, S. E. Fisher, *Lawrence Livermore National Laboratory, USA*; K. S. Shah, R. Hawrami, *Radiation Monitoring Devices, USA*; A. Burger, *Fisk University, USA*; L. A. Boatner, *Oak Ridge National Laboratory, USA*; M. Momayezi, *Bridgeport Instruments, USA*; K. Stevens, M. H. Randles, D. Solodovnikov, *Northrop Grumman SYNOPTICS, USA*

N39-4 (14:45) A Handheld Gamma Spectrometer Using Pixelated GYGAG(Ce) Transparent Ceramic Scintillators on Si Photodiode Array
E. L. Swanberg, N. J. Cherepy, P. R. Beck, Z. M. Seeley, B. M. Wihl, S. L. Hunter, S. E. Fisher, S. A. Payne, *Lawrence Livermore National Lab, USA*; J. Kindem, *Cokiya, Inc, USA*

N39-5 (15:00) Improved 1.5" and Larger CLYC and CLLB Detectors for Dual Gamma and Neutron Detection
J. Lejay, S. Blahuta, V. Ouspenski, *Saint-Gobain Recherche, France*; K. Yang, P. Menge, *Saint-Gobain Crystals, USA*; D. Richaud, *Saint-Gobain Cristaux et Detecteurs, France*

N39-6 (15:15) Characterization of 6LiF:ZnS(Ag) Scintillator for Neutron Detection applications
A. Osovizky[1,2], K. Pritchard[1], C. Cooksey[1], K. Siebein[1], J. B. Ziegler[1], Y. Yehuda-Zada[3], E. Binkley[1], M. Jackson[4], C. Hurlbut[4], N. Hadad[1], R. M. Ibberson[1], C. F. Majkrzak[1], N. C. Maliszewskyj[1]
[1]*National Institute of Standards and Technology, Maryland;* [2]*Rotem Industries Ltd, Israel;* [3]*Nuclear Research Center Negev, Israel;* [4]*Eljen Technology, Texas*

N40 Data Acquisition and Analysis Systems I

Wednesday, Nov. 12   14:00-15:30   602 & 603 & 604
Session Chairs: **Sergio Zimmermann**, Lawrence Berkeley National Laboratory, United States
    Ryosuke Itoh, KEK, Japan

N40-1 (14:00) A 72-Channel FPGA-Only MVT Digitizer Board and a Mini-System for Coincidence Detection/Imaging
X. Mei[1], D. Xi[1,2], C. Zeng[1], W. Liu[1], X. Liu[1], H. Kim[3], P. Xiao[1,4], C.-M. Kao[3], Q. Xie[1,4]
[1]*Huazhong University of Science & Technology, China;* [2]*Raycan Technology Co., Ltd (Suzhou), China;* [3]*University of Chicago, US;* [4]*Wuhan National Laboratory for Optoelectronic, China*

N40-2 (14:15) Synchronisation Protocol for the Trigger-Less Front-End Electronics of the PANDA Electromagnetic Calorimeter
M. Kavatsyuk, *KVI-CART, University of Groningen, The Netherlands*
On behalf of the PANDA Collaboration

N40-3 (14:30) A Heterogeneous Image Processing Platform for High-Speed Scientific Cameras

D. Doering[1], A. P. D. Binotto[2], S. Zimmermann[3], A. Rettberg[4], C. E. Pereira[1]

[1]*Universidade Federal do Rio Grande do Sul, Brazil;* [2]*IBM Research - Brazil, Brazil;* [3]*Lawrence Berkeley National Laboratory, USA;* [4]*Carl von Ossietzky Universitat Oldenburg, Germany*

N40-4 (14:45) On the Performance of Linear Optimal Filter and Wiener Filter for Signal Detection in Liquid Ionization Calorimeters
H. Xu[1], D. Gong[2], Y. Chiu[1]

[1]*The University of Texas at Dallas, USA;* [2]*Southern Methodist University, USA*

N40-5 (15:00) High Count Rate and Throughput Pulse Processing Technology for Large Channel Count Systems
P. A. B. Scoullar, C. C. McLean

Southern Innovation, Australia

N40-6 (15:15) Using Gaussian Rate Priors with Poisson Data Likelihoods for Improved Detection of Sources of Known Types in Cluttered Background Scenes
P. Huggins, J. Jin, A. Dubrawski, *Carnegie Mellon University, USA;* S. Labov, K. Nelson, *Lawrence Livermore National Laboratory, USA*

J03 NSS-MIC Joint Session

Wednesday, Nov. 12   16:00-18:00   6B

Session Chairs: **Cinzia Da Via**, University of Manchester /CERN, United Kingdom
                     Paul K. Marsden, King's College London, England, United Kingdom

J03-1 (16:00) Improving PET Time-of-Flight Performance with Prompt Photons in Scintillators
P. Lecoq, E. Auffray, S. Gundacker, *CERN, Switzerland;* M. Korjik, *Institute for Nuclear Problems, Belaruss;* V. Nagirnyi, S. Omelkov, *University of Tartu, Estonia;* A. Vasiliev, *Lomonosov Moscow State University, Russia*

J03-2 (16:15) Influence of Active Area and Different Read-Out Mechanisms on the Timing Performance of Silicon Photomultipliers
T. R. Ganka[1], C. Dietzinger[1], W. M. Gebauer[1], E. Engelmann[2], P. Iskra[3], F. Wiest[3], R. Fojt[3], W. Hansch[1]

[1]*Universität der Bundeswehr München, Germany;* [2]*Technische Universität München, Germany;* [3]*KETEK GmbH, Germany*

J03-3 (16:30) New Developments on High Dynamic Range SiPM Technology
C. Piemonte, F. Acerbi, A. Ferri, A. Gola, G. Paternoster, A. Picciotto, G. Zappala', N. Zorzi

FBK, Italy

J03-4 (16:45) A Dual Layer Fast Timing Detector for Time-of-Flight PET
J. W. Cates, M. Günhan Ertosun, C. S. Levin

Stanford University, USA

J03-5 (17:00) Petiroc 2 : a New SiPM Read-Out ASIC for Time of Flight Application
J. L. Fleury[1], S. Callier[2], C. de La Taille[2], N. Seguin[2], D. Thienpont[2], F. Dulucq[2], S. Ahmad[1], G. Martin[2]

[1]*Weeroc, France;* [2]*Omega, France*

J03-6 (17:15) Track Reconstruction with the Silicon Strip Tracker of the Proton CT Phase 2 Scanner
A. Zatserklyaniy, R. P. Johnson, S. Macafee, T. Plautz, H. Sadrozinski, *University of California Santa Cruz, United States;* V. Bashkirov, F. Hurley, R. Schulte, N. Vence, *Loma Linda University, United States;* V. Giacometti, *University of Wollongong, Australia*

J03-7 (17:30) In-Vivo Range Verification Based on Prompt Gamma-Ray Timing Measurements
C. Golnik[1], F. Hueso-Gonzalez[1], W. Enghardt[1,2], A. Mueller[1], F. Fiedler[2], K. Thomas[1], R. Ostendorf[3], J. Petzold[1], K. Roemer[2], P. Dendooven[3], G. Pausch[1]

[1]*Technische Universitaet Dresden, Helmholtz-Zentrum Dresden-Rossendorf, Germany;* [2]*Helmholtz-Zentrum Dresden-Rossendorf, Germany;* [3]*University of Groningen, The Netherlands*

J03-8 (17:45) First Acquisitions of Realistic Proton Therapy Treatments Delivered on an Anthropomorphic Phantom with a Prompt Gamma Camera
I. Perali[1,2], L. Bombelli[3], R. Peloso[3], C. Fiorini[1,2], E. Clementel[4], L. Hotoiu[4], G. Janssens[5], D. Prieels[5], J. Smeets[5], E. Sterpin[4], F. Vander Stappen[5]

[1]*Politecnico di Milano, Italy;* [2]*INFN, Italy;* [3]*XGLab, Italy;* [4]*iMagx Project, ICTEAM Institute, Université Catholique de Louvain, Belgium;* [5]*Ion Beam Applications, Belgium*

N41 High Energy Physics Instrumentation II

Wednesday, Nov. 12   16:00-18:00   606 & 607

Session Chairs: **Frank Simon**, Max-Planck-Institut fuer Physik, Germany
                     Alexandra Junkes, Hamburg University, Germany

N41-1 (16:00) The Pixel Detector of the ATLAS Experiment for the Run2 at the Large Hadron Collider
M. Marx, *University of Washington, USA*
On behalf of the ATLAS Collaboration

N41-2 (16:15) The Upgrade of the CMS Outer Tracker
G. Steinbrueck, *University of Hamburg, Germany*
On behalf of the CMS Collaboration

N41-3 (16:30) Milestone Achievements in the Construction of a DEPFET Based High-Precision Vertex Detector
L. Andricek, *MPG Semiconductor Lab, Germany*
On behalf of the DEPFET Collaboration

N41-4 (16:45) First Test Results of Full Scale Building Blocks Composing CMOS Pixel Sensors for Particle Tracking
M. Winter, *IPHC - IN2P3/CNRS, France*
On behalf of the PICSEL group

N41-5 (17:00) Measurement of the Time Resolution of Ultra-Fast Silicon Detectors
N. Cartiglia, F. Cenna, A. Picerno, F. Ravera, *INFN, Italy*; V. Fadeyev, H. Sadrozinski, A. Seiden, P. Freeman, Z. Galloway, *Santa Cruz Institute for Particle Physics, USA*; G. Pellegrini, P. Fernández-Martínez, M. Baselga, V. Greco, S. Hidalgo, D. Quirion, *Centro Nacional de Microelectrónica, Spain*; C. Royon, E. Delagnes, M. Saimper, *CEA/IRFU, France*; D. Breton, J. Maalmi, *LAL, France*; N. Minafra, *Universita' di Bari, Italy*

N41-6 (17:15) A Real-Time Track Trigger System for Belle II Central Drift Chamber Detector
J.-G. Shiu[1], C. H. Wang[2], D. H. Lee[3], E. Won[3], H. K. Moon[3], J. B. Kim[3], K. T. Kim[3], M. C. Chang[4], S. M. Liu[2], Y. Iwasaki[5], Y. S. Teng[2], Y. T. Lai[1], K. Y. Chen[4], Z. X. Chen[4], C. Y. Hsu[4], H. Y. Huang[4]
[1]*National Taiwan University, Taiwan (R.O.C.);* [2]*National United University, Taiwan (R.O.C.);* [3]*Korea University, Republic of Korea;* [4]*Fu-Jen Catholic University, Taiwan (R.O.C.);* [5]*KEK High Energy Accelerator Research Organization, Japan*

N41-7 (17:30) TORCH, an Innovative High-Precision Time-of-Flight PID for LHCb Upgrade
N. H. Brook[1], L. Castillo-Garcia[2], T. Conneely[3], E. N. Cowie[1], D. Cussans[1], C. D'Ambrosio[2], J. Fopma[4], R. Forty[2], C. Frei[2], R. Gao[4], T. Gys[2], N. Harnew[4], J. Howorth[3], P. Kapetanopoulos[3], M. W. U. van Dijk[1], J. S. Lapington[3], J. S. Milnes[3], D. Piedigrossi[2], C. Slatter[3]
[1]*University of Bristol, UK;* [2]*CERN, Swiss;* [3]*Photek Limited, UK;* [4]*University of Oxford, UK*

N41-8 (17:45) Performance of the PANDA Barrel DIRC Prototype
M. Zühlsdorf[1,2], [1]*Goethe-Universität, Germany;* [2]*GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany*
On behalf of the PANDA Cherenkov Group

N42 Scintillators and Scintillation Detectors IV: Scintillators - Materials

Wednesday, Nov. 12   16:00-18:00   608 & 609

Session Chairs: **Richard T. Williams**, Wake Forest University, United States
                       Gregory A. Bizarri, LBNL - Berkeley, United States

N42-1 (16:00) Scintillation Properties of Lanthanum Yttrium Oxide Ceramic for Gamma-Ray Detection
U. Shirwadkar, B. Rhodes, C. Brecher, G. Baldoni, Y. Wang, J. Glodo, K. Shah
Radiation Monitoring Devices, Inc., USA

N42-2 (16:15) Barium-Based Bright Scintillators as Transparent Ceramics
M. Gascon[1], R. Gaume[2], E. Bourret-Courchesne[1], G. Bizarri[1]
[1]*Lawrence Berkeley National Laboratory, United States;* [2]*University of Central Florida, United States*

N42-3 (16:30) Alkaline Earth Halide Scintillators
U. Shirwadkar, R. Hawrami, L. Soundara Pandian, J. Glodo, J. Tower, E. V. D. van Loef, K. Shah
Radiation Monitoring Devices, Inc., USA

N42-4 (16:45) High-Resolution, Highly Proportional Scintillators KSr_2I_5:Eu, KBa_2I_5:Eu and K_2BaI_4:Eu
M. Zhuravleva, L. Stand, A. Lindsey, C. L. Melcher
University of Tennessee, USA

N42-5 (17:00) Co-Doping Effects on Luminescence and Scintillation Properties of Ce Doped (Lu,Gd)3(Ga,Al)5O12 Scintillator
K. Kamada[1,2], M. Nikl[3], A. Nagura[1], S. Kurosawa[1], Y. Shoji[2,1], J. Pejchal[2,3], Y. Yokota[2], Y. Ohashi[1], A. Yoshikawa[1,2]
[1]*Tohoku University, Japan;* [2]*C&A Corporation, Japan;* [3]*Institute of Physics AS CR, Czech Republic*

N42-6 (17:15) Scintillation Properties of Large Size Ce:(La, Gd)$_2$Si$_2$O$_7$ Crystals Grown by the Czochralski Process
S. Kurosawa[1], Y. Shoji[1,2], R. Murakami[1], Y. Ohashi[1], J. Pejchal[1,3], Y. Yokota[1], K. Kamada[1,2], A. Yoshikawa[1,2]
[1]*Tohoku University, Japan;* [2]*C&A Corporation, Japan;* [3]*AS CR, Czech Republic*

N42-7 (17:30) Relationship Between Ca^{2+} Concentration and Properties of GGAG:Ce Scintillators
F. Meng[1], M. Koschan[1], Y. Wu[1], C. L. Melcher[1], P. Cohen[2]
[1]*University of Tennessee, USA;* [2]*Siemens Medical Solutions Molecular Imaging, USA*

N42-8 (17:45) Composite Structure in High Luminosity CsBa2I5:Eu Scintillators
S. E. Swider, S. Lam, S. Motakef, *Capesym, Inc., USA*

N43 Analog and Digital Circuits II

Wednesday, Nov. 12   16:00-18:00   602 & 603 & 604

Session Chairs: **Lorenzo Fabris**, Oak Ridge National Laboratory, United States
                       Gianluigi De Geronimo, Brookhaven National Laboratory, United States

N43-1 (16:00) Design and Characterization of the ePix100a prototype: a Low Noise integrating pixel ASIC for LCLS detectors
B. Markovic, A. Dragone, P. Caragiulo, R. Herbst, K. Nishimura, B. Reese, S. Herrmann, P. Hart, G. Blaj, J. Segal, A. Tomada, J. Hasi, G. Carini, C. Kenney, G. Haller
SLAC National Accelerator Laboratory, USA

N43-2 (16:15) The Full Format DSSC Pixel Readout ASIC with Local Amplitude Digitization and Storage for the European XFEL
F. Erdinger[1], B. Nasri[2], C. Fiorini[2], P. Fischer[1], K. Hansen[3], P. Kalavakuru[3], M. Kirchgessner[1], M. Manghisoni[4], M. Porro[5], D. Comotti[4], C. Reckleben[3], J. Szymanski[3], J. Soldat[1]

[1]Heidelberg University, Germany; [2]Politecnico di Milano, Italy; [3]Deutsches Elektronen-Synchrotron DESY, Germany; [4]Universita di Bergamo, Italy; [5]Max-Planck-Institut fuer extraterrestrische Physik, Germany

N43-3 (16:30) A 12-Bit 20 MS/s Asynchronous SAR ADC in 110nm CMOS

X. Shi, A. Bergamaschi, S. Cartier, R. Dinapoli, D. Greiffenberg, I. Johnson, D. Mezza, A. Mozzanica, B. Schmitt, J. Smith, G. Tinti
Paul Scherrer Institut, Switzerland

N43-4 (16:45) The SAMPIC Time and Waveform to Digital Converter Chip

E. Delagnes, H. Grabas, M. Saimpert, *CEA/IRFU, France*; D. Breton, J. Maalmi, *IN2P3/LAL, France*

N43-5 (17:00) The SST Fully-Synchronous Multi-GHz Analog Waveform Recorder with Nyquist-Rate Bandwidth and Flexible Trigger Capabilities

S. A. Kleinfelder, E. Chiem, T. Prakash
University of California, U.S.A.

N43-6 (17:15) Performance of a High-Frequency Synthesizable Digitally Controlled Oscillator

R. Giordano[1,2], A. Aloisio[1,2], F. Ameli[3], V. Bocci[3], S. Cadeddu[4], V. Izzo[2], A. Lai[4], S. Mastroianni[2]
[1]Università di Napoli 'Federico II', Italy; [2]INFN Sezione di Napoli, Italy; [3]INFN Sezione di Roma, Italy; [4]INFN Sezione di Cagliari, Italy

N43-7 (17:30) 10 Gb/s Radiation-Hard VCSEL Array Driver

K. K. Gan, *The Ohio State University, USA*

N43-8 (17:45) Trigger Data Serializer ASIC Chip for the ATLAS New Small Wheel sTGC Detector

J. Wang, *University of Michigan, USA*
On behalf of the ATLAS MUON collaboration

N44 Gaseous Detectors I

Thursday, Nov. 13   08:00-10:00   606 & 607

Session Chairs: **Serge Duarte Pinto**, Photonis, Netherlands
                     Phillip S. Barbeau, Duke University, United States

N44-1 (08:00) Status of the ALICE TPC Upgrade

M. Ball, *Universität Bonn, HISKP, Germany*
On behalf of the ALICE TPC Collaboration

N44-2 (08:30) The Upgrade of BESIII ETOF

H. Dai, *IHEP, china*
On behalf of the group of the upgrade of BESIII ETOF

N44-3 (08:45) Micromegas Chambers for the ATLAS Muon Spectrometer Upgrade: Design and performance studies

K. Ntekas, *National Technical University of Athens, Greece*
On behalf of the ATLAS MUON collaboration

N44-4 (09:00) Status Report on the CMS Forward Muon Upgrade with Large-Size Triple-Gem Detectors

P. Barria, *Universite Libre de Bruxelles, Belgium*
On behalf of the CMS Collaboration

N44-5 (09:15) Advances in Cryogenic Gaseous Photomultipliers for Future Noble-Liquid Detectors for Dark Matter and Rare Event Searches

L. Arazi[1], A. E. C. Coimbra[2], E. Erdal[1], I. Israelashvili[3], H. Landsman[1], M. L. Rappaport[1], S. Shchemelinin[1], D. Vartsky[4], A. Breskin[1]
[1]Weizmann Institute of Science, Israel; [2]Coimbra University, Portugal; [3]NRC Negev, Israel; [4]Soreq NRC, Israel

N44-6 (09:30) The KLOE-2 Inner Tracker: the First Cylindrical GEM Detector

E. De Lucia[1], A. Balla[1], G. Bencivenni[1], P. Branchini[2], A. Budano[2], M. Capodiferro[3], S. Cerioni[1], P. Ciambrone[1], E. Czerwinski[4], G. De Robertis[5], A. Di Cicco[2], A. Di Domenico[3], D. Domenici[1], J. Dong[1], G. Fanizzi[5], G. Felici[1], M. Gatta[1], N. Lacalamita[5], R. Liuzzi[5], F. Loddo[5], M. Mongelli[5], G. Morello[1], A. Palladino[1], A. Pelosi[3], L. Quintieri[1], A. Ranieri[5], E. Tskhadadze[1], V. Valentino[5]
[1]INFN-LNF, Italy; [2]INFN-Roma Tre, Italy; [3]INFN-Roma and Sapienza Universita' di Roma, Italy; [4]Jagiellonian University Cracow, Poland; [5]INFN-Bari, Italy

N44-7 (09:45) Development of Large-Aperture GEMs as a Gating Device of ILC-TPC for Blocking Positive Ion Feedback

K. Ikematsu, *Saga University, JAPAN*
On behalf of the LCTPC-Japan Collaboration

N45 Semiconductor Tracking and Spectroscopy Detectors

Thursday, Nov. 13   08:00-10:00   608 & 609

Session Chairs: **Gian-Franco Dalla Betta**, ,
                     Grzegorz W. Deptuch, Fermilab, United States

N45-1 (08:00) Readout Electronics and Performance of a MAPS Based Silicon Vertex Detector at STAR

J. Schambach, *University of Texas at Austin, USA*
On behalf of the STAR HFT PXL collaboration

N45-2 (08:15) Using a Micro Focused X-Ray Beam for the Evaluation of Edgeless Silicon Pixel & Strip Sensor Technologies

A. Blue[1], R. Bates[1], M. Christophersen[2], L. Eklund[1], S. Ely[3], V. Fadeyev[3], E. N. Gimenez[4], D. Hynds[1], V. Kachkanov[4], J. Kalliopuska[5], A. Macchiolo[6], D. Maneuski[1], B. F. Phlips[2], H.-W. Sadrozinski[3], N. Tartoni[4]

[1]University of Glasgow, Kelvin Building, G12 8QQ,, UK; [2]U.S. Naval Research Laboratory, 4555 Overlook Ave., SW Washington, 20375, USA; [3]University of California, UC Santa Cruz, 95064, USA; [4]Diamond Light Source Ltd, Diamond House, Harwell Science and Innovation Campus, OX11 0DE,, UK; [5]VTT Micro and Nanoelectronics, Tietotie 3, FI-02044 VTT, Finland; [6]Max-Planck-Institut, Otto-Hahn-Ring 6, D-81739, Germany

N45-3 (08:30) The LHCb Vertex Locator Upgrade
P. Tsopelas, Nikhef, The Netherlands
On behalf of the LHCb VELO group

N45-4 (08:45) Characterisation of a Silicon Strip Detector for QA in Heavy Ion Therapy
M. Newall[1], M. Petasecca[1], C. Cassell[1], S. Guatelli[1], D. Bolst[1], M. L. F. Lerch[1], N. Matsufuji[2], A. B. Rosenfeld[1]

[1]University of Wollongong, Australia; [2]National Institute of Radiological Sciences, Japan

N45-5 (09:00) CERBEROS: a High Rate MIP Beam Diagnostic Instrument
J. Wirth
Excellence Cluster "Origin and Structure of the Universe", Germany

N45-6 (09:15) The CMS Tracker and Vertexing Before and after the Upgrade
C. Beluffi, Universite Catholique de Louvain, Belgium
On behalf of the CMS Collaboration

N45-7 (09:30) An Iterative Energy Calibration Method for Large-Scale Semiconductor Multilayer Compton Cameras
Y. Ichinohe[1,2], H. Odaka[1], S. Takeda[1], S. Watanabe[1,2], T. Takahashi[1,2], H. Tajima[3], D. Matsuura[4], K. Genba[4], Y. Kuroda[4]

[1]Institution of Space and Astronautical Science, Japan Aerospace Exploration Agency, Japan; [2]University of Tokyo, Japan; [3]Solar-Terrestrial Environment Laboratory, Nagoya University, Japan; [4]Mitsubishi Heavy Industry, Japan

N45-8 (09:45) CCD-Based Characterization of MeV Photons from Laser Plasma Accelerated Electrons
P. Barton[1], B. Quiter[1], Y. Zhang[2], K. Vetter[2], C. Geddes[1], B. Plimley[2]

[1]Lawrence Berkeley National Laboratory, United States; [2]University of California Berkeley, United States

N46 Neutron Detectors and Instrumentation II - Imaging Detectors

Thursday, Nov. 13   08:00-10:00   602 & 603 & 604

Session Chairs: **Ralf Engels**, Forschungszentrum Juelich GmbH, Germany
Abdallah Lyoussi, CEA / French Atomic Energy Commission, France

N46-1 (08:00) Thermal Neutron Imaging Using a New Pad-Based Position-Sensitive Neutron Detector
P. E. Vanier[1], I. Dioszegi[1], L. Forman[2], N. Schaknowski[1], J. Fried[1], G. C. Smith[1], C. Salwen[1], B. Yu[1]

[1]BNL, USA; [2]Ion Focus Technology, USA

N46-2 (08:15) Performance of the Micro-Strip Gas Chamber for High Rate Thermal Neutrons Detection
B. Mindur[1], S. Alimov[2], T. Fiutowski[1], C. Schulz[2], T. Wilpert[2]

[1]AGH University of Science and Technology, Poland; [2]Helmholtz-Zentrum Berlin für Materialien und Energie, Germany

N46-3 (08:30) Comparative Performance Evaluation of Straw and 3He Neutron Science Detectors
J. L. Lacy, L. Sun, A. Athanasiades, C. S. Martin, G. J. Vazquez-Flores, M. Regmi, Proportional Technologies, Inc., U.S.A.; G. Ehlers, R. A. Riedel, Oak Ridge National Laboratory, U.S.A.

N46-4 (08:45) A Novel Thermal Neutron Detector with Micron-Order Spatial Resolution
J. Conner, Y. Song, X. Zhang, J. Hayward
University of Tennessee, USA

N46-5 (09:00) Novel MPGD Based Neutron Detectors for the European Spallation Source
D. Pfeiffer[1,2], F. Resnati[2], R. Hall-Wilton[1,3], G. Iakovidis[2,4], K. Kanaki[1], T. Kittelmann[1], E. Olivieri[2], L. Ropelewski[2], H. Schindler[2], I. Stefanescu[1], P. Thuiner[2,5], R. Veenhof[2,6]

[1]European Spallation Source ESS AB, Sweden; [2]CERN, Switzerland; [3]Mid-Sweden University, Sweden; [4]National Technical University of Athens, Greece; [5]Vienna University of Technology, Austria; [6]Uludag University, Turkey

N46-6 (09:15) A Novel 10B-Based Detector with Stacked Macrostructured Cathodes and Resistive Wire Readout for Neutron Scattering Applications
I. Stefanescu[1,2], R. Hall-Wilton[1], C. Höglund[1,3], I. Defendi[2], K. Zeitelhack[2], M. Zee[2], L. Hultman[3], J. Birch[3]

[1]European Spallation Source ESS AB, Sweden; [2]MLZ/FRM2, Technische Universität München, Germany; [3]Linköping University, Sweden

N46-7 (09:30) Detector System Component Studies for a Single-Volume Neutron Scatter Camera
E. Brubaker, J. Brennan, A. Nowack, J. Steele, M. Sweany, Sandia National Laboratories, USA; J. Mattingly, K. Weinfurther, North Carolina State University, USA

N46-8 (09:45) Neutron Source Location and Identification Development from a Volumetrically Sensitive Spherical Neutron Spectrometer
S. M. Young[1], E. R. Myers[1], C. B. Hoshor[1], J. E. Currie[1], T. M. Oakes[1,2], W. H. Miller[2], D. S. McGregor[3], S. L. Bellinger[3], T. J. Sobering[3], A. N. Caruso[1]

[1]University of Missouri - Kansas City, United States; [2]University of Missouri - Columbia, United States; [3]Kansas State University, United States

N47 High Energy Physics Instrumentation III

Session Chairs: **Andrew J. Blue**, University Of Glasgow, United Kingdom
                       Mingwu Jin, University of Texas at Arlington, United States

N47-1 (10:30) Test Beam Results on Crystal Fibers for Calorimetry Applications

M. T. Lucchini[1], N. Aubry[2], A. Benaglia[3], C. Dujardin[4], S. Faraj[2], G. Ferro[4], A. Heering[5], V. Kononets[4], K. Lebbou[4], P. Lecoq[3], T. Medvedeva[6], K. Pauwels[3], O. Sidletskiy[7], C. Tully[6], X. Xu[4], E. Auffray[3]

[1]CERN and University of Milano-Bicocca, Italy; [2]Fibercryst S.A.S, France; [3]European Organization for Nuclear Research, Switzerland; [4]Université Lyon 1, France; [5]University of Notre Dame, USA; [6]Princeton University, USA; [7]Institute for Scintillation Materials of NASU, Ukraine

N47-2 (10:45) R&D on Radiation Hard Active Media Based on Quartz Plates

Y. Onel, *University of Iowa, USA*

N47-3 (11:00) Precision Timing Calorimetry for High Energy Physics

C. Pena[1], A. Apresyan[1], D. Anderson[1], A. Bornheim[1], J. Duarte[1], A. Ronzhin[2], M. Spiropulu[1], J. Trevor[1], S. Xie[1]

[1]California Institute of Technology, USA; [2]Fermi National Accelerator Laboratory, USA

N47-4 (11:15) Development of Electromagnetic Calorimeter Using GSO and LYSO Crystals for the J-PARC Muon-to-Electron Conversion Search Experiment

K. Oishi, *Kyushu University, Japan*
On behalf of the COMET Collaboration

N47-5 (11:30) Measurements of Electron Diffusion Coefficients in Liquid Argon for Large LAr Time-Projection Chambers

Y. Li, C. Thorn, W. Morse, F. Lanni, T. Tsang, T. Rao, S. Rescia, J. Sondericker, S. Duffin, J. Farrell, R. Burns, A. Hoffman
Brookhaven National Laboratory, USA

N47-6 (11:45) A High-Performance, Low-Cost Readout System for the Belle II KL and Muon (KLM) Scintillator Subsystem

I. Mostafanezhad, G. Varner, X. Shi, B. Kirby, B. Macek, *University of Hawaii at Manoa, USA*; X. Wang, *Virginia Tech, USA*

N48 Ultra Fast Detectors

Session Chairs: **Harry van der Graaf**, Nikhef & Delft University of Technology, Netherlands
                       Henry J. Frisch, University of Chicago,: Enrico Fermi Institute and Physics Dept.; HEPD, Argonne Natl Lab, United States

N48-1 (10:30) Electron Emission Processes in Photocathodes, Dynodes and MCPs

J. Smedley, K. Attenkofer, S. G. Schubert, *Brookhaven National Laboratory, USA*; J. Xie, *Argonne National Laboratory, USA*; H. A. Padmore, J. Wong, *Lawrence Berkeley National Laboratory, USA*; E. M. Muller, M. Ruiz Oses, *Stony Brook University, USA*

N48-2 (10:45) Micro-Machined Low-Stress Silicon Nitride Transmission Dynode for Electron Amplification

V. Prodanovic, *Delft University of Technology, DIMES-Electronic Components Technology & Materials Lab, The Netherlands*
On behalf of the MEMBrane group

N48-3 (11:00) Measurement of the Scintillation Rise Time for Different LSO Type Crystals and Its Influence on the CTR

S. Gundacker, E. Auffray, A. Knapitsch, T. Meyer, K. Pauwels, N. Di Vara, P. Lecoq
CERN, Switzerland

N48-4 (11:15) Fast Timing with BGO on Digital Silicon Photomultipliers for Prompt Gamma Imaging

J. Petzoldt[1], K. Roemer[2], T. Kormoll[1], M. Berthel[1], A. Dreyer[1], W. Enghardt[1,2], F. Fiedler[2], F. Hueso-Gonzalez[1], C. Golnik[1], T. Kirschke[2], A. Wagner[2], G. Pausch[1]

[1]OncoRay - National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Helmholtz-Zentrum Dresden - Rossendorf, Germany; [2]Helmholtz-Zentrum Dresden Rossendorf, Germany

N48-5 (11:30) A Dual Backside-Illuminated 800-Cell Multi-Channel Digital SiPM with 100 TDCs in 130nm 3D IC Technology

J. M. Pavia, M. Wolf, *Universitatts Spital Zuerich, Switzerland*; E. Charbon, *TU Delft, Netherlands*

N48-6 (11:45) Measuring the Photon Time-Spread Distribution of Scintillators with 2 Picoseconds Time Resolution

D. N. ter Weele, D. R. Schaart, P. Dorenbos
Delft University of Technology, the Netherlands

N49 Neutron Detectors and Instrumentation III - Detectors

Session Chairs: **John Valentine**, Lawrence Berkeley National Laboratory, United States
                       Scott Kiff, Sandia National Laboratories, United States

N49-1 (10:30) High-Yield Uniform Reel-to-Reel 10B4C Coating for Large-Area Neutron Detectors

J. L. Lacy, G. J. Vazquez, M. Regmi, S. Davenport, A. Athanasiades, C. S. Martin, L. Sun
Proportional Technologies Inc, USA

N49-2 (10:45) Development of the Dual-Sided Microstructured Semiconductor Neutron Detector

R. G. Fronk, S. L. Bellinger, L. C. Henson, T. R. Ochs, D. S. McGregor, D. E. Huddleston, T. J. Sobering, R. Taylor, C. J. Rietcheck
Kansas State University, USA

N49-3 (11:00) Characterization of Large Area Transparent RUbber SheeT (TRUST) $LiCaAlF_6$ Neutron Scintillator

K. Watanabe, A. Yamazaki, D. Sugimoto, T. Yamazaki, A. Uritani, T. Iguchi, *Nagoya University, Japan*; K. Fukuda, S. Ishidu, *Tokuyama Corporation, Japan*; T. Yanagida, Y. Fujimoto, *Kyushu Institute of Technology, Japan*

N49-4 (11:15) Silicon Photomultiplier use in a 6LiF:ZnS(Ag) Scintillator

A. Osovizky[1,2], K. Pritchard[1], A. K. Thompson[1], J. B. Ziegler[1], R. M. Ibberson[1], C. F. Majkrzak[1], N. C. Maliszewskyj[1]
[1]*NIST Center for Neutron Research, Maryland;* [2]*Rotem Industries Ltd., Israel*

N49-5 (11:30) Optimization and Fabrication of a Fast Neutron Composite Detector

J. T. Nattress, M. Mayer, I. Jovanovic, Z. Ounaies, A. B. Meddeb, C. Trivelpiece, *The Pennsylvania State University, United States*; K. Kazkaz, *Lawrence Livermore National Laboratory, United States*; G. C. Rich, *University of North Carolina at Chapel Hill, United States*

N49-6 (11:45) He-4 based Neutron Detectors: a Rugged and Scalable Alternative to Liquid Scintillators

R. Chandra, G. Davatz, U. Gendotti, D. Murer, H. Friederich
Arktis Radiation Detectors Ltd, Switzerland

N50 Gaseous Detectors II

Thursday, Nov. 13   14:00-15:30   606 & 607

Session Chairs: **Georg Steinbrueck**, University of Hamburg, Germany
                       Serge Duarte Pinto, Photonis, Netherlands

N50-1 (14:00) Charge Transfer Properties Through Graphene Layers in Gas Detectors

P. Thuiner[1,2], R. Hall-Wilton[3], R. B. Jackman[4], H. Müller[1], T. T. Nguyen[4], E. Oliveri[1], D. Pfeiffer[1,3], F. Resnati[1], L. Ropelewski[1], J. A. Smith[4], M. van Stenis[1], R. Veenhof[5]
[1]*CERN, Switzerland;* [2]*Technische Universität Wien, Austria;* [3]*ESS, European Spallation Source, Sweden;* [4]*London Centre for Nanotechnology and University College London, United Kingdom;* [5]*Uludag University, Turkey and RD51 Collaboration*

N50-2 (14:15) Progress in THGEM Detectors

L. Arazi[1], S. Bressler[1], L. Moleri[1], M. Pitt[1], A. Rubin[1], A. Broismann[1], C. D. R. Azevedo[2], J. F. C. A. Veloso[2], F. D. Amaro[3], J. M. F. dos Santos[3], A. Breskin[1]
[1]*Weizmann Institute of Science, Israel;* [2]*Aveiro University, Portugal;* [3]*Coimbra University, Portugal*

N50-3 (14:30) High Precision Tracking with Gossip: a Gaseous Pixel Detector Made with MEMS Post-Processing of CMOS Pixel Chips

N. P. Hessey, N. van Bakel, V. Gromov, F. Hartjes, P. de Jong, S. Tsigaridas
Nikhef, Netherlands

N50-4 (14:45) The Scintillating GlassGEM Detector for X-ray Imaging

T. Fujiwara, H. Takahashi, Y. Mitsuya, M. Uesaka
The University of Tokyo, Japan

N50-5 (15:00) Performance of a Large-Area GEM Detector Prototype for the Upgrade of the CMS Muon Endcap System

V. Bhopatkar, M. Hohlmann, M. Phipps, J. Twigger, A. Zhang
Florida Institute of Technology, USA

N50-6 (15:15) The Resistive-Well GEM Detector: a Compact Spark-Protected Single Amplification-Stage MPGD

G. Bencivenni, *Laboratori Nazionali di Frascati, Italy*
On behalf of the Detector Development Group

N51 Data Acquisition and Analysis Systems II

Thursday, Nov. 13   14:00-15:30   608 & 609

Session Chairs: **Zhen-An Liu**, Inst. of High Energy Physics, Chinese Academy of Sciences, China
                       Adam Bernstein, Lawrence Livermore National Laboratory, United States

N51-1 (14:00) Development of New Data Acquisition System at Super-Kamiokande for Nearby Supernova Bursts

A. Orii, *the university of Tokyo, Japan*
On behalf of the Super-Kamiokande Collaboration

N51-2 (14:15) Development of a DAQ Front-End Board for X-Ray Free-Electron Laser Experiments

C. Saji, T. Ohata, T. Abe, R. Tanaka, M. Yamaga, *JASRI/SPring-8, Japan*; T. Hatsui, T. Kudo, *RIKEN SPring-8 Center, Japan*

N51-3 (14:30) The ArduSiPM a Compact Trasportable Software/Hardware Data Acquisition System for SiPM Detector.

V. Bocci, G. Chiodi, F. Iacoangeli, M. Nuccetelli, L. Recchia
INFN, Italy

N51-4 (14:45) The sROD Module for the Tile Calorimeter Demonstrator Project

F. Carrio[1], V. Castillo[1], A. Ferrer[1], L. Fiorini[1], Y. Hernández[1], E. Higón[1], P. Moreno[1,2], A. Valero[1], J. Valls[1], C. Solans[3], B. Mellado[2], R. Reed[2]
[1]*University of Valencia, Spain;* [2]*High Energy Physics Group, South Africa;* [3]*CERN, Switzerland*

N51-5 (15:00) Design of the SLAC RCE Platform: A General Purpose ATCA Based Data Acquisition System

R. Herbst, R. Claus, M. Freytag, G. Haller, M. Huffer, S. Maldonado, K. Nishimura, C. O' Grady, A. Perazzo, B. Reese, L. Ruckman, J. G. Thayer, M. Weaver, J. Panetta
SLAC National Accelerator Laboratory, USA

N51-6 (15:15) A New ATCA-Based Data Processor for Track Processing in HEP Experiments

J. T. Anderson, G. R. Drake, T. Hayden

N52 Scintillators and Scintillation Detectors V - Applications II

Thursday, Nov. 13   14:00-15:30   602 & 603 & 604

Session Chairs: **Zane Bell**, Oak Ridge National Laboratory, United States
Guohao Ren, Shanghai Institute of Ceramics, China

N52-1 (14:00) iPhos, a New Technique for the CALIFA CsI(Tl) Calorimeter
M. Bendel, *University of Technology, Munich, Germany*

N52-2 (14:15) Proton Light Yield Measurements of a Water-Based Liquid Scintillator
L. J. Bignell, D. Beznosko, M. Yeh, S. Hans, R. Rosero, C. Zhang, E. Worcester, B. Viren, D. E. Jaffe, H. Themann, S. Kettell, M. Diwan
Brookhaven National Laboratory, USA

N52-3 (14:30) Fogging in Polyvinyl Toluene Scintillators Used in Outdoor Environments
R. Smola, A. Ramey, C. Hurlbut, *Eljen Technology, USA*; R. Cameron, R. Kouzes, *Pacific Northwest National Laboratory, USA*

N52-4 (14:45) New Scintillators for Lens-Coupled X- and Neutron Radiography
N. Cherepy, S. Payne, Z. Seeley, T. Tillotson, R. Sanner, P. Beck, P. Thelin, D. Schneberk, R. Perry, G. Stone, E. Updike
Lawrence Livermore National Laboratory, USA

N52-5 (15:00) Light Crosstalk in Pixelated Arrays of LYSO PET Detectors with Different Reflectors
M. Bergeron, C. M. Pepin, R. Fontaine, R. Lecomte
Université de Sherbrooke, Canada

N52-6 (15:15) Prediction of Optimal Aspect Ratio of Scintillators Used in Scintillation Radiation Detectors for Downhole Application
J. Liu, *GE Oil and Gas, Summit*

N53 Nuclear Physics Instrumentation

Thursday, Nov. 13   16:00-18:00   606 & 607

Session Chairs: **Morgan Burks**, Lawrence Livermore National Laboratory, United States
Azriel Goldschmidt, Lawrence Berkeley National Laboratory, United States
Patrick Beck, Lawrence Livermore National Laboratory, United States

N53-1 (16:00) Results of R&D for Sampling Calorimeters for Abstract- Electron Ion Collider.
O. D. Tsai, *University of California at Los Angeles, USA*
On behalf of the EIC Calorimeter Consortium

N53-2 (16:15) AMoRE Project for Neutrinoless Double Beta Decay of 100Mo
G.-B. Kim, *Institute for Basic Science, Republic of Korea*
On behalf of the AMoRE collaboration

N53-3 (16:30) Upgrade of the GERDA Setup for $0\nu\beta\beta$ Decay Searches of ^{76}Ge
S. Riboldi, *Milan University - INFN Milano, Italy*

N53-4 (16:45) Perfomance of the sPHENIX Prototype Calorimeter Readout Electronics
E. J. Mannel, *Brookhaven National Laboratory, USA*
On behalf of the The PHENIX Collaboration

N53-5 (17:00) Recent Measurements with the NIFFTE Fission TPC and the Potential to Advance Thorium Fueled Reactors
R. Towell, *Abilene Christian University, USA*

N53-6 (17:15) Development of a Tracking and Electron Identification System Using GEM for the J-PARC E16 Experiment
Y. Komatsu, *University of Tokyo, Japan*
On behalf of the J-PARC E16 Collaboration

N53-7 (17:30) Time-of-Flight Neutron Spectrum Unfolding for Mixed-Oxide Nuclear Fuel and Plutonium Metal Using a Dual-Particle Imager
M. C. Hamel, A. Poitrasson-Rivière, J. K. Polack, M. Flaska, S. D. Clarke, S. A. Pozzi, *University of Michigan, USA*; A. Tomanin, P. Peerani, *Joint Research Centre, Italy*

N53-8 (17:45) Thin dE/dx Detectors Fabricated from Silicon-on-Insulator Wafers: Development and Test Results
M. E. Wiedenbeck, *Jet Propulsion Laboratory, California Institute of Technology, USA*; C. S. Tindall, *Lawrence Berkeley National Laboratory, USA*; J. Klemic, J. A. Burnham, A. C. Cummings, A. W. Labrador, R. A. Leske, R. A. Mewaldt, J. S. Rankin, E. C. Stone, *California Institute of Technology, USA*; E. R. Christian, S. Shuman, T. T. von Rosenvinge, *NASA / Goddard Space Flight Center, USA*

N54 Photodetectors and Radiation Imaging Detectors II

Thursday, Nov. 13   16:00-18:00   608 & 609

Session Chairs: **Melinda Sweany**, Sandia National Laboratories,
Peter Fischer, Institute for Computer Engineering, Heidelberg University, Germany

N54-1 (16:00) Three-Dimensional Hybrid X-Ray-Color Imagers for 20 to 1000 keV Photons

Z. Wang, J. L. Barber, E. Guardincerri, M. A. Hoffbauer, J. S. Kapustinsky, K. Kwiatkowski, Q. Liu, C. L. Morris, V. Pavlenko, J. Perry, D. C. Poulson, T. Williamson, J. Yoo, *Los Alamos National Laboratory, USA*; R. Zhu, *California Institute of Technology, USA*

N54-2 (16:15) Optimization and Characterization of SiPM Detectors for Use in Liquid Xenon Experiments
I. Ostrovskiy, *Stanford University, USA*; F. Retiere, *TRIUMF, Canada*

N54-3 (16:30) Development of a Compton Camera for Unmanned Helicopter Survey System
K. Shimazoe, J. Jianyong, Y. Nakamura, H. Takahashi, *The University of Tokyo, Japan*; Y. Shikaze, Y. Sanada, T. Torii, *Japan Atomic Energy Agency, Japan*; S. Kurosawa, K. Kamada, A. Yoshikawa, *Tohoku University, Japan*; M. Yoshino, H. Sato, Y. Usuki, *Furukawa Corporation, Japan*

N54-4 (16:45) Operation of Silicon Photomultipliers at Liquid Helium Temperatures
A. Cardini[1], V. Fanti[1,2], A. Lai[1]
[1]*INFN Sezione di Cagliari, Italy;* [2]*Universita di Cagliari, Italy*

N54-5 (17:00) Time Resolution and Detection Efficiency of the CaLIPSO Detector on 511 keV Annihilation Photons.
E. Ramos, D. F. Yvon, G. Tauzin, P. Verrecchia, S. Viatcheslav, C. Flouzat
CEA Saclay, France

N54-6 (17:15) Three Dimensional Event Localization in Bulk Scintillator Crystals Using Optical Coded Apertures
J. B. Braverman, *University of Tennessee, United States*; L. Fabris, J. Newby, D. Hornback, K. P. Ziock, *Oak Ridge National Laboratory, United States*

N54-7 (17:30) SiPM Performance Boost for Scintillating Fiber Tracker Upgrade at CERN LHCB
F. Wiest[1], C. Dietzinger[2], E. Engelmann[3], T. Ganka[2], W. Gebauer[2], W. Hartinger[1], P. Iskra[1], S. Loebner[1], A. M. Seco[1], N. Miyakawa[1]
[1]*KETEK GmbH, Germany;* [2]*Universitaet der Bundeswehr, Germany;* [3]*Technische Universitaeat Muenchen, Germany*

N54-8 (17:45) Experimental Validation of a Single Photon Avalanche Diode Array Detector Simulator
A. C. Therrien, S. Parent, B.-L. Berube, V.-P. Rheaume, S. A. Charlebois, R. Lecomte, R. Fontaine, J.-F. Pratte
Universite de Sherbrooke, Canada

N55 Radiation Damage Effects

Thursday, Nov. 13   16:00-18:00   602 & 603 & 604

Session Chairs: **Ronald Lipton**, Fermilab, United States
                    Vitaliy A. Fadeyev, UCSC, United States

N55-1 (16:00) Electric Field in Silicon Detectors Irradiated with Neutrons up to 10^{16} n_{eq}/cm^2
M. Mikuž[1,2], G. Kramberger[2], V. Cindro[2], I. Mandic[2], M. Zavrtanik[2]
[1]*Univ. Ljubljana, Slovenia;* [2]*Jozef Stefan Institute, Slovenia*

N55-2 (16:15) Energy Dependence of Proton Radiation Damage in Si-Sensors
A. Junkes, *Hamburg University, Germany*
On behalf of the CMS tracker collaboration and E. Donegani

N55-3 (16:30) Radiation Hardness of Low Gain Amplification Detectors
G. Kramberger, V. Cindro, I. Mandic, M. Mikuž, M. Zavrtanik, *Jozef Stefan Institute, Slovenia*; G. Pellegrini, M. Baselga Bacardit, V. Greco, S. Hidalgo, P. Fernandez, D. Quirion, *Centro Nacional de Microelectrónica, IMB-CNM-CSIC, Spain*; V. Fadeyev, H. Sadrozinski, *Santa Cruz Institute for Particle Physics, UC Santa Cruz, USA*

N55-4 (16:45) Long-Term Stability of Silicon Detectors Operated in the Charge Multiplication Mode
C. A. Betancourt[1], M. Baselga[2], V. Greco[2], A. Hasenfratz[1], M. Hauser[1], S. Hidalgo[2], K. Jakobs[1], K. Lohwasser[3], S. Kuehn[1], P. Fernández-Martínez[2], R. Mori[1], U. Parzefall[1], G. Pellegrini[2], D. Quirion[2], M. Thomas[1]
[1]*Albert-Ludwigs Universitaet Freiburg, Germany;* [2]*IMB-CNM-CSIC, Spain;* [3]*3Deutsches Elektronensynchrotron DESY, Germany*

N55-5 (17:00) Performance of and Radiation Damage Effects in the LHCb Vertex Locator
S. de Capua, *University of Manchester, UK*
On behalf of the LHCb VELO group

N55-6 (17:15) Investigation of the Insulator Layers for Segmented Silicon Sensors Before and after X-Ray Irradiation
R. Klanner, E. Garutti, I. Kopsalis, J. Schwandt, *University of Hamburg, Germany*; J. Zhang, *DESY, Germany*

N55-7 (17:30) Compensation of Radiation Effect in Double Silicon-on-Insulator Pixel Sensor
K. Hara, M. Asano, S. Honda, T. Maeda, N. Tobita, *Faculty of Pure and Applied Sciences, University of Tsukuba, Japan*; Y. Arai, T. Miyoshi, *High Energy Accelerator Research Org. (KEK), Japan*

N55-8 (17:45) Comparative Study of Damage Effects Induced by Gamma and High Energy Protons Irradiation in YAP:Ce, YAG:Ce and DSB:Ce Scintillating Materials
E. Auffray[1], A. Fedorov[2], M. Korjik[2], D. Kozlov[2], M. Lucchini[1,3], V. Mechinsky[2], K. Pauwels[1]
[1]*CERN, Switzerland;* [2]*Research Institute for Nuclear Problems, Belarus;* [3]*UNIMIB, Italy*

MIC Program

M01 MIC Plenary

Wednesday, Nov. 12   08:00-10:00   6B

Session Chairs: **Georges El Fakhri**, *Harvard Medical School and Massachusetts General Hospital, United States*
Katia Parodi, *Ludwig Maximilians University Munich, Germany*

(08:00) Opening Remarks

M01-1 (08:20) **Exploring Human Brain Architecture**
V. Wedeen, *Massachusetts General Hospital, USA*

M01-2 (09:10) **Sub mm PET would change our understanding of life and disease**
Y. Fujibayashi
National Institute of Radiological Sciences, Japan

M02 MIC Awards and Plenary II

Wednesday, Nov. 12   10:30-12:00   6B

Session Chairs: **Georges El Fakhri**, *Harvard Medical School and Massachusetts General Hospital, United States*
                       Katia Parodi, *Ludwig Maximilians University Munich, Germany*

M03 Intra-Operative Probes & Portable Imaging Systems

Wednesday, Nov. 12   14:00-15:30   6A

Session Chair: **Paul Lecoq**, *CERN, Switzerland*

M03-1 (14:00) **A CMOS Multi-Channel Digital SiPM for Endoscopic PET**
A. J. Carimatto, S. Mandai, E. Charbon
TU-DELFT, Netherlands

M03-2 (14:15) **FreeHand SPECT with a Hand-Held Imager**
B. L. Welch[1], J.-M. Fischer[2], B. Kross[3], S. Lee[3], J. E. McKisson[3], J. McKisson[3], A. Weisenberger[3], M. Williams[4], V. Njagi[1]
[1]Dilon Technologies, USA; [2]SurgicEye, Germany; [3]Jefferson Lab, Virginia; [4]University of Virginia, Virginia

M03-3 (14:30) **Preliminary Results from a Portable PET Probe System with Fast Image Reconstruction**
K. Li, A. J. Mathews, Q. Wang, J. Wen, J. A. O'Sullivan, Y.-C. Tai
Washington University in St. Louis, USA

M03-4 (14:45) **Image Quality Assessment for Extended-Volume C-Arm CT Using a Multi-Turn Reverse Helix**
Z. Yu[1], A. Maier[2], G. Lauritsch[3], F. Vogt[3], M. Schoenborn[3], C. Koehler[3], J. Hornegger[2], F. Noo[1]
[1]University of Utah, USA; [2]University of Erlangen-Nuremberg, Germany; [3]Siemens AG, Germany

M03-5 (15:00) **Monte-Carlo Simulation and Image Reconstruction for an Endoscopic TOFPET Detector**
M. Zvolsky, *DESY Hamburg, Germany*; A. Cserkaszky, *SurgicEye GmbH, Germany*; G. Cucciati, *University of Milano Bicocca,
Italy*; E. Garutti, *University of Hamburg, Germany*; P. Mitsakis, *Centre hospitalier universitaire vaudois (CHUV), Switzerland*; B. Frisch, *Technische
Universitaet Muenchen, Germany*

M03-6 (15:15) **MAGICS: a MiniAturized Gamma Imager for Cancer Surgery**
M.-A. Verdier, T. Imando, L. Pinot, C. Esnault, B. Janvier, N. Dinu, B. Ky, S. Callier, V. Vandenbussche, D. Breton, Y. Charon, M.-A. Duval,
L. Raux, L. Menard
IN2P3-CNRS, France

J02 NSS-MIC-RTSD Joint Session

Wednesday, Nov. 12   14:00-15:30   6B

Session Chairs: **Maxim P. Titov**, *CEA Saclay, IRFU/SPP,*
                       Dimitris Visvikis, *LaTIM, France*

J02-1 (14:00) **Application of Subpixelated CZT Detectors to Gamma-Ray Imaging**
G. Montemont, O. Monnet, S. Stanchina, L. Verger
CEA, LETI, France

J02-2 (14:15) **Microscopic SPECT Imaging with Inverted Compound Eye Cameras**
X.-C. Lai[1], J. George[1], H. Li[2], Q. Li[2], L.-J. Meng[1]
[1]University of Illinois at Urbana-Champaign, USA; [2]Harvard Medical School, USA

J02-3 (14:30) **Investigation of Trapping and Bulk Damage in Silicon Photomultipliers**
E. Garutti, M. Ramilli, R. Klanner, *University of Hamburg, Germany*; C. Xu, *DESY Hamburg, Germany*

J02-4 (14:45) **Development of Ultrahigh Resolution Monolithic Si-PM-Based Block Detectors Using 0.32mm Pixel Scintillators**

S. Yamamoto, *Nagoya University Graduate School of Medicine, Japan*; H. Watabe, *Tohoku University CYRIC, Japan*; H. Sato, T. Endo, Y. Usuki, *FURUKAWA Co., LTD, Japan*

J02-5 (15:00) EndoTOFPET-US: Commissioning of a Multi-Modal Endoscope for Ultrasound and Time of Flight PET
J. Varela, *LIP, Portugal*
On behalf of the EndoTOFPET-US Collaboration

J02-6 (15:15) Challenges for Intra-Operative SPECT
B. Frisch, M. Eiber, J. Gardiazabal, P. Matthies, T. Maurer, A. Okur, T. Lasser, N. Navab
Technische Universität München, Germany

M04 New Detector Materials and Technologies

Wednesday, Nov. 12   16:00-18:00   6A

Session Chairs: **Craig S. Levin**, Stanford University, United States
                       Dennis R. Schaart, Delft University of Technology, Netherlands

M04-1 (16:00) The X'tal Cube PET Detector of Isotropic (0.8 mm)³ Crystal Segments
M. Nitta[1], N. Inadama[2], Y. Hirano[2], F. Nishikido[2], E. Yoshida[2], H. Tashima[2], H. Kawai[1], T. Yamaya[2,1]
[1]*Chiba University, Japan;* [2]*National Institute of Radiological Sciences, Japan*

M04-2 (16:15) Lower Limit of Detection in X-Ray Diffraction Measurement of Tissue Equivalent Samples
Y. Zheng[1], N. Vassiljev[1], A. Konstantinidis[2], J. Griffiths[1], R. Speller[1]
[1]*University College London, UK;* [2]*Radiation Safety, UK*

M04-3 (16:30) First Results on the Amorphous Selenium (a-Se) Based Block Detector for Application in low-dose Positron Emission Tomography.
O. Bubon[1,2], G. DeCrencenzo[2], J. A. Rowlands[2], A. Reznik[1,2]
[1]*Lakehead University, Canada;* [2]*Thunder Bay Regional Research Instituteunder, Canada*

M04-4 (16:45) A Compact, Water Cooled, 144 Channel Photo Sensor Module for γ Detection in PET
I. Sacco[1], R. Dohle[2], P. Fischer[1], C. Piemonte[3], M. Ritzert[1]
[1]*Heidelberg University, Germany;* [2]*Micro Systems Engineering, Germany;* [3]*Fondazione Bruno Kessler, Italy*

M04-5 (17:00) Precise Timing Performance Measurements of Si-PM Based Phoswich Detectors for TOF-DOI-PET Systems
T. Kobayashi[1,2], S. Yamamoto[1], N. Kato[1], J. Y. Yeom[3], N. Shimura[4], H. Ishibashi[4]
[1]*Nagoya University Graduate School of Medicine, Japan;* [2]*Daiyukai General Hospital, Japan;* [3]*Kumoh National institute of Technology, South Korea;* [4]*Hitachi Chemical, Japan*

M04-6 (17:15) Directional Charged Particle Detector with a 2-Layer Ultrathin Phosphor Foil
Y. Ding, L. Caucci, H. H. Barrett
University of Arizona, USA

M04-7 (17:30) Novel Manufacturing Techniques for Block Detector Light Guides
M. S. Judenhofer, S. R. Cherry
University of California, Davis, USA

M04-8 (17:45) Cherenkov TOF PET with Silicon Photomultipliers
R. Dolenec[1], S. Korpar[1,2], P. Krizan[1,3], R. Pestotnik[1]
[1]*Jozef Stefan Institute, Slovenia;* [2]*University of Maribor, Slovenia;* [3]*University of Ljubljana, Slovenia*

J03 NSS-MIC Joint Session

Wednesday, Nov. 12   16:00-18:00   6B

Session Chairs: **Cinzia Da Via**, University of Manchester /CERN, United Kingdom
                       Paul K. Marsden, King's College London, England, United Kingdom

J03-1 (16:00) Improving PET Time-of-Flight Performance with Prompt Photons in Scintillators
P. Lecoq, E. Auffray, S. Gundacker, *CERN, Switzerland*; M. Korjik, *Institute for Nuclear Problems, Belaruss*; V. Nagirnyi, S. Omelkov, *University of Tartu, Estonia*; A. Vasiliev, *Lomonosov Moscow State University, Russia*

J03-2 (16:15) Influence of Active Area and Different Read-Out Mechanisms on the Timing Performance of Silicon Photomultipliers
T. R. Ganka[1], C. Dietzinger[1], W. M. Gebauer[1], E. Engelmann[2], P. Iskra[3], F. Wiest[3], R. Fojt[3], W. Hansch[1]
[1]*Universität der Bundeswehr München, Germany;* [2]*Technische Universität München, Germany;* [3]*KETEK GmbH, Germany*

J03-3 (16:30) New Developments on High Dynamic Range SiPM Technology
C. Piemonte, F. Acerbi, A. Ferri, A. Gola, G. Paternoster, A. Picciotto, G. Zappala', N. Zorzi
FBK, Italy

J03-4 (16:45) A Dual Layer Fast Timing Detector for Time-of-Flight PET
J. W. Cates, M. Günhan Ertosun, C. S. Levin
Stanford University, USA

J03-5 (17:00) Petiroc 2 : a New SiPM Read-Out ASIC for Time of Flight Application
J. L. Fleury[1], S. Callier[2], C. de La Taille[2], N. Seguin[2], D. Thienpont[2], F. Dulucq[2], S. Ahmad[1], G. Martin[2]
[1]*Weeroc, France;* [2]*Omega, France*

J03-6 (17:15) Track Reconstruction with the Silicon Strip Tracker of the Proton CT Phase 2 Scanner

A. Zatserklyaniy, R. P. Johnson, S. Macafee, T. Plautz, H. Sadrozinski, *University of California Santa Cruz, United States*; V. Bashkirov, F. Hurley, R. Schulte, N. Vence, *Loma Linda University, United States*; V. Giacometti, *University of Wollongong, Australia*

J03-7 (17:30) In-Vivo Range Verification Based on Prompt Gamma-Ray Timing Measurements

C. Golnik[1], F. Hueso-Gonzalez[1], W. Enghardt[1,2], A. Mueller[1], F. Fiedler[2], K. Thomas[1], R. Ostendorf[3], J. Petzold[1], K. Roemer[2], P. Dendooven[3], G. Pausch[1]

[1]*Technische Universitaet Dresden, Helmholtz-Zentrum Dresden-Rossendorf, Germany;* [2]*Helmholtz-Zentrum Dresden-Rossendorf, Germany;* [3]*University of Groningen, The Netherlands*

J03-8 (17:45) First Acquisitions of Realistic Proton Therapy Treatments Delivered on an Anthropomorphic Phantom with a Prompt Gamma Camera

I. Perali[1,2], L. Bombelli[3], R. Peloso[3], C. Fiorini[1,2], E. Clementel[4], L. Hotoiu[4], G. Janssens[5], D. Prieels[5], J. Smeets[5], E. Sterpin[4], F. Vander Stappen[5]

[1]*Politecnico di Milano, Italy;* [2]*INFN, Italy;* [3]*XGLab, Italy;* [4]*iMagx Project, ICTEAM Institute, Université Catholique de Louvain, Belgium;* [5]*Ion Beam Applications, Belgium*

M06 PET Instrumentation I

Thursday, Nov. 13   08:00-10:00   6A

Session Chairs: **Joel S. Karp**, University of Pennsylvania, United States
Simon R. Cherry, University of California-Davis, United States

M06-1 (08:00) A New Method of Depth-of-Interaction Determination for Continuous Crystal PET Detectors

Y. Wang, L. Wang, D. Li, X. Cheng
University of Science and Technolgy of China, China

M06-2 (08:15) Batched Histogramming: a Memory-Efficient Algorithm for PET Sinogram Acquisitions

Y. Wang, W. Whiteley, *Siemens Medical Solutions, U.S.A.*

M06-3 (08:30) Performance Evaluation of a New Brain PET Scanner Using MPPC Based DOI Detectors

M. Watanabe, R. Yamada, A. Saito, T. Isobe, K. Ote, I. Suzuki, T. Moriya, H. Yamauchi, T. Omura
Hamamatsu Photonics K.K., Japan

M06-4 (08:45) Stackable Electronics Architecture for Densely Packed PET Detectors

P. D. Reynolds, A. Vandenbroucke, D. Freese, D. Hsu, D. Innes, C. S. Levin
Stanford University, United States

M06-5 (09:00) Temperature Properties of Scintillators for PET Detectors: a Comparative Study

W. Wolszczak, *Faculty of Physics, Poland*; M. Moszynski, T. Szczesniak, M. Grodzicka, *National Centre for Nuclear Research, Poland*; K. Kacperski, *Maria Sklodowska-Curie Memorial Cancer Centre and Institute of Oncology, Poland*

M06-6 (09:15) Learning the Characteristics of a DOI Detector

S. Pedemonte[1,2], S. Arridge[3], S. Ourselin[3]
[1]*Massachusetts General Hospital, USA;* [2]*Aalto University, Finland;* [3]*University College London, UK*

M06-7 (09:30) Multiplexed PET in Clinical Scanners Based on Triple Coincidences

J. L. Herraiz[1,2], S. C. Moore[2], M. Cervo[2], S. España[3], J. Ruiz-Cabello[3,4], E. Lage[1,2]
[1]*Madrid-MIT M+Vision Consortium, United States;* [2]*Brigham and Women's Hospital and Harvard Medical School, United States;* [3]*Centro Nacional de Investigaciones Cardiovasculares, Spain;* [4]*Universidad Complutense de Madrid and Ciber Enfermedades Respiratorias, Spain*

M06-8 (09:45) Improving Photon Position Estimation in Monolithic PET Detector Modules via Lookup Table Manipulation

L. Pierce, W. Hunter, R. Miyaoka
University of Washington, USA

M05 Image Reconstruction Methods I

Thursday, Nov. 13   08:00-10:00   6B

Session Chairs: **Johan L. Nuyts**, K.U.Leuven, Belgium, Belgium
Jinyi Qi, University of California, Davis, United States

M05-1 (08:00) Handling Big Data in Medical Imaging: Iterative Reconstruction with Large-Scale Automated Parallel Computation

J. H. Lee[1,2], Y. Yao[2], U. Shrestha[3], G. T. Gullberg[2], Y. Seo[3]
[1]*University of North Carolina, United States;* [2]*Lawrence Berkeley National Laboratory, United States;* [3]*University of California, United States*

M05-2 (08:15) Comparison of Maximum Likelihood Estimators for Low Flux X-Ray CT

D. Perlmutter, S. M. Kim, P. Kinahan, A. Alessio
University of Washington, USA

M05-3 (08:30) Theoretical Analysis of Resolution and Noise Properties of PET Image Reconstruction with and without Sinogram Blurring Modeling

S. Ahn, *GE Global Research, USA*

M05-4 (08:45) A Simple and Flexible MAP Approach for Static and Dynamic Emission Tomography Reconstruction

K. Vunckx[1,2], M. Germino[2], Y. Jian[2], C. Chan[2], J. Nuyts[1], R. E. Carson[2]
[1]*KU Leuven, Belgium;* [2]*Yale University, USA*

M05-5 (09:00) Application of the Entropic Mirror Descent Algorithm to TOF PET Image Reconstruction
S. D. Rose, E. Y. Sidky, C.-M. Kao
University of Chicago, United States

M05-6 (09:15) Analysis of Statistical Models for Iterative Reconstruction of Extremely Low-Dose CT Data
S. M. Kim[1], A. M. Alessio[1], D. S. Perlmutter[1], J.-B. Thibault[2], B. De Man[3], P. E. Kinahan[1]
[1]University of Washington, USA; [2]GE Healthcare, USA; [3]General Electric Global Research Center, USA

M05-7 (09:30) Comparison Between Pre-Log and Post-Log Statistical Models in Low-Dose CT Iterative Reconstruction
L. Fu[1], S. M. Kim[2], A. M. Alessio[2], P. Kinahan[2], B. De Man[1]
[1]GE Global Research, USA; [2]University of Washington, USA

M05-8 (09:45) Validation of Anatomy-Enhanced Cardiac FDG-PET Imaging: an Ex Vivo Sheep Study
A. Turco, J. Duchenne, J. Nuyts, O. Gheysens, J.-U. Voigt, P. Claus, K. Vunckx
KU Leuven, België

M08 Multi-Modality Systems

Thursday, Nov. 13   10:30-12:00   6A
Session Chair: **Paul K. Marsden**, King's College London, England, United Kingdom

M08-1 (10:30) RF-Transmissive PET Detector Insert for Simultaneous PET/MRI
B. J. Lee, A. M. Grant, C.-M. Chang, G. H. Glover, C. S. Levin
Stanford University, USA

M08-2 (10:45) Combined 3D PET and Optical Projection Tomography Techniques for Plant Root Phenotyping
Q. Wang[1], S. Komarov[1], A. J. Mathews[1], K. Li[1], C. Topp[2], J. A. O'Sullivan[1], Y.-C. Tai[1]
[1]Washington University in St. Louis, United States; [2]Donald Danforth Plant Science Center, United States

M08-3 (11:00) A Comparison of Transparent RF-Shielding Materials for to be used in PET/MRI Scanners
C. Parl, D. Stricker-Shaver, A. Kolb, H. F. Wehrl, B. J. Pichler
Werner Siemens Imaging Center, Germany

M08-4 (11:15) ToF Performance Evaluation of a PET Insert with Digital Silicon Photomultiplier Technology During MR Operation
D. Schug[1], J. Wehner[1], P. M. Dueppenbecker[1,2], B. Weissler[1,3], P. Gebhardt[2], B. Goldschmidt[1], T. Solf[4], V. Schulz[1,3]
[1]RWTH Aachen University, Aachen, NRW; [2]King's College London, United Kingdom; [3]Philips Research, Germany; [4]Philips Research, Netherlands

M08-5 (11:30) Development of a SiPM-Based Anger Camera for INSERT, a New Multi-Modality SPECT/MRI System for Preclinical and Clinical Imaging
P. Busca[1,2], C. Fiorini[1,2], A. D. Butt[1,2], M. Occhipinti[1,2], R. Quaglia[1,2], P. Trigilio[1,2], K. Nagy[3], T. Bukki[3], M. Czeller[3], Z. Nyitrai[3], C. Piemonte[4], A. Ferri[4], A. Gola[4], J. Rieger[5]
[1]Politecnico di Milano, Italy; [2]INFN - Sezione di Milano, Italy; [3]Fondazione Bruno Kessler, Italy; [4]Mediso Medical Imaging Systems, Hungary; [5]5MRI.TOOLS GmbH, Germany

M08-6 (11:45) PET NEMA Performance Measurements for a SiPM-Based Time-of-Flight PET/MR System
T. W. Deller[1], A. M. Grant[2], M. M. Khalighi[1], S. H. Maramraju[1], G. Delso[3], C. S. Levin[2]
[1]GE Healthcare, USA; [2]Stanford University, USA; [3]GE Healthcare, CH

M07 Parametric Imaging / Image Processing

Thursday, Nov. 13   10:30-12:00   6B
Session Chair: **Richard E. Carson**, Yale University, United States

M07-1 (10:30) Exploiting an MRI Derived Arterial Input Function to Improve the PET Simultaneous Estimation Method: Validation of Assumptions
H. Sari, K. Erlandsson, A. Barnes, D. Atkinson, S. Arridge, S. Ourselin, B. F. Hutton
University College London, UK

M07-2 (10:45) Impact of Acquisition Time-Window on Clinical Whole-Body PET Parametric Imaging
N. A. Karakatsanis[1,2], M. A. Lodge[2], M. E. Casey[3], H. Zaidi[1,4], A. Rahmim[2]
[1]University of Geneva, Switzerland; [2]Johns Hopkins University, United States; [3]Siemens Medical Solutions, United States; [4]University of Groningen, Netherlands

M07-3 (11:00) A unified PET-fMRI Kinetic Model for Estimation of Neurotransmitter Release Profiles
N. J. Guehl, D. W. Wooten, G. El Fakhri, N. M. Alpert, M. M. Normandin
Center for Advanced Medical Imaging and Sciences, Massachusetts General Hospital and Harvard Medical School, USA

M07-4 (11:15) Introducing Time-of-Flight and Resolution Recovery Image Reconstruction to Whole-Body PET Parametric Imaging
N. A. Karakatsanis[1,2], A. Rahmim[2], H. Zaidi[1,3]
[1]University of Geneva, Switzerland; [2]Johns Hopkins University, United States; [3]University of Groningen, Netherlands

M07-5 (11:30) Application of Pattern Recognition Framework for Quantification of Parkinson's Disease in DAT SPECT Imaging
S. Jain[1], L. Younes[1], G. Smith[1], Z. Mari[1], V. Sossi[2], A. Rahmim[1]
[1]Johns Hopkins University, United States; [2]University of British Columbia, Canada

M07-6 (11:45) Searching for New Dementia-Related Features Within MRI: Keypoint Detection and Description

E. Stuehler, M. R. Berthold
University of Konstanz, Germany

M09 MIC Poster Session I - Student Poster Competition

Thursday, Nov. 13   14:00-15:30   4B

Session Chairs: **Vesna Sossi**, University of British Columbia,
                      Ramsey D. Badawi, UC Davis Medical Center, United States
                      Brian F. Hutton, Institute of Nuclear Medicine, UCL, London, United Kingdom

M09-1 Brain Shaving: Adaptive Detection for Brain PET Data
E. Grecchi[1], O. M. Doyle[1], A. Bertoldo[2], N. Pavese[3], F. E. Turkheimer[1]
[1]King's College London, UK; [2]University of Padova, Italy; [3]Imperial College London, UK

M09-2 Digital PET/MRI Insert: Assessment of the MR-Compatibility
J. Wehner[1], B. Weissler[2], P. Dueppenbecker[1], P. Gebhardt[3], B. Goldschmidt[1], A. Salomon[4], D. Schug[1], F. Kiessling[1], V. Schulz[1,2]
[1]Department for Experimental Molecular Imaging, RWTH Aachen University Hospital, Germany; [2]Philips Research Europe, Germany; [3]King's College London, United Kingdom; [4]Philips Research Europe, The Netherlands

M09-3 Uniform Spatial Resolution for Statistical Image Reconstruction for 3D Cone-Beam CT
J. H. Cho, J. A. Fessler
University of Michigan, United States

M09-4 Optical Transmission of Analog SiPM Signals for ToF PET/MRI
M. F. Bieniosek, C. S. Levin
Stanford University, USA

M09-6 Feasibility of Scatter Based Electron Density Reconstruction for Attenuation Correction in Positron Emission Tomography
G. Zhang[1,2], S. Pistorius[1,2]
[1]University of Manitoba, Canada; [2]CancerCare Manitoba, Canada

M09-7 Design and Simulation of a Stationary SPECT Imaging System Based on Axially Varying Tilted Parallel-Hole Collimation
L. R. V. Pato, S. Vandenberghe, K. Van Audenhaege, R. Van Holen
MEDISIP, Ghent University-iMinds-IBiTech, Belgium

M09-8 Improved Myocardial Perfusion PET Imaging with MRI Learned Dictionaries
X. Wang[1], Y. Wang[2], D. Han[1], W. Deng[1], L. Ying[2], J. Tang[1]
[1]Oakland University, USA; [2]The State University of New York at Buffalo, USA

M09-9 Crystal Growth and Scintillation Properties of Potassium Strontium Bromide
L. M. Stand, M. Zhuravleva, H. Wei, C. L. Melcher
University of Tennessee, United States

M09-10 Effect of Scatter Correction When Comparing Attenuation Maps: Application to Brain PET/MR
N. Burgos, K. Thielemans, M. J. Cardoso, P. Markiewicz, J. Jiao, J. Dickson, J. S. Duncan, D. Atkinson, S. R. Arridge, B. F. Hutton, S. Ourselin
University College London, United Kingdom

M10 MIC Poster Session I - Data Analysis & Image Generation I

Thursday, Nov. 13   14:00-15:30   4B

Session Chairs: **Dimitris Visvikis**, LaTIM, France
                      Arek D. Sitek, Massachusetts General Hospital,

M10-1 An Approximate Contrast to Noise Ratio (CNR) Formula for PET System Performance Assessment
R. Yao, *State University of New York at Buffalo, USA*; Q. Wei, T. Ma, *Tsinghua University, China*

M10-2 Scattered PET Data for Attenuation-Map Reconstruction in PET/MRI
Y. Berker[1], V. Schulz[1,2]
[1]RWTH Aachen University, Germany; [2]Philips Technologie GmbH Innovative Technologies, Germany

M10-3 Monte Carlo Simulation Based Scatter Correction in 3D List-Mode Image Reconstruction
K. Lou[1,2], X. Sun[2], J. W. Clark, Jr.[1], Y. Shao[2]
[1]Rice University, USA; [2]University of Texas MD Anderson Cancer Center, USA

M10-4 Evaluation of a Self-Normalization Method for Two PET Cameras Using Prompt, Delay or Total Emission Data
H. Baghaei, Y. Zhang, H. Yan, W.-H. Wong
University of Texas, M.D. Anderson Cancer Center, USA

M10-5 List-Mode Motion Tracking for Positron Emission Tomography Imaging Using Low-Activity Fiducial Markers
M. Chamberland[1], R. deKemp[1,2], T. Xu[1]
[1]Carleton University, Canada; [2]University of Ottawa Heart Institute, Canada

M10-6 4D FDG-PET Quantification in Thoracic Anatomical Structures for Anthropomorphic Phantom Measurements.
M. Carles, A. Chirindel, T. Fechter, U. Christ, A. Schaefer, M. Mix, U. Nestle
UKL, Germany

M10-7 Data-Driven Respiratory Gating Approach for Detecting Anterior-Posterior Tumor Motion in PET

M. Hess, F. Büther, K. P. Schäfers
European Institute for Molecular Imaging (EIMI), Germany

M10-8 An Algorithm for Direct 4-D PET Image Reconstruction/non-Rigid Motion Estimation with Limited MRI Prior Information

A. Bousse[1], J. Jiao[2], L. Pizarro[2], K. Thielemans[1], D. Atkinson[2], S. Ourselin[2], B. F. Hutton[1,3]
[1]Institute of Nuclear Medicine, UCL, UK; [2]Centre for Medical Image Computing, University College London, UK; [3]Centre for Medical Radiation Physics, University of Wollongong, Australia

M10-9 Comparison of Multi Modal SPECT Reconstruction Methods Using a Clinically Relevant Assessment of the Image Resolution at Various Noise Levels

J. Ma, A. H. Vija, *Siemens, United States*

M10-10 Activities and Volumes Determined by IADT Method for 177-Lu Images Reconstructed with and Without Resolution Recovery

C. F. Uribe[1], L. Frauenstein[1,2], P. L. Esquinas[1], É. Gaudin[3], M. Gonzalez[4], J.-M. Beauregard[5], A. Celler[1]
[1]University of British Columbia, Canada; [2]University of Magdeburg, Germany; [3]Université Laval, Canada; [4]Vancouver Coastal Health Authority, Canada; [5]CHU de Quebec and Université Laval, Canada

M10-11 Validation of Scatter Simulation in 3D and Count-Rate Dependent Component-Based Normalization for the HRRT

S. H. Keller[1], C. Svarer[1], M. Sibomana[1,2]
[1]Copenhagen University, Rigshospitalet, Danmark; [2]Sibomana Consulting, Belgium

M10-12 Model-Based Correction for Artifacts Generated by Localized High-Intensity in a PET Scanner.

J. Huang[1], T. Mou[1], M. Muzi[2], F. O'Sullivan[1]
[1]University College Cork, Ireland; [2]University of Washington, USA

M10-13 Investigating the Influence of Baseline Drifts of Respiratory Signals in Amplitude-Based Gating for Positron Emission Tomography

F. Buether, M. Hess, K. P. Schaefers
European Institute for Molecular Imaging, Germany

M10-14 Analysis of the Effects of Errors in Attenuation Maps on PET Quantitation in TOF PET

S. Ahn, L. Cheng, R. M. Manjeshwar, *GE Global Research, USA*

M10-15 Model Based Corrections for the Reconstruction of Lu-176 Transmission Data

H. E. Rothfuss, V. Y. Panin, C. C. Watson, S. B. Siegel
Siemens Molecular Imaging, USA

M10-16 PVA Cryogel Test Objects for Image-Based Quantification in Nuclear Medicine

S.-M. Gould[1], G. M. Soultanidis[2], P. K. Marsden[2], L. Livieratos[1]
[1]Guy's and St Thomas' NHS Foundation Trust, UK; [2]King's College London, UK

M10-17 Comparison of Transmission- and Emission-Based Attenuation Correction for TOF-PET/MRI

P. M. Mollet, S. Vandenberghe
MEDISIP GHENT UNIVERSITY iMinds Medical IT IBiTech, Belgium

M10-18 Improved Intrinsic Motion Detection Using Time-of-Flight PET

J. Xu, B. M. W. Tsui, *Johns Hopkins University, USA*

M10-19 Evaluation of Rigid Body Motion Compensation in Cardiac Perfusion SPECT Employing Polar Map Quantification

P. H. Pretorius, K. L. Johnson, M. A. King
University of Massachusetts Medical School, USA

M10-20 Prerequisite of SPECT/CT Image Segmentation Approach Potentially Leading to Precise Absolute Quantification of Myocardial Focal Tracer Uptake: Phantom and Canine Validations

Y.-H. Liu, S. Li
Yale University/Yale New Haven Hospital, USA

M10-21 A Generalized Scatter Reconstruction Algorithm for Limited Energy Resolution PET Detectors

H. Sun[1,2], S. Pistorius[1,2]
[1]University of Manitoba, Canada; [2]Cancercare Manitoba, Canada

M10-22 Motion Compensation (MoCo) for Simultaneous PET/MR Based on Strongly Undersampled Radial MR Data - a Simulation Study

C. M. Rank, T. Heußer, M. Brehm, M. Kachelrieß
German Cancer Research Center (DKFZ), Germany

M10-23 Improved Spatial and Temporal Resolution of Gated Myocardial Perfusion PET Using Post Reconstruction Dual Respiratory and Cardiac Motion Compensation

J. Wang[1], L. Hu[2], T. Feng[1], J. Xu[1], L. Shao[2], B. Tsui[1]
[1]Johns Hopkins University, United States; [2]Philips Healthcare, United States

M10-24 Markerless PET Motion Correction: Tracking in Narrow Gantries Through Optical Fibres

R. R. Jensen[1], O. V. Olesen[1], C. Benjaminsen[1], L. Højgaard[2], R. Larsen[1]
[1]The Technical University of Denmark, Denmark; [2]Copenhagen University Hospital, Denmark

M10-25 Comparison Between View Summing and View Pulsing in Ultra Low Dose CT Acquisitions for PET Attenuation Correction

X. Rui, L. Cheng, A. Alessio, P. Kinahan, B. De Man

General Electric - Global Research, USA

M10-26 Data Driven Gating Using PCA for 4D PET/CT Reconstruction
S. R. Thiruvenkadam, *GE Global Research, India*; K. Thielemans, *King's College, United Kingdom*; R. Manjeshwar, *GE Global Research, USA*

M10-27 General Expression Based Loop Unrolling Scheme for Real-Time Implementation of PAI
J. Huang, C. Zhang, J. Ren, Y. Wang
Fudan University, China

M10-28 Acceleration of Sensitivity Map Calculation for PET Imaging Using Intel Xeon Phi Coprocessor
T. Dey, P. Rodrigues, *Philips Research, the Netherlands*

M10-29 Tensor based Dictionary Learning Approach for Dynamic CT Reconstruction
S. Tan[1,2,3], Y. Zhang[4], G. Wang[5], X. Mou[4], Z. Wu[1,2], H. Yu[3]
[1]*Beijing Key Laboratory of Nuclear Detection & Measurement Technology, China;* [2]*Institute of Nuclear and New Energy Technology, Tsinghua University, China;* [3]*Department of Biomedical Engineering, Wake Forest University Health Sciences, USA;* [4]*Institute of Image Processing and Pattern Recognition, Xi'an Jiaotong University, China;* [5]*Biomedical Imaging Center/Cluster, CBIS, Dept. of BME, Rensselaer Polytechnic Institute, USA*

M10-30 A 4D MAP Image Reconstruction Method for Emission Tomography Data Employing Mean-Shift Filtering for Denoising
A. Ihsani, T. H. Farncombe, *McMaster University, Canada*

M10-31 3D Model for Computing the System Response Matrix of an Hexagonal PET Scanner
M. A. Belzunce[1,2], C. A. Verrastro[1,2]
[1]*CNEA, Argentina;* [2]*UTN-FRBA, Argentina*

M10-32 A Concurrent, Object-Oriented API for Statistical Image Reconstruction
F. R. Rannou, C. Giha, *Universidad de Santiago de Chile, Chile*; A. Iriarte, *Universidad San Pablo CEU, Spain*

M10-33 Gated Reconstruction for PET Scan with Continuous Bed Motion
J. Hu, V. Y. Panin, F. Kehren, M. E. Casey, *Siemens, USA*

M10-34 Spatially Variant Resolution Modelling Using Redistributed Lines-of-Response and the Image Space Reconstruction Algorithm
M. G. Bickell[1], J. Gillam[2], R. Fulton[2], J. Nuyts[1]
[1]*KULeuven, Belgium;* [2]*University of Sydney, Australia*

M10-35 Could Simultaneous Reconstruction of Multiple Bed Positions Have Benefits in Whole-Body PET ?
S. Stute, C. Comtat, *CEA/I2BM, France*

M10-36 Image Quality Comparison of Reconstruction Using Total Variation-Based Regularizers
J. Zhang[1], S. Li[2], E. Lipson[1], C. Schmidtlein[3], D. Feiglin[4], Y. Xu[2], A. Krol[4]
[1]*Syracuse University, United States;* [2]*Sun Yatsen University, China;* [3]*Memorial Sloan-Kettering Cancer Center, United States;* [4]*SUNY Upstate Medical University, United States*

M10-37 Revisit of the Ramp Filter
G. Zeng[1,2]
[1]*Weber State University, USA;* [2]*University of Utah, USA*

M10-38 Dictionary Learning Based Panel PET Image Reconstruction
X. Cao, X. Peng, Q. Xie
Huazhong University of Science and Technology, China

M10-39 Efficient Bregman Iteration in Fully 3D PET
L. Szirmay-Kalos, B. Toth, *Budapest University of Technology and Economics, Hungary*; G. Jakab, *Mediso Ltd., Hungary*

M10-40 Joint Region-of-Interest Activity and Alignment Estimation in Emission Tomography
J. L. Nuyts, A. Rezaei, *K.U.Leuven, Belgium, Belgium*

M10-41 Comparison of Two Projectors with Image-Based Resolution Models in a Fully 3D List-Mode PET Reconstruction
H. Ye[1], X. Niu[1], C. Ji[1], T. Xia[1], E. Asma[1], M. Winkler[2], W. Wang[1], D. Gagnon[1]
[1]*Toshiba Medical Research Institute USA, Inc., United States;* [2]*Steinberg Diagnostic Medical Imaging, United States*

M10-42 Low Frequency Cone-Beam Artifacts Reduction Using Iterative Reconstruction Algorithm
Q. Tang, Z. Yu, S. Nakanishi
Toshiba Medical Research Institute, USA, USA

M10-43 The Long Object Imaging Problem in Volumetric CT Using Iterative Reconstruction Algorithm, Revisited
D. Shi, *Toshiba medical research institute, USA, Inc., USA*

M10-44 Image Reconstruction Methods for I-123 DaTscan Imaging Using a Multi-Pinhole and Fan Collimator Dual-Headed SPECT System
J. M. Mukherjee[1], J. Dey[2], M. King[1]
[1]*University of Massachusetts, United States;* [2]*Passport Systems Inc, US*

M10-45 Preliminary Investigation on Algorithm-Enabled PET-Configuration Design
Z. Zhang, B. Chen, C.-M. Kao, E. Y. Sidky, X. Pan
University of Chicago, USA

M10-46 Performance of Primal-Dual Algorithms for Multi-Channel Image Reconstruction in Spectral X-Ray CT
J. Niesen, A. Sawatzky

Institute for Computational and Applied Mathematics, University of Muenster, Germany

M10-47 Detector Response Modeling with Asymmetric 2D Gaussian Functions for GPU-Based Image Reconstruction of the Whole-Body Dual-Ring OpenPET

H. Tashima, E. Yoshida, T. Shinaji, T. Yamaya

National Institute of Radiological Siences, Japan

M10-48 An Efficient Ordered Subsets CT Image Reconstruction Algorithm for Sparse-View, Noisy Data

S. Rose[1], M. S. Andersen[2], E. Y. Sidky[1], X. Pan[1]

[1]University of Chicago, USA; [2]Technical University of Denmark, Denmark

M10-49 Investigation of Super-Sampling Techniques with Blob-Based Super-Resolution Reconstructions for PET Imaging

Y. Li, S. Matej, J. S. Karp, S. D. Metzler

University of Pennsylvania, USA

M10-50 Basis-Image Reconstruction Directly from Sparse-View Data in Spectral CT

B. Chen, Z. Zhang, X. Han, E. Sidky, X. Pan

The University of Chicago, USA

M10-51 Improving Lesion Detectability in Breast Cancer by Optimizing PET Imaging Time

K. A. Wangerin[1,2], R. M. Manjeshwar[2], L. M. Peterson[1,3], M. Muzi[1], F. O'Sullivan[4], H. M. Linden[3], D. M. Mankoff[5], P. E. Kinahan[1]

[1]University of Washington, United States; [2]General Electric Global Research Center, United States; [3]Seattle Cancer Care Alliance, United States; [4]University of Cork, Ireland; [5]University of Pennsylvania, United States

M10-52 Direct EM Reconstruction of Kinetic Parameters from List-Mode Cardiac PET

M. Germino, A. J. Sinusas, C. Liu, R. E. Carson

Yale University, US

M10-53 Posterior Analysis of Compartmental Kinetic Modeling in PET

A. Sitek[1,2], M. F. Kijewski[3,2], M.-A. Park[3,2], H. Pan[3,2], M. J. Coleman[3], J. I. Epstein[3,2], A. P. Belanger[3,2], S. Dubey[3,2], L. Leung[3], M. Y. Giwerc[3], K. Green[3], B. A. Dahlben[3], E. S. Fredman[3], R. L. Cohn[3], S. Wang[3], J. Semer[3], W. Sticka[3], K. Seaver[3], J. M. Paolino[3], G. El Fakhri[1,2], R. D. Zafonte[3,4,2], M. E. Shenton[5,3,2], E. Stern[3,2]

[1]Massachusetts General Hospital, USA; [2]Harvard Medical School, USA; [3]Brigham and Women's Hospital, USA; [4]Spaulding Rehabilitation Hospital, USA; [5]VA Boston Healthcare System, USA

M10-54 Comprehensive Modeling of Spatiotemporal FDG Distribution in Solid Tumors Based on the Diffusion-Convection-Reaction Equation

M. Soltani, M. Sefidgar, M. E. Casey, R. M. Subramaniam, R. L. Wahl, A. Rahmim

Johns Hopkins University, US

M10-55 CardioViewer: A Novel Modular Software Tool for Integrating Cardiac Electrophysiology Voltage Measurements and PET/SPECT Data

M. F. Smith[1], X. Gibert-Serra[2], F. Arrate[2], R. Chellappa[2], K. Chodnicki[1], J. Tian[3], T. Dickfeld[1], V. Dilsizian[1]

[1]University of Maryland School of Medicine, USA; [2]University of Maryland, College Park, USA; [3]Consultant, USA

M10-56 Pressure Distribution Simplified Algorithm Using Plantar Scanned Images

L. D. L. Narciso[1,2], G. Chungath[3]

[1]National Counsel of Technological and Scientific Development (CNPq), Brazil; [2]Pontifical Catholic University from Rio Grande do Sul (PUCRS), Brazil; [3]Centennial College, Canada

M10-57 Alpha Divergence Based Registration of Dynamic Scans for MR Cystography

H. Han[1], Q. Lin[2], L. Li[3], C. Duan[4], H. Li[1], J. Fitzgerald[1], Z. Liang[1]

[1]Stony Brook University, USA; [2]Southwest Institute of Electronic Technology of China, China; [3]City University of New York - CSI, USA; [4]Tsinghua University - The Graduate School at Shenzhen, China

M10-58 Modeling Amyloid Imaging Data to Determine an Ideal Cutoff and Reference Region

S. L. Baker, S. Landau, S. Marks, *Lawrence Berkeley National Lab, United States*; W. J. Jagust, *University of California, Berkeley, United States*

M10-59 DSP Based Real Time 3D Adaptive Filtering for Portable Medical Imaging Systems

O. Bockenbach[1], M. Ali[2], I. Wainwright[3], M. Nadeski[1]

[1]TechGmbh.com, Germany; [2]Texas Instruments, USA; [3]ContextVision, Sweden

M10-60 Study on the Conformal Conversion in the Open Electrical Impedance Tomography

P. M. Yan, J. H. Yao, R. A. Payne, H. J. Jia, L. Jin

Shanghai University, China

M10-61 Ant Colony Segmentation Approach for Volume Delineation in PET

M. Hafri, D. Visvikis, H. Fayad

INSERM UMR1101, Universite de Bretagne Occidentale, LaTIM, France

M10-62 Multiple Kernel Learning with Adaptive Kernel Method for Computer-Aided Detection of Colonic Polyps

M. Ma[1], H. Wang[2], B. Song[1], Y. Hu[1], X. Gu[1], Z. Liang[1]

[1]Stony Brook University, United States; [2]Beihang University, China

M10-63 Automatic Detection of the Circular Region of Interest (ROI) for a Novel Patient Dose Reduction Technique in Fluoroscopic-Guided Interventions
S. V. Setlur Nagesh, C. N. Ionita, D. R. Bednarek, S. Rudin
Toshiba Storke and Vascular Research Center, USA

M10-64 An Automated Algorithm for Liver Recognition in PET Scans
E. Bertone[1], F. Bergesio[1], A. Terulla[1], G. Boretto[1], P. Cerello[2], S. Chauvie[1]
[1]Medical Physics Unit, Santa Croce e Carle Hospital, Cuneo, Italy., Italy; [2]INFN, Torino, Italy, Italy

M10-65 Towards Dose Reduction for Dual-Energy CT: a Non-Local Image Optimization Method and Its Application
J. Hao, *National Energy Administration, China*; L. Zhang, K. Kang, *Tsinghua University, China*

M10-66 Spatial and Temporal Processing for Functional Imaging Probes
M. Jin, C. Zhao, J. Yu, W. Chen, *University of Texas at Arlington, USA*; G. Hao, X. Sun, G. Balch, *University of Texas Southwestern Medical Center, USA*

M10-67 The Development of a Tool to Semi-Automatically Perform Image Quality Evaluation
F. Gao, G. Bal, D. Manthey, F. Kehren, C. Watson
Siemens Medical Solutions, USA

M10-68 Line-Ratio Based Ring Artifact Removal in Computed Tomography
Y. Kim, D. Hwang, *Yonsei University, Korea*

M10-69 Weighted Retinex Algorithm Based on Histogram for Dental CT Image Enhancement
T.-Y. YangDai, L. Zhang, *Tsinghua University, China*

M10-70 Adaptive Filtering on Conditional Mutual Information for Intermodal Non-Rigid Image Registration
J. Y. Song, J. A. Fessler, C. R. Meyer
University of Michigan, USA

M10-71 Simulation Study of a Pinhole SPECT System with a Triple Head Gamma Camera
Y. Ichimura, K. Ogawa
Graduate School of Engineering, Hosei University, Japan

M10-72 Effect of Angular Distribution and Collection of Scintillation Photons on PET Detectors Timing Resolution
E. Roncali[1], C. L. Kim[2], D. L. McDaniel[2], C. Bircher[3], S. R. Cherry[1]
[1]University of California-Davis, USA; [2]General Electric Healthcare, USA; [3]GE Global Research, USA

M10-73 Monte Carlo Simulations of the GE Discovery Alcyone CZT SPECT system
M. Ljungberg[1], P. Fan[2,3], C. Liu[3], P. H. Pretorius[4]
[1]Lund University, Sweden; [2]Tsinghua University, China; [3]Yale University, USA; [4]University of Massachusetts Medical School, USA

M10-74 A Heuristic Function for Modelling Scintillation Pulses and Other Phenomena of Interest in Medical Imaging
S. B. Siegel, L. A. Eriksson, *Siemens, USA*; C. L. Melcher, *University of Tennessee, USA*

M10-75 Simulations of a Combined Fan-Beam and Multi-Pinhole SPECT System for Clinical I-123 DaTscan Imaging
A. Konik[1], J. De Beenhouwer[2], J. M. Mukherjee[1], M. A. King[1]
[1]University of Massachussets Medical School, USA; [2]University of Antwerp, Belgium

M10-76 Monte Carlo Dose Simulation for Automatic Exposure Control Technique of CT System
Y. Huh, J. Kim, J. Kim, C.-L. Lee, J. Jung, J. Yi, I. Seong
Health and Medical Equipment Business, Samsung Electronics Co., LTD., Korea

M10-77 Geant4 and Beyond: Precision Physics Modeling and Validation
M. G. Pia[1], M. Batic[2], M. Begalli[3], M. C. Han[4], S. Hauf[5], G. Hoff[6], C. H. Kim[4], H. S. Kim[4], S. H. Kim[4], M. Kuster[5], P. Saracco[1], G. Weidenspointner[5]
[1]INFN Genova, Italy; [2]Sinergise, Slovenia; [3]UERJ, Brazil; [4]Hanyang University, Korea; [5]XFEL GmbH, Germany; [6]PUCRS, Brazil

M10-78 Validation of Convolution Based Forced Detection SIMIND Using GATE
M. I. Karamat[1], T. H. Farncombe[1,2]
[1]McMaster University, Canada; [2]Hamilton Health Sciences, Canada

M10-79 Automated PET Detector Optimization with a Genetic Algorithm
B. McIntosh[1], J. D. Fiege[1,2], S. Pistorius[1], A. L. Goertzen[1]
[1]University of Manitoba, Canada; [2]NQube Technical Computing, Canada

M10-80 Monte Carlo Simulation of a Continuous Crystal Coupled to a SiPM Array
A. Etxebeste[1], J. Cabello[2], J. Barrio[1], C. Lacasta[1], J. F. Oliver[1], M. Rafecas[1], C. Solaz[1], G. Llosá[1]
[1]Instituto de Física Corpuscular (CSIC/UV), Spain; [2]Klinikum rechts der Isar, Technische Universitaet Muenchen, Germany

M10-81 Scatter Feature of a Positron Imager with Dual Plane Geometry
Y. C. Ni[1,2], K. S. Chuang[2], H. H. Lin[2], Z. K. Lin[1], W. B. Lin[1], J. C. Lin[1], M. L. Jan[1]
[1]Institute of Nuclear Energy Research, Taiwan; [2]National Tsing-Hua University, Taiwan

M10-82 Validation of GATE Optical Transportation with Experimental Single Scintillator Dual-End Readout Data
Y. Zhang, H. Baghaei, W.-H. Wong
University of Texas MD Anderson Cancer Center, USA

M10-83 A Simple Semi-Empirical Model for Positron Annihilation Non-Collinearity Based on quadHIDAC Measurements

D. Vernekohl[1], K. Schäfers[2], J. Wessels[1]

[1]Institute for Nuclear Physics, WWU Muenster, Germany; [2]European Institute for Molecular Imaging, Muenster, Germany

M10-84 Fast and Accurate Detector Module Crystal Blur and Mis-Position Error Modeling for PET Imaging

T. Xia[1], H. Du[1], W. Wang[1], K. Burr[1], J. Zhou[2], K. Balakrishnan[1], H. Ye[1], X. Niu[1], C. Ji[1], E. Asma[1], J. Qi[2], D. Gagnon[1]

[1]Toshiba Medical Research Institute USA, Inc., USA; [2]University of California Davis, USA

M10-85 Comparison of Different Approaches for System Matrix Calculation for PET Systems with VP-PET Insert Detector

S. A. Komarov, Y.-C. Tai

Washington University in St.Louis, USA

M10-86 Simulation Study of a Novel SPECT Design Using a Variable Pinhole Collimator

H. Lee, S. Bae, J. Bae, H. Cha, K. Lee

Korea University, Korea

M10-87 MRI-Based Pseudo-CT Generation Using Sorted Atlas Images in Whole-Body PET/MRI

H. Arabi, H. Zaidi

Division of Nuclear Medicine & Molecular Imaging, Switzerland

M10-88 Sparse-View Image Reconstruction with Nonlocal Total Variation

H. Zhang, B. Yan, L. Wang, L. Li, X. Xi, G. Hu

National Digital Switching System Engineering and Technological Research Center, China

M10-89 Impact of Respiratory Motion Correction on Diagnostic Accuracy of Myocardial Perfusion SPECT

I. Polycarpou[1], I. Chrysanthou[2], O. Demetriadou[3], Y. Parpottas[2,4], P. K. Marsden[1], L. Livieratos[1]

[1]King's College London, UK; [2]Frederic Research Center, Cyprus; [3]Limassol General Hospital, Cyprus; [4]Frederic University Nicosia, Cyprus

M10-90 Quantitative Performance of Iterative Algorithms, with and Without PSF and TOF, in the Conditions of a Dynamic Cardiac 13N-Ammonia Study.

L. Presotto[1,2], V. Bettinardi[2]

[1]institute of molecular bioimaging and physiology, Italy; [2]San Raffaele Scientific Institute, Italy

M10-91 The Application of KL Transform in Feature Extraction and Selection

Y. Hu, B. Song, M. Ma, Z. Liang, Stony Brook University, US

M10-92 Efficient Tracking of Active Marker for Head Motion Correction in Simultaneous PET-MR

C. Huang[1,2], T. G. Reese[2,1], J. L. Ackerman[2,1], Y. Petibon[1], G. El Fakhri[1,2], J. Ouyang[1,2]

[1]Massachusetts General Hospital, USA; [2]Harvard Medical School, USA

M10-93 Accelerated Acquisition of Tagged MRI for Cardiac Motion Correction in Simultaneous PET-MR: a Phantom and Patient Study

C. Huang[1,2], Y. Petibon[1], J. Ouyang[1,2], T. G. Reese[2,1], M. Ahlman[3], D. Bluemke[3], G. El Fakhri[1,2]

[1]Massachusetts General Hospital, USA; [2]Harvard Medical School, USA; [3]National Institutes of Health - Clinical Center, USA

M10-94 A Novel Generalized Total Effective Entrapment Metric to Quantify Tumor Burden in PET Imaging for Clinical Outcome Prediction

A. Rahmim[1], C. R. Schmidtlein[2], A. Jackson[2], S. Ashrafinia[1], C. Marcus[1], M. Soltani[1], R. Subramaniam[1]

[1]Johns Hopkins University, USA; [2]Memorial Sloan-Kettering Cancer Center, USA

M10-95 Simultaneous Monitoring of PET Image Resolution, Noise, Uniformity and Quantitative Accuracy Using Uniform Cylinder Phantom Measurements in the Multi-Center Setting

A. Rahmim, M. A. Lodge, A. H. Crabb, Y. Zhou, D. F. Wong, R. F. Gottesman

Johns Hopkins University, USA

M10-96 Real-Time PET Reconstruction

I. Hong, W. Luk, V. Panin, C. Watson, F. Kehren, M. Casey

Siemens Healthcare, USA

M10-97 Ultrafast Elastic Motion Correction via Motion Deblurring

I. Hong, J. Jones, M. Casey, Siemens Medical Solutions, USA

M11 MIC Poster Session I - System & Detector Instrumentation I

Thursday, Nov. 13   14:00-15:30   4B

Session Chair: **Robert S. Miyaoka**, University of Washington, United States

M11-1 On Reconstructed PET Image Resolution and the Block Effect

L. A. Eriksson[1,2,3], S. Siegel[1], M. Conti[1]

[1]Siemens Medical Solutions, Molecular Imaging, USA; [2]Scintillation Materials Research Center, USA; [3]University of Stockholm, Sweden

M11-2 A Digital PET System based on SiPMs and FPGA-only MVT Digitizers

D. Xi[1,2], C. Zeng[1], X. Mei[1], L. Wan[1,3], X. Liang[1], W. Liu[1], X. Liu[1], H. Kim[4], P. Xiao[1,3], C.-M. Kao[4], Q. Xie[1,3]

[1]Huazhong University of Science & Technology, China; [2]Raycan Technology Co., Ltd (Suzhou), China; [3]Wuhan National Laboratory for Optoelectronic, China; [4]University of Chicago, US

M11-3 Evaluation of 57Co Flood Source Purity with PET

F. P. DiFilippo, Cleveland Clinic, USA

M11-4 Examination of Spatial Covariance Characteristics in a Collection of 3-D PET scanners used in Clinical Imaging Trials

T. Mou[1], J. Huang[1], B. Elston[2], P. Kinahan[2], M. Muzi[1], A. Opanowski[3], Y. Zhang[1], F. O'Sullivan[1]

[1]University College Cork, Ireland; [2]University of Washington, USA; [3]ACRIN, USA

M11-5 A PET/MR Compatible Device for Production of Radiowater

H. T. Sipila[1], V. Haaslahti[2], V. Saunavaara[1], M. Teras[1]

[1]Turku University Hospital, Finland; [2]Hidex Oy, Finland

M11-6 Disjunct Matrices for Multiplexing PET Detector Signal Readout

G. Chinn[1,2], C. S. Levin[1,2,3,4]

[1]Stanford School of Medicine, USA; [2]Molecular Imaging Program at Stanford, USA; [3]Stanford Unversity, USA; [4]Stanford University, USA

M11-7 Development of a Singles-Based Scalable Data Acquisition System for the Whole-Body OpenPET

E. Yoshida[1], K. Shimizu[2], T. Shinaji[1], F. Nishikido[1], T. Yamaya[1]

[1]National Institute of Radiological Sciences, Japan; [2]Hamamatsu photonics. K.K., Japan

M11-8 Development of the New Method of Measuring ToF with MPPC

T. Tsujikawa, J. Kataoka, T. Ambe, T. Fujita, Y. Kurei, T. Nishiyama, *Waseda Univ., Japan*; S. Nakamura, T. Kato, *Hamamatsu Photonics K.K., Japan*

M11-9 3-D Photon Impact Determination Using Fitting Approaches to the Light Distribution

P. Conde[1], A. J. González[1], A. Iborra[1], C. Correcher[2], L. Hernández[1], P. Bellido[1], E. Crespo[1], J. P. Rigla[1], M. J. Rodríguez-Álvarez[1], F. Sánchez[1], M. Seimetz[1], A. Soriano[1], L. F. Vidal[1], J. M. Benlloch[1]

[1]Instituto de Instrumentación para Imagen Molecular (I3M), Spain; [2]Oncovision, GEM Imaging S.A., Spain

M11-10 Continuous Bed Motion in TOF PET: Finer Planar Sampling and Axial Image Resolution

W. F. Jones, W. Luk, *Siemens Medical Solutions, USA*

M11-11 ROCSTAR: Data Acquisition Electronics for TOF PET

B. C. LeGeyt, W. J. Ashmanskas, J. Dormer, S. Krishnamoorthy, J. S. Karp, S. Surti

university of pennsylvania, USA

M11-12 Comparative Timing Measurements of LYSO and LFS to Achieve the Best Coincidence Time Resolution for Time Of Flight-PET.

K. Doroud[1], A. Rodriguez[1,2], M. C. S. Williams[1,3], A. Zichichi[1,2,3], R. Zuyeuski[1,2]

[1]CERN, Switzerland; [2]World Laboratory, Switzerland; [3]INFN, Italy

M11-13 Maximum Likelihood Estimation of Inter-Crystal Scattering events for Light Sharing PET Detectors

K. Shinohara[1], M. Suga[1], E. Yoshida[2], F. Nishikido[2], N. Inadama[2], H. Tashima[2], T. Yamaya[2,1]

[1]Chiba University, Japan; [2]National Institute of Radiological Sciences, Japan

M11-14 Evaluation of SiPM Photodetectors for Use in Phoswich Detectors

G. R. Schellenberg[1], A. L. Goertzen[1,2]

[1]University of Manitoba, Canada; [2],

M11-15 Depth of Interaction Calibration and Capabilities in 2x2 Discrete Crystal Arrays and Digital Silicon Photomultipliers

A. L. Lehnert, W. C. J. Hunter, T. K. Lewellen, R. S. Miyaoka

University of Washington, USA

M11-16 Development of 3D-PET with wavelength shifting fiber

H. Ito, S. Han, S. Iijima, H. Kawai, S. Kodama, D. Kumogoshi

Graduate School of Science, Chiba Univ., japan

M11-17 Experimental and Theoretical Study of Positron Emission Tomography for Multiple Molecular Imaging

T. Fukuchi[1], T. Hanada[2], H. Haba[1], Y. Watanabe[1], S. Enomoto[1,2]

[1]RIKEN, Japan; [2]Okayama University, Japan

M11-18 phenoPET: a Dedicated PET Scanner for Plant Research Based on Digital SiPMs (DPCs)

M. Streun[1], S. Beer[1], J. Daemen[1], C. Degenhardt[2], R. Dorscheid[2], A. Erven[1], S. Reinartz[2], L. Jokhovets[1], N. B. Mekala[1], L. Meessen[2], O. Muelhens[2], H. Noeldgen[1], M. Pap[1], M. Ramm[1], J. Scheins[1], N. Schramm[1], B. Zwaans[2], G. Kemmerling[1], Y. Haemisch[2], S. Jahnke[1], U. Schurr[1], S. van Waasen[1]

[1]Forschungszentrum Jülich, Germany; [2]Philips Digital Photon Counting, Germany

M11-19 Optimisation of IQ.SPECT in Myocardial Perfusion Imaging: Comparison with Conventional SPECT and Echocardiography Imaging

E. Joel, Y. Bouchareb, A. Haroon, M. Luqman, M. S. Newell, H. Jan

Barts Health NHS Trust, UK

M11-20 Comparison of SBP and TMBP Positioning Algorithms Implemented on an FPGA Platform for Continuous Miniature Crystal Element PET Detectors

L. S. Jorge, D. A. B. Bonifacio, *IRD/CNEN, Brazil*; D. DeWitt, R. S. Miyaoka, *University of Washington, USA*

M11-21 High Sensitivity Collimators for Optimising Lesion Detection in SPECT Images

K. Kacperski[1], D. Switlik[1], J. Pietrzak[1,2]

[1]The Maria Sklodowska - Curie Memorial Cancer Centre and Institute of Oncology, Poland; [2]University of Warsaw, Poland

M11-22 Timing Performance of a Time-of-Flight PET System Based on High Quantum Efficiency MA-PMT and FPGA-Based TDC

J.-W. Son, J. Y. Won, G. B. Ko, H. S. Yoon, J. S. Lee

Seoul National University, South Korea

M11-23 Multiplexing Silicon Photomultiplier (SiPM) Arrays for SPECT

D. M. Khan, T. H. Farncombe, *McMaster University, Canada*

M11-24 Evaluation of Stationary and Semi-Stationary Acquisitions in a Dual-Head Multi-Pinhole System for Myocardial Perfusion SPECT

P. Yan, L. Chen, G. S. P. Mok, *University of Macau, China*

M11-25 Progress in Scalable PET System for Plant Biology

S. Lee, H. Dong, J. McKisson, J. E. McKisson, A. G. Weisenberger
Thomas Jefferson National Accelerator Facility, US

M11-26 A Compact SiPM Photodetector Array for SPECT Applications

M. Occhipinti[1,2], P. Busca[1,2], A. D. Butt[1,2], G. Cozzi[1], C. E. Fiorini[1,2], I. Perali[1,2], F. Acerbi[3], A. Ferri[3], A. G. Gola[3], C. Piemonte[3]
[1]*Politecnico di Milano, Italy;* [2]*Istituto Nazionale Fisica Nucleare, Italy;* [3]*Fondazione Bruno Kessler, Italy*

M11-27 Firmware and Software Framework of OpenPET Electronics System for Radiotracer Imaging

Q. Peng, G. M. M. Netscher, J. S. Huber, C. Q. Vu, W. Moses, W.-S. Choong
Lawrence Berkeley National Laboratory, USA

M11-28 Simulations, Testing and Results for the Pixelation of LYSO Crystals for Gamma Detectors Using SSLE Techniques

G. D. Konstantinou[1], R. Chil[1], J. Ripoll[1,2], J. M. Udias[3], M. Desco[1,2], J. J. Vaquero[1,2]
[1]*Universidad Carlos III de Madrid, Spain;* [2]*Instituto de Investigacion Sanitaria Gregorio Maranon, Spain;* [3]*Universidad Complutense de Madrid, Spain*

M11-29 Quantitative Evaluation of Improved Detector Scatter Correction for Wire Chamber based Small Animal PET Scanners

M. Dawood, D. Vernekohl, F. Buether, F. Wuebbeling, K. P. Schaefers
University of Muenster, Germany

M11-30 Characterization of a Linearly-Graded Silicon Photomultiplier (LG-SiPM) for High Resolution Small-Animal PET

J. Du[1], Y. Yang[1], X. Bai[1], A. Gola[2], C. Piemonte[2], S. R. Cherry[1]
[1]*University of California, Davis, USA;* [2]*Fondazione Bruno Kessler (FBK), Italy*

M11-31 Implanting a Simple Device to Facilitate Longitudinal Quantitative MicroPET Imaging in Rat

H.-M. Wu[1], M.-L. Tsai[1], C.-C. Huang[1,2]
[1]*Fu-Jen Catholic University, Taiwan;* [2]*Cathay General Hospital, Taiwan*

M11-32 Optimization of Axial Helical Movement Sampling Parameters for an Animal SPECT with Slit-Slat Collimator

S. Wang[1,2], R. Yao[3], T. Ma[1,2]
[1]*Tsinghua University, China;* [2]*Ministry of Education, China;* [3]*SUNY at Buffalo, USA*

M11-33 PET Reconstruction of Freely-Moving Mice Comprising Registration-Based Motion-Correction of Internal Structures

D. Mannweiler, J. Rasch, S. Schmid, F. Wübbeling, K. P. Schäfers
European Institute for Molecular Imaging, Germany

M11-34 Development of MR Compatible Small Animal PET Insert Utilizing High Resolution Event Positioning Circuit

S. Lee, Y. Choi, J. H. Jung, J. Choi
Sogang University, South Korea

M11-35 Extraction of High-Contrast Anatomical Elements in Small-Animal X-Ray Tomosynthesis

H. Barquero[1,2], D. Brasse[1]
[1]*Université de Strasbourg / IPHC - CNRS, France;* [2]*Biospace Lab, France*

M11-36 Phantom-Based Correction of Geometric Distortions in Whole-Body Small Animal PET-MRI Using 3D Thin-Plate Splines

L. Frohwein[1], V. Hoerr[1], C. Faber[2], K. P. Schaefers[1]
[1]*European Institute for Molecular Imaging, Germany;* [2]*University Hospital of Muenster, Germany*

M11-37 Readout Electronics for a Small-Animal Full-Ring PET Based on SiPM

C. Solaz, A. Etxebeste, G. Llosa, M. Trovato, J. Barrio, C. Lacasta, *Instituto de Física Corpuscular (IFIC - UVEG/CSIC), Spain;* V. Stankova, *Kirchhoff-Institute for Physics, Germany*

M11-38 Towards a High-Resolution Full-Ring Small-Animal PET Based on Continuous LYSO Crystals and SiPMs

J. Barrio[1], J. Cabello[2], A. Etxebeste[1], C. Lacasta[1], J. F. Oliver[1], M. Rafecas[1], C. Solaz[1], V. Stankova[3], G. Llosa[1]
[1]*IFIC (Universitat de Valencia/CSIC), Spain;* [2]*Klinikum rechts der Isar der Technischen Universitat Muenchen, Germany;* [3]*Kirchhoff-Institute for Physics, Germany*

M11-39 A Comparison of Position-Sensitive Avalanche Photodiode and Silicon Photomultipler Readout of Dual-Ended Depth Encoding Detectors for Small-Animal PET

Y. Yang[1], T. Zhang[1], J. Du[1], X. Bai[1], J. P. Schmall[2], P. A. Dokhale[2], J. Christian[2], M. McClish[2], K. S. Shah[2], R. Farrell[2], S. R. Cherry[1]
[1]*University of California at Davis, USA;* [2]*Radiation Monitoring Devices Inc., USA*

M11-40 A 4-Channel Continuous Depth of Interaction PET Detector Based on SiPMs

M. S. Judenhofer, X. Bai, S. R. Cherry
University of California, Davis, USA

M11-41 A DOI Detector with Scatter Identification Capability for High Sensitivity, High Spatial Resolution PET Imaging

Z. Gu, D. L. Prout, R. W. Silverman, H. Herman, A. Dooraghi, A. F. Chatziioannou
UCLA, USA

M11-42 Preliminary results of a depth encoding PET detector with wavelength-shifting (WLS) fibers and SiPM

S. J. An, H.-I. Kim, C. Y. Lee, S.-J. Lee, H. K. Song, J. Lee, Y. H. Chung
Yonsei University, Republic of Korea

M11-43 Characterization of an Ultra-High-Resolution PET Detector Composed of an 8 × 8 TSV-MPPC Array One-to-One Coupled to 1.2-mm Pitch LFS Crystals

R. Yamada, A. Saito, H. Uchida, T. Omura, T. Miwa, M. Watanabe
Hamamatsu Photonics K.K., Japan

M11-44 A New Concept for High Resolution PET Imaging Using Temporal Information

A. Iltis, *Damavan Imaging, France*; H. Snoussi, *University of Technology of Troyes, France*

M11-45 Feasibility of Re-188 Imaging Using a Small Animal SPECT/PET/CT System, the VECTor/CT

P. L. Esquinas, M. Shirmohammad, U. O. Häfeli, V. Sossi, A. Celler
University of British Columbia, Canada

M11-46 Synthetic Sampling for Region of Interest (ROI) Imaging Using an Ultrahigh Resolution Stationary SPECT System

L.-J. Meng, X.-C. Lai
University of Illinois at Urbana-Champaign, USA

M11-47 Building a Better MoUSE Trap

R. S. Miyaoka, W. C. Hunter, A. L. Lehnert
University of Washington, USA

M11-48 Sub-Millimeter PET Detector Based on Monolithic LYSO and Digital Photon Counter for Dedicated Small-Animal System

R. Marcinkowski, R. Van Holen, S. Vandenberghe
MEDISIP, Ghent University-IMinds-IBiTech, Belgium

M11-49 Initial Results and Performance Analyses of a Sub-mm Spatial Resolution Small Animal PET Scanner

B. Ravindranath[1], J. Wen[1], A. J. Mathews[1], K. Li[1], D. Tomov[1], D. Catherall[2], J. A. O'Sullivan[1], Y.-C. Tai[1]
[1]Washington University in St. Louis, USA; [2]Saint Louis University, USA

M11-50 Preliminary Investigation of CBCT Imaging Optimization for Image-Guided Radiation Therapy

J. Bian, G. Sharp, Y. Park, T. Bortfeld, G. El Fakhri
Massachusetts General Hospital, US

M11-51 Comparison of Filtered Backprojection and Iterative Reconstruction for Proton CT Using Most Likely Paths

S. Rit, *Universite de Lyon, France*; D. C. Hansen, *Aarhus University, Denmark*

M11-52 Monitoring Hadron and Y90 Therapies: PET Reconstruction at Extremely Low Counts

M. Conti[1], V. Panin[1], I. Hong[1], T. Carlier[2], K. Parodi[3,4]
[1]Siemens Healthcare Molecular Imaging, USA; [2]University Hospital, France; [3]Heidelberg University Hospital, Germany; [4]Ludwig Maximilians University, Germany

M11-53 High Rate Silicon Tracker for Proton Computed Tomography

T. Kawasaki, T. Izumikawa, J. Goto, *Niigata University, Japan*; Y. Saraya, *National Institute of Radiological Science, Japan*

M11-54 Image-Based Retrospective 4D MRI for Different Anatomical Orientations

C. Paganelli[1], P. Summers[2], M. Bellomi[2,3], G. Baroni[1,4], M. Riboldi[1,4]
[1]Politecnico di Milano, Italy; [2]Istituto Europeo di Oncologia, Italy; [3]Università di Milano, Italy; [4]Centro Nazionale di Adroterapia Oncologica, Italy

M11-55 Development of a dSiPM-based in-room PET system for heavy ion beam range verification

J. H. Kim[1], Y.-S. Kim[1], J. H. Park[1,2], C. H. Kim[1], G. D. Kim[2]
[1]Hanyang University, Korea; [2]Institute for Basic Science, Korea

M11-56 Beam Model Inclusion into Compton Camera Image Reconstruction

P. Solevi[1], I. Torres-Espallardo[2], J. E. Gillam[3], C. Lacasta[1], G. Llosá[1], M. Rafecas[1], C. Solaz[1], M. Trovato[1], J. F. Oliver[1]
[1]IFIC (CSIC/UV), Spain; [2]Hospital La Fe, Spain; [3]Brain and Mind Research Institute (Faculty of Health Sciences), University of Sydney, Australia

M11-57 Commissioning of a Compton Camera Prototype with Electron Tracking Capability

P. G. Thirolf[1], S. Aldawood[1,2], M. Auer[1], M. Böhmer[3], J. Bortfeldt[1], I. Castelhano[1,4], G. Dedes[1], R. Gernhäuser[3], H. v.d. Kolff[1,5], C. Lang[1], L. Maier[3], D. R. Schaart[5], K. Parodi[1]
[1]Ludwig-Maximilians-University Munich, Germany; [2]King Saud University, Saudi Arabia; [3]Technical University Munich, Germany; [4]University of Lisbon, Portugal; [5]Delft University of Technology, the Netherlands

M11-58 A Three Layer Compton Telescope for Dose Monitoring in Hadron Therapy

M. Trovato[1], P. Solevi[1], J. Barrio[1], J. Cabello[2], J. E. Gillam[3], C. Lacasta[1], J. F. Oliver[1], M. Rafecas[1,4], C. Solaz[1], V. Stankova[5], I. Torres-Espallardo[1], G. Llosá[1]
[1]IFIC - CSIC/UV, Spain; [2]Klinikum rechts der Isar der Technischen Universitat Munchen, Australia; [3]Brain and Mind Institute, University of Sydney, Germany; [4]Departamento de Fisica Atomica, Molecular y Nuclear, Universitat de Valencia, Spain; [5]Kirchhoff-Institute for Physics, Germany

M11-59 Diamond Dosimeter Array for Radiotherapy Beam Imaging

M. D. De Falco, *Policlinico Tor Vergata, Italy*; A. Fabbri, *University Roma Tre, Italy*; M. Galasso, *University of Roma Tre, Italy*; M. Marinelli, E. Milani, C. Verona, G. Verona Rinati, *University Tor Vergata, Italy*

M11-60 A Compact in-Beam PET Prototype for Treatment Monitoring: First Tests at CNAO

N. Camarlinghi[1], A. C. Kraan[1], G. Battistoni[2], N. Belcari[1], F. Cappucci[2], M. Ciocca[3], A. Ferrari[4], S. Ferretti[1], A. Mairani[3], S. Molinelli[3], M. Pullia[3], A. Retico[1], P. Sala[2], G. Sportelli[1], A. Del Guerra[1], V. Rosso[1]

[1]University and INFN Pisa, Italy; [2]INFN Milano, Italy; [3]CNAO, Italy; [4]CERN, Switzerland

M11-61 Effects of High Photon Fluence from Therapeutic Radionuclides on Preclinical and Clinical PET Systems

M. Dahlbom[1], E. Mellhammar[2], J. Axelsson[2], T. Tran[2], S.-E. Strand[1,2]

[1]David Geffen School of Medicine at UCLA, USA; [2]Lund University, Sweden

M11-62 Development of a Large Field-of-View Alpha-Particle Imaging System for Alpha Radionuclide Therapy Using Si-PM Arrays

Y. Morishita, S. Yamamoto, *Nagoya University, Japan*; K. Izaki, *Japan Atomic Energy Agency, Japan*; J. H. Kaneko, K. Toi, Y. Tsubota, *Hokkaido University, Japan*

M11-63 Results from a Pre-Clinical Head Scanner for Proton CT

R. P. Johnson, T. Plautz, H. F.-W. Sadrozinski, Senior Member IEEE, A. Zatserklyaniy, *University of California, Santa Cruz, USA*; K. E. Schubert, Senior Member IEEE, M. Witt, B. Schultze, *Baylor University, USA*; V. Bashkirov, R. F. Hurley, R. Schulte, N. Vence, *Loma Linda University Medical Center, USA*; V. Giacometti, *University of Wollongong, Australia*

M11-64 Projection-Based Deformable Registration for Tomographic Imaging in Ion Beam Therapy

C. Gianoli[1,2], G. Fattori[1], M. Riboldi[1,3], I. Rinaldi[2,4], K. Parodi[2,4], G. Baroni[1,3]

[1]Politecnico di Milano, Italy; [2]Heidelberg University Hospital, Germany; [3]National Center for Oncologic Hadrontherapy (CNAO Foundation), Italy; [4]Ludwig Maximilians University, Germany

M11-65 Proton Radiography with Timepix-Based Time Projection Chambers

J. Visser, M. van Beuzekom, T. Klaver, *Nikhef, The Netherlands*; S. Brandenburg, A. K. Biegun, N. Ghazanfari, M.-J. van Goethem, *KVI-CART, The Netherlands*

M11-66 Patient Positioning in Radiotherapy Using Time-of-Flight (ToF) Cameras.

M. Gilles[1], H. Fayad[1,2], P. Miglierini[3], N. Boussion[1,3], O. Pradier[3], S. Scheib[4], L. Cozzi[4], D. Visvikis[1]

[1]Inserm, UMR 1101, France; [2]Université de Bretagne Occidentale, France; [3]CHRU Morvan, France; [4]Varian Medical Systems, Switzerland

M11-67 Particle Range Retrieval in Heterogeneous Phantoms with the Prompt Gamma Timing Method at a Clinical Proton Accelerator

F. Hueso-Gonzalez[1], C. Golnik[1], M. Berthel[1], A. Dreyer[1], W. Enghardt[1,2], F. Fiedler[2], K. Heidel[2], G. Janssens[3], T. Kormoll[1], J. Petzoldt[1], D. Prieels[3], M. Priegnitz[2], K. E. Roemer[2], J. Smeets[3], M. Sobiella[2], F. Vander Stappen[3], A. Wagner[2], D. Weinberger[2], G. Pausch[1]

[1]OncoRay - National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universiï¿½t Dresden, Helmholtz- Zentrum Dresden - Rossendorf, Germany; [2]Helmholtz-Zentrum Dresden - Rossendorf, Germany; [3]Ion Beam Applications SA, Belgium

M11-68 Handheld Scintillation Gamma Locator for Radionuclide Diagnostics

A. K. Yagnyukova, A. I. Bolozdynya, V. V. Sosnovtsev, V. A. Kantserov

National Research Nuclear University, Russia

M11-69 Development of a dual-head mobile DOI-TOF PET system having multi-modality compatibility

Y. Yamakawa, T. Kobayashi, M. Furuta, M. Sato, J. Ohi, H. Tonami, T. Furumiya, T. Tsuda, M. Nakazawa, N. Hashizume, K. Kitamura

Shimadzu Corporation, Japan

M11-70 Quality Control of the LYSO Crystal Matrices, MPPC Arrays, and the Assembled MPPC-Crystal Modules for the External Plate of the EndoTOFPET-US System

F. Ben Mimoun[1], D. Cortinovis[2], K. Doroud[1], Z. Liu[3], P. Lecoq[1], R. Martinez[3], M. Paganoni[3], M. Pizzichemi[3], A. Silenzi[2], C. Xu[2], M. Zvolsky[2], E. Garutti[4], E. Auffray[1]

[1]CERN, Switzerland; [2]DESY, Germany; [3]University of Milano-Bicocca, Italy; [4]University of Hamburg, Germany

M11-71 FPGA-Based Fast Gamma-Ray Time Mark Estimator for Ultra-Miniature Endoscopic PET Applications

T. Gong, S. Mandai, E. Venialgo, A. Carimatto, E. Charbon

Delft University of Technology, the Netherlands

M11-72 An Intraoperative Positron Imaging Probe Based on Silicon Photomultipliers Dedicated to the Control of Tumor Margins During Radioguided Cancer Surgery

S. Spadola, N. Hudin, L. Pinot, B. Janvier, C. Esnault, Y. Charon, M.-A. Duval, M.-A. Verdier, N. Dinu, L. Menard

IMNC, France

M11-73 Intraoperative ?eta- Detecting Probe for Radio-Guided Surgery of Brain Tumors

E. Solfaroli Camillocci[1], G. Baroni[2], F. Bellini[3,4], V. Bocci[4], F. Collamati[3,4], M. Cremonesi[5], E. De Lucia[4], P. Ferroli[6], S. Fiore[4,7], F. Fioroni[8], C. M. Grana[5], E. Grassi[8], M. Iori[8], M. Marafini[9], I. Mattei[4,10], S. Morganti[4], G. Paganelli[11], V. Patera[4,3], A. Pepe[3], L. Piersanti[4,3], L. Recchia[4], A. Russomando[1,3,4], M. Schiariti[6], A. Sarti[4,3], A. Sciubba[4,3], A. Versari[8], C. Voena[4], R. Faccini[3,4]

[1]Istituto Italiano di Tecnologia (IIT), Italy; [2]Politecnico di Milano, Italy; [3]Sapienza Univ. di Roma, Italy; [4]INFN, Italy; [5]Istituto Europeo di Oncologia, Italy; [6]Fondazione Istituto Neurologico Carlo Besta, Italy; [7]ENEA UTTMAT-IRR, Italy; [8]IRCCS-Arcispedale Santa Maria Nuova, Italy; [9]Museo Storico della Fisica e Centro Studi e Ricerche `E. Fermi', Italy; [10]Univ. Roma Tre, Italy; [11]Istituto Scientifico Romagnolo per lo Studio e la Cura dei Tumori, IRST-IRCCS, Italy

M11-74 A Compact Detector Module for Time of Flight PET and the Associated DAQ System

R. Bugalho[1], K. Doroud[2], A. D. Francesco[1], J. A. Neves[1], T. Niknejad[1], C. Ortigao[1], M. Rolo[1], J. C. Silva[1], R. Silva[1], S. Tavernier[1], V. Veckalns[1], C. Zorraquino[1], J. Varela[1]

[1]LIP, Portugal; [2]CERN, Switzerland

M11-75 Implementation of Compton Endoscope with Ohmic-Type Semiconductor Detectors for Intra-operative Lymph Node Metastasis Detection

Y. Nakamura, K. Shimazoe, H. Takahashi
The University of Tokyo, Japan

M11-76 Development of a GSO Dual-Layer Phoswich Intraoperative Positron Probe for the Use of Radio-Guided Surgery

H. Watabe, G. Watanabe, M. Miyake, *Tohoku University, Japan*; S. Yamamoto, *Nagoya University, Japan*

M11-77 A Feasibility Study of Intraoperative near-Infrared Fluorescence and Gamma Imaging System with CCD Camera

H. G. Kang[1], G. C. Hong[1,2], H. S. Lee[1], H. Y. Lee[3], K. M. Kim[4], S. J. Hong[1]
[1]Eulji University, Korea; [2]Samsung Medical Center, Korea; [3]Seoul Nat'l University College of Medicine, Korea; [4]Korea Institute of Radiological and Medical Science, Korea

M11-78 A Feasibility Study of PET/MRI Insert Detector Using Strip-Line and Waveform Sampling Data Acquisition

H. Kim[1], C.-T. Chen[1], N. Eclov[1], A. Ronzhin[2], E. Ramberg[2], S. Los[2], P. Murat[2], A. M. Wyrwicz[3], L. Li[3], H.-T. Chen[1], C.-M. Kao[1]
[1]University of Chicago, United States; [2]Fermi National Accelerator Laboratory, United States; [3]NorthShore University HealthSystem Research Institute, United States

M11-79 MR Performance Comparison of a PET/MR System Before and After SiPM-Based Time-of-Flight PET Detector Insertion

M. M. Khalighi[1], G. Delso[2], S. H. Maramraju[1], T. W. Deller[1], C. S. Levin[3]
[1]GE Healthcare, USA; [2]GE Healthcare, CH; [3]Stanford University, USA

M11-80 Attenuation Correction Maps for PET/MR Brain Images Based on Neural Network with Multimodal Input Information

E. Rota Kops[1], A. F. Santos Ribeiro[2], N. A. da Silva[1], H. Hautzel[3], N. J. Shah[1]
[1]Research Center Juelich, Germany; [2]Imperial College London, UK; [3]Heinrich-Heine-University Duesseldorf, Germany

M11-81 A Novel Brain PET Insert for the MINDView Project

A. J. Gonzalez[1], F. Sanchez[1], P. Conde[1], S. Aussenhofer[2,3], D. Gareis[2], R. Pani[4], R. Pellegrini[4], M. Bettiol[4], A. Fabbri[4], S. Majewski[5], A. Stolin[5], J. Bert[6], D. Visvikis[6], J. M. Benlloch[1]
[1]Institute for Instrumentation in Molecular Imaging, Spain; [2]NORAS MRI products GmbH, Germany; [3]C.J. Gorter Center for High Field MRI, The Netherlands; [4]Sapienza University of Rome, Italy; [5]West Virginia University, USA; [6]Universityé de Bretagne Occidentale, France

M11-82 Basic Evaluation of Three-Dimensional Position Sensitive CdTe Detector Unit for Clinical Use of Ultra-High Resolution Human PET Scanner

S. Takyu, K. Ishii, Y. Kikuchi, A. Terakawa, S. Matsuyama, A. Ahmed, T. Matsuyama
Tohoku University, JAPAN

M11-83 Precise Timing Resolution Measurements of GSO Scintillators with Different Ce Concentration Combined with Silicon Photomultipliers

S. Yamamoto[1], N. Kato[1], J. Y. Yeom[2], T. Kobayashi[1], S. Okumura[1], N. Shimura[3], H. Ishibashi[3]
[1]Nagoya University Graduate School of Medicine, Japan; [2]Kumoh National institute of Technology, South Korea; [3]Hitachi Chemical, Japan

M11-84 New Dry Process to Fabricate Anodes on CZT Detectors for Improving Performances and Long-Term Reliability and Stability

A. Shahar, P. Rusian, G. Yaron, J. Levy
GE Healthcare DCD-CoE, Israel

M11-85 Design, Simulation, and Fabrication of a "Smart" Active Pixel Sensor for High-Resolution and Low-Dose X-Ray Imaging

H. Ou[1], L. Wang[1], J. Chen[1], K. Wang[2,3]
[1]Sun Yan-sen University, China; [2]Sun Yan-sen University-Carnegie Mellon University Joint Institute of Engineering, China; [3]Sun Yan-sen University-Carnegie Mellon University Shunde International Joint Research Institute, China

M11-86 Energy-Resolved X-Ray Computed Tomography Using a Current-Mode Two-Dimensional Detector

I. Kanno, Y. Yamashita, T. Ogawa, E. Kanai, M. Kitahara, *Department of Nuclear Engineering, Kyoto University, Japan*; K. Shinsho, *Graduate School of Human Health Sciences, Tokyo Metropolitan University, Japan*; M. Ohtaka, M. Hashimoto, K. Ara, *Japan Atomic Energy Agency, Japan*; H. Onabe, *Raytech Corporation, Japan*

M11-87 HEMT-Based Photon-Counting Energy-Resolving Ultra-Fast X-Ray Detector with Improved Sensitivity

M. G. Ertosun, C. S. Levin, *Stanford University, USA*

M11-88 Comparative Study of Differently Fabricated Novel Ceramic Garnet Scintillators (GLuGAG:Ce) for Positron Emission Tomography

S. I. Kwon[1], S. Takyu[1], G. Baldoni[2], Y. Wang[2], M. S. Judenhofer[1], Y. Yang[1], K. S. Shah[2], S. R. Cherry[1]
[1]University of California, Davis, USA; [2]Radiation Monitoring Devices, Inc., USA

M11-89 Development of a SiPM Based MR-Compatible DOI-TOF-PET Detector

T. Furumiya, T. Tsuda, H. Tonami, M. Satoh, M. Nakazawa, J. Ohi, K. Kitamura
Shimadzu Corporation, Japan

M11-90 Development of a Gamma-Ray Detector Based on 1mm Pixel GAGG:Ce Scintillators Coupled to a Silicon Photomultiplier Array

S. L. David[1], M. Georgiou[2], E. Fysikopoulos[3], G. Loudos[1]
[1]Technological Educational Institute (TEI) of Athens, Greece; [2]University of Thessaly, Greece; [3]National Technical University of Athens, Greece

M11-91 Novel Cost-Effective and High-Performance Modular Detector for Emission Tomography Systems

H. Sabet[1,2], G. El-Fakhri[1,2]
[1]Harvard Medical School, USA; [2]Massachusetts General Hospital, USA

M11-92 The Focal Spot Model Based High Spatial Resolution Iterative Reconstruction Method for a Dual-Focus CT

M. Chang[1,2], Y. Xiao[1,2], Z. Chen[1,2]

[1]Tsinghua University, China; [2]Ministry of Education, China

M11-93 A Non-Destructive Scattering Technique for Measurement of Pulmonary Edema and Mandibular Bone Density

B. S. Sandhu, *Punjabi University, India*

M11-94 Large View X-Ray Imaging for Oversized Sample with the Grating Interferometry

X. Zhu[1,2], L. Zhang[1,2], X. Jiang[1,2], R. Zhang[1,2]

[1]Tsinghua University, China; [2]Key Laboratory of Particle and Radiation Imaging (Tsinghua University), Ministry of Education, China

M11-95 An Image-Based Approach for Reducing Metal Artifacts in CT

R. D. Pua, G. Cho, S. Cho, *KAIST, South Korea*

M11-96 Protocol Optimization for Chest Digital Tomosynthesis

E. Roberto, A. Terulla, F. Bergesio, E. Bertone, G. Boretto, S. Chauvie

Santa Croce and Carle Hospital, Italy

M11-97 Statistical Analysis of External Respiratory Motion Using Microsoft Kinect

F. Tahavori, K. Wells, *University of Surrey, UK*

M11-98 Drastic Performance Improvement of a Polychromatic Cone-Beam X-Ray Fluorescence Computed Tomography (XFCT) System Using a Kilowatt-Range X-Ray Source

N. Manohar, F. Reynoso, S. H. Cho

The University of Texas MD Anderson Cancer Center, USA

M11-99 Pre-Clinical AuNP Cone-Beam Spectral Tomography Imaging Assessment Using Pixellated CdZnTe Detectors and Voxelised Mouse Models

M. E. Myronakis, S. Nill, J. Bamber, U. Oelfke, D. G. Darambara

Institute of Cancer Research, UK

M11-100 Comparative Morphology of 3D microCT Imaging of Internal Structures of Rhodnius Prolixus Head Using Different Fixation Methods

G. S. Souza[1], L. P. Nogueria[2], A. P. Almeida[2], D. Braz[1], M. S. Gonzalez[3], P. Azambuja[4], R. Nagata[5], P. J. Reis[5], F. Lopes[5], C. R. Appoloni[5], R. C. Barroso[2]

[1]Federal University of Rio de Janeiro, Brazil; [2]State University of Rio de Janeiro, Brazil; [3]Federal Fluminense University, Brazil; [4]Oswaldo Cruz Institute, Brazil; [5]State University of Londrina, Brazil

M11-101 Dense Motion Propogation from Sparse Samples for Free Breathing Respiratory Motion Modelling

R. L. Smith[1], P. Dasari[2], C. Lindsay[2], M. King[2], K. Wells[1]

[1]University of Surrey, UK; [2]University of Massachusetts Medical School, USA

M11-102 Scanning Setup for X-Ray Phase-Contrast Grating Interferometry Using a Tilted Grating

C. Arboleda[1,2], Z. Wang[1], M. Stampanoni[1,2]

[1]Paul Scherrer Institute, Switzerland; [2]ETH, Switzerland

M11-103 Improved Quantification of Chemical Exchange Saturation Transfer (CEST) MRI by Nonlocal Means

J. Yuan, *Hong Kong Sanatorium & Hospital, China*; G. S. P. Mok, *University of Macau, China*; Q. Zhang, Y.-X. Wang, *The Chinese University of Hong Kong, China*; J. Zhou, *Johns Hopkins University, USA*

M11-104 Calibration and Data Standardization of a Prototype Bench-Top Preclinical CT

R. Taschereau[1], N. T. Vu[2], A. F. Chatziioannou[1]

[1]University of California Los Angeles, USA; [2]Sofie Biosciences, USA

M11-105 Development of K-Edge Spectral Tomography Using XPAD3 Composite Pixels

C. Kronland-Martinet, F. Cassol, A. Bonissent, Y. Boursier, M. Dupont, C. Morel, *Aix-Marseille University, CNRS/IN2P3, France*; F. Debarbieux, *Aix-Marseille University, CNRS/INSB, France*

M11-106 Joint Estimation of Linear Attenuation Coefficients and Tissue Types for Single-Energy CT

K. Taguchi, *Johns Hopkins University, USA*; K. Nakada, K. Amaya, *Tokyo Institute of Technology, Japan*

M11-107 Development of Calibration Phantoms for Generating Quantitative Perfusion Images Using 2D Angiography Data

T. Sakaguchi, *Toshiba Medical Systems Corporation, Japan*; T. Natsume, Y. Kanamori, T. Ichihara, *Fujita Health University, Japan*

M11-108 Characterization of a Compressed Sensing PET Detector and DAQ: Effects of Multiplexing and Sampling Rate

C.-M. Chang, A. M. Grant, B. J. Lee, S. Cui, C. S. Levin

Stanford University, USA

M11-109 Analysis of Phosphor-Coated Crystal Arrays: Towards a Block Detector for TOF-DOI PET

E. J. Berg, E. Roncali, V. Viswanath, S. R. Cherry

University of California, Davis, USA

M11-110 Design and Initial Performance Evaluation of DbPET/CT 2.1, a Second Generation Breast PET/CT Prototype

A. Ferrero[1], Q. Peng[2], B. Sumanasema[1], J. Zhou[1], G. W. Burkett Jr.[1], W. W. Moses[2], R. D. Badawi[1]

[1]University of California, Davis, United States; [2]Lawrence Berkeley National Laboratory, United States

M11-111 Influence of Scattering on Material Quantification Using Multi-Energy X-Ray Imaging

A. Sossin[1], V. Rebuffel[1], J. Tabary[1], J.-M. Létang[2], N. Freud[2], L. Verger[1]

[1]CEA-LETI, France; [2]University of Lyon, France

M11-112 Improved Performance and High Fill Factor TSV Packaged SiPM
C. Jackson, K. O'Neill, L. Wall, B. McGarvey

SensL, Ireland

M11-113 Timing Optimization for Digital PET Detector Module based on FPGA-Only MVT Digitizers
C. Zeng[1], D. Xi[1,2], W. Liu[1], X. Mei[1], X. Liu[1], H. Kim[3], P. Xiao[1,4], C.-M. Kao[3], Q. Xie[1,4]

[1]Huazhong University of Science & Technology, China; [2]Raycan Technology Co., Ltd (Suzhou), China; [3]University of Chicago, US; [4]Wuhan National Laboratory for Optoelectronic, China

M11-114 Maximization of Digital Photon Counter Efficiency When Using Neighbor Logic
G. Stortz[1], F. Retiere[2], A. L. Goertzen[3], M. S. Khan[3], P. Kozlowski[1], E. Shams[3], J. D. Thiessen[4], C. J. Thompson[5], V. Sossi[1]

[1]University of British Columbia, Canada; [2]TRIUMF, Canada; [3]University of Manitoba, Canada; [4]Lawson Health Research Institute, Canada; [5]McGill University, Canada

M11-115 Design and Assemble a Novel Block Detector for Whole-Body PET System
H. Shi, D. Du, *Tsinghua University, China*; J. Xu, B. Xu, *Huazhong University of Science and Technology, China*; Q. Huang, *Shanghai Jiaotong University, China*; Q. Peng, *Lawrence Berkeley National Laboratory, USA*

M11-116 A Full-Ring Prototype PET-MRI System Based on Four-Layer DOI-PET Detectors Integrated with a RF Coil
F. Nishikido[1], K. Shimizu[2], M. Suga[2], N. Inadama[1], E. Yoshida[1], H. Tashima[1], T. Obata[1]

[1]National Institute of Radiological Sciences, Japan; [2]Chiba University, Japan

M11-117 Real-Time Monitoring System of Skin Dose Distribution in Interventional Radiology Using Organic Photo Diodes Combined to Plastic Scintillator
F. Nishikido[1], E. Takada[2], T. Moritake[3], T. Yamaya[1]

[1]National Institute of Radiological Sciences, Japan; [2]Toyama National College of Technology, Japan; [3]University of Occupational and Environmental Health, Japan

M11-118 Collimator Design for Cardiac SPECT with Iterative Reconstruction
J. Strologas[1], S. Metzler[2], X. Zheng[2], W. Chang[1]

[1]Rush University Medical Center, USA; [2]university of pennsylvania, USA

M11-119 Development of a High-Performance Compact Stationary Prototype Small Animal PET with DOI Measurement
X. Sun[1], K. Lou[1], Z. Deng[2], Y. Shao[1]

[1]UT MD Anderson Cancer Center, USA; [2]Tsinghua University, China

M11-120 Gain, Cross Talk, after Pulse and Dark Counts of MPPCs in 7T Magnetic Fields
Y. Hirano, D. Kokuryo, F. Nishikido, N. Inadama, I. Aoki, T. Yamaya

Department of Biophysics Molecular Imaging Center National Institute of Radiological Sciences, Japan

M11-121 Inter-Period Large Phase-Stepping Approach for X-Ray Grating-Based Imaging
X. Jiang[1,2], L. Zhang[1,2], R. Zhang[1,2], X. Zhu[1,2]

[1]Tsinghua University, China; [2]Key Laboratory of Particle and Radiation Imaging (Tsinghua University), Ministry of Education, China

M11-122 X-Ray Dark-Field Tomography of Biological Samples with the Grating Interferometry
X. Jiang, L. Zhang, R. Zhang, X. Zhu

Tsinghua University, China

M11-123 Geometrical Calibration Method for X-Ray Intraoral Digital Tomosynthesis
Y. Yang, L. Li, Z. Chen, *Tsinghua University, China*

M13 Other Medical Imaging Modalities

Thursday, Nov. 13   16:00-18:00   6A

Session Chairs: **Seungryong Cho**, KAIST, South Korea
                    Xiaochuan Pan, The University of Chicago, United States

M13-1 (16:00) Single Shot X-Ray Phase Contrast Imaging Using Charge Integrating Detectors with Single Photon Sensitivity
M. Kagias[1,2], S. Cartier[1,2], Z. Wang[2], A. Bergamaschi[2], M. Stampanoni[1,2]

[1]University and ETH Zurich, Switzerland; [2]Paul Scherrer Institut, Switzerland

M13-2 (16:15) Shading Correction for Grating-based Differential Phase Contrast X-Ray Imaging
S. Kaeppler, J. Wandner, T. Weber, A. Maier, G. Anton, J. Hornegger, C. Riess

Friedrich-Alexander-University Erlangen-Nuremberg, Germany

M13-3 (16:30) Stimulated Emission Tomography for Mapping and Region-of-Interest Quantification of Trace Metals in Biological Samples
A. Groll[1], J. George[1], P. La Riviere[2], L.-J. Meng[1]

[1]University of Illinois at Urbana-Champaign, USA; [2]University of Chicago, USA

M13-4 (16:45) A Magnetic Relaxometry Apparatus for Early Cancer Detection
R. B. Pahlka, K. B. Mathieu, J. D. Hazle

MD Anderson Cancer Center, USA

M13-5 (17:00) Hybrid Decomposition Method for Dual Energy CT

L. Shen[1], Y. Xing[2,3], L. Zhang[2,3], Q. Huang[1], X. Jin[1]

[1]Nuctech Company Limited, China; [2]Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education, China; [3]Tsinghua Univeristy, China

M13-6 (17:15) A Silicon-Strip Detector for Photon-Counting Spectral CT

B. Huber, H. Bornefalk, H. Chen, M. Danielsson, S. Karlsson, X. Liu, M. Persson, C. Xu

Royal Institute of Technology, Sweden

M13-7 (17:30) Evaluation of a Model of Spectral Distortions from Spectral Response Effects and Pulse Pileup Effects in Photon-Counting Detectors for CT

J. Cammin[1], S. Kappler[2], T. Weidinger[2], K. Taguchi[1]

[1]The Johns Hopkins University, School of Medicine, USA; [2]Siemens Healthcare, Germany

M13-8 (17:45) Initial Validation of Model Observers for Microcalcification Detection in Dedicated Breast CT

A. A. Sanchez, E. Y. Sidky, X. Pan

University of Chicago, USA

M12 Student Paper Competition

Thursday, Nov. 13   16:00-18:00   6B

Session Chairs: **Georges El Fakhri**, Harvard Medical School and Massachusetts General Hospital, United States
                       Steven R. Meikle, University of Sydney, Australia

M12-1 (16:00) Hybrid Pixel-Waveform (HPWF) CdTe and CZT Detectors for Sub-500 Um Resolution PET Imaging Systems

A. Groll, Z.-M. Shen, L.-J. Meng

University of Illinois at Urbana-Champaign, USA

M12-2 (16:15) Novel Collimation for Simultaneous SPECT/MRI

D. Salvado[1], K. Erlandsson[1], A. Bousse[1], P. van Mullekom[2], B. F. Hutton[1,3]

[1]University College London, UK; [2]Nuclear Fields, The Netherlands; [3]University of Wollongong, Australia

M12-3 (16:30) Collimator Design for a Multi-Pinhole Brain SPECT Insert for MRI

K. Van Audenhaege, C. Vanhove, S. Vandenberghe, R. Van Holen

University of Ghent - iMinds Medical IT, Belgium

M12-4 (16:45) Proton Beam Range Verification Through Prompt Gamma-Ray Spectroscopy

J. M. Verburg, M. Testa, T. Bortfeld, J. Seco

Harvard Medical School and Massachusetts General Hospital, MA

M12-5 (17:00) MR-Based Motion Correction in Simultaneous Cardiac PET-MR: in-Vivo Studies

Y. Petibon[1], C. Huang[1], T. G. Reese[1], M. D. Normandin[1], M. Ahlman[2], D. Bluemke[2], J. Ouyang[1], G. El Fakhri[1]

[1]Center for Advanced Medical Imaging Sciences, Massachusetts General Hospital, USA; [2]National Institutes of Health, USA

M12-6 (17:15) Joint Reconstruction of PET-MRI by Parallel Level Sets

M. J. Ehrhardt, K. Thielemans, L. Pizarro, P. Markiewicz, D. Atkinson, S. Ourselin, B. F. Hutton, S. R. Arridge

University College London, United Kingdom

M12-7 (17:30) Task-Based Resolution Modeling in Penalized Maximum-Likelihood PET Image Reconstruction

L. Yang, J. Zhou, J. Qi

University of California Davis, USA

M12-8 (17:45) Monte Carlo Simulations of a Cherenkov-Only PET Detector Block with 6-Sided-Readout

I. Somlai-Schweiger, S. I. Ziegler

Nuklearmedizinische Klinik und Poliklinik, Klinikum rechts der Isar, Technische Universität München, Germany

M15 Imaging in Radio- & Hadrontherapy

Friday, Nov. 14   08:00-10:00   6A

Session Chairs: **Taiga Yamaya**, National Institute of Radiological Sciences, Japan
                       Stefaan Vandenberghe, Ghent University, Belgium

M15-1 (08:00) Proton Computed Tomography: Beyond the Stopping Power

C. Bopp, R. Rescigno, M. Rousseau, D. Brasse

IPHC - CNRS, France

M15-2 (08:15) Simulation and Testing of Thin Microstrip Silicon Dosimeters for the Microbeam Radiation Therapy

M. Povoli[1], E. Alagoz[2], A. Bravin[3], I. Cornelius[4], E. Brauer-Krisch[3], P. Fournier[4], T.-E. Hansen[5], A. Kok[5], M. Lerch[4], E. Monakhov[1], J. Morse[3], M. Petasecca[4], H. Requardt[3], A. Rosenfeld[4], D. Rohrich[2], H. Sandaker[2], B. Stugu[2], B. G. Svensson[1]

[1]University of Oslo, Norway; [2]University of Bergen, Norway; [3]European Synchrotron Radiation Facility (ESRF), France; [4]University of Wollongong, Australia; [5]SINTEF, Norway

M15-3 (08:30) Robust and Unbiased Data Processing Algorithms for Optimized Ion Radiography

I. Rinaldi[1], N. Krah[2], S. Brons[3], B. Voss[4], K. Parodi[1]

[1]Heidelberg University Hospital / Ludwig-Maximilian University Munich, Germany; [2]Heidelberg Collaboratory for Image Processing, Heidelberg University, Germany; [3]Heidelberg Ion Therapy Center, Germany; [4]GSI Helmholtz Center for Heavy Ion Research, Germany

M15-4 (08:45) Development of a PET System Based on New Concept: the Gap-PET for in-Beam Imaging Application

S. Yamamoto[1], S. Okumura[1], T. Watabe[2], H. Ikeda[2], Y. Kanai[2], T. Toshito[3], M. Komori[1], H. Watabe[4], K. Kato[1], J. Hatazawa[2]

[1]Nagoya University Graduate School of Medicine, Japan; [2]Osaka University Graduate School of Medicine, Japan; [3]Nagoya Proton Therapy Center, Japan; [4]Tohoku University CYRIC, Japan

M15-5 (09:00) Clinical Investigations of a 4D ML Reconstruction Strategy for PET-Based Treatment Verification In Ion Beam Therapy

C. Gianoli[1,2], R. Ricotti[1], E. De Bernardi[3], M. Riboldi[1,4], J. Bauer[2], J. Debus[2], G. Baroni[1,4], K. Parodi[2,5]

[1]Politecnico di Milano, Italy; [2]Heidelberg University Hospital, Germany; [3]University of Milano-Bicocca, Italy; [4]National Center for Oncologic Hadrontherapy (CNAO Foundation), Italy; [5]Ludwig Maximilians University, Germany

M15-6 (09:15) In-Vivo Monitoring of Proton Therapy with PET: Biological Considerations

K. Grogg, N. Alpert, X. Zhu, M. Testa, P. Harald, T. Bortfeld, G. El Fakhri

Massachusetts General Hospital, United States

M15-7 (09:30) In Vivo Neutron Treatment Verification Using Positron Emission Tomography (PET)

R. D. Stewart[1], D. C. Argento[1], M. Muzi[1], R. S. Miyaoka[1], M. J. Nyflot[1], F. O'Sullivan[1,2]

[1]University of Washington, USA; [2]University College Cork, Ireland

M15-8 (09:45) Whole-Body Dual-Ring OpenPET for in-Beam Particle Therapy Imaging

T. Yamaya[1,2], E. Yoshida[1], H. Tashima[1], N. Inadama[1], F. Nishikido[1], Y. Hirano[1], Y. Nakajima[1], T. Shinaji[1], M. Nitta[1,2], M. Suga[2], H. Haneishi[2], K. Masuda[3], K. Shimizu[3], S. Sato[1], T. Inaniwa[1], H. Ito[1]

[1]National Institute of Radiological Sciences, Japan; [2]Chiba University, Japan; [3]Hamamatsu Photonics K.K., Japan

M14 Data Corrections and Quantitative Imaging Techniques I

Friday, Nov. 14   08:00-10:00   6B

Session Chair: **Irene Buvat**, IMNC France,

M14-1 (08:00) ML Estimation of the Scatter Scaling in TOF PET

M. Defrise, K. Salvo, Vrije Universiteit Brussel, Belgium; A. Rezaei, J. Nuyts, Siemens Healthcare, USA; V. Panin, M. Casey, Katholieke Universiteit Leuven, Belgium

M14-2 (08:15) Detector Efficiency Calibration from Clinical Listmode TOF PET Data

M. E. Werner, J. S. Karp, University of Pennsylvania, USA

M14-3 (08:30) Reconstruction of a Motion and Attenuation Corrected Activity Distribution in Gated TOF-PET

A. Rezaei[1], M. Defrise[2], J. Nuyts[1]

[1]KU Leuven, Belgium; [2]Vrije Universiteit Brussel, Belgium

M14-4 (08:45) A Sparse Transmission Method for PET Attenuation Correction in the Head

C. C. Watson, V. Y. Panin

Siemens Healthcare Molecular Imaging, USA

M14-5 (09:00) Non-Rigid Event-by-Event Motion Correction for PET with Motion-Dependent PSF

C. Chan, Y. Jian, M. Germino, R. E. Carson, C. Liu

Yale University, USA

M14-6 (09:15) A Simultaneous Dual-Isotope I-131/In-111 Quantitative SPECT Reconstruction Method and Validation with Monte Carlo Simulation

J. Yue[1], Y. Du[1], X. Rong[2], R. F. Hobbs[1], G. Sgouros[1], R. L. Wahl[1], E. C. Frey[1]

[1]Johns Hopkins University, United States; [2]Siemens Medical Systems, United States

M14-7 (09:30) Quantification of Local Reconstruction Accuracy for Helical CT with Motion Correction

T. Sun[1], R. Clackdoyle[2], R. Fulton[3,4], J. Nuyts[1]

[1]Katholieke Universiteit Leuven, Belgium; [2]CNRS and Université Jean Monnet, France; [3]University of Sydney, Australia; [4]Westmead Hospital, Australia

M14-8 (09:45) Data-Driven Dual-Gating for Cardiac PET

K. Thielemans[1], P. Schleyer[2], P. K. Marsden[2], J. Teuho[3], M. Teras[3], V. Bettinardi[4], L. Menezes[5], R. M. Manjeshwar[6], C. W. Stearns[7]

[1]University College London, UK; [2]King's College London, UK; [3]Turku University Hospital, Finland; [4]Scientific Institute Ospedale San Raffaele, Italy; [5]University College London Hospitals, UK; [6]GE Research, USA; [7]GE Healthcare, USA

M17 SPECT, TOF-PET Instrumentation II

Friday, Nov. 14   10:30-12:00   6A

Session Chairs: **Suleman Surti**, University of Pennsylvania, United States
                       Michael A. King, Univ of Mass Med School, United States

M17-1 (10:30) Assessing the Performance of the C-SPECT Cardiac SPECT/Tct System: First Results from a Partial Section

M. Rozler[1], K. Popovic[1], S. Poopalasingam[1], J. Strologas[1], X. Zheng[2], S. Metzler[2], W. Chang[1]

[1]Rush University Medical Center, USA; [2]university of pennsylvania, USA

M17-2 (10:45) Characterization of Signal Shapes in Stacked Crystal Detector Designs for TOF-DOI

J. P. Schmall[1], S. Surti[1], P. A. Dokhale[2], K. S. Shah[2], J. S. Karp[1]

[1]*University of Pennsylvania, US; [2]Radiation Monitoring Devices, US*

M17-3 (11:00) Simultaneous Activity and Crystal Efficiencies Reconstruction: TOF Patient Based Detector Quality Control

V. Y. Panin, *Siemens Healthcare, USA*

M17-4 (11:15) The Minimum Achievable Timing Resolution with High-Aspect-Ratio Scintillation Detectors for Time-of-Flight PET

J. W. Cates, R. Vinke, C. S. Levin
Stanford University, USA

M17-5 (11:30) Precise Timing Measurements of Lutetium Based Scintillators Combined with Silicon Photomultipliers for TOF-PET Systems

S. Yamamoto[1], N. Kato[1], J. Y. Yeom[2], T. Kobayashi[1], S. Okumura[1], N. Shimura[3], H. Ishibashi[3]
[1]*Nagoya University Graduate School of Medicine, Japan; [2]Kumoh National institute of Technology, South Korea; [3]Hitachi Chemical, Japan*

M17-6 (11:45) Tests on Scalability of a Strip-line based TOF PET Signal Readout Method

H. Kim[1], C.-T. Chen[1], N. Eclov[1], A. Ronzhin[2], E. Ramberg[2], S. Los[2], P. Murat[2], C.-M. Kao[1]
[1]*University of Chicago, United States; [2]Fermi National Accelerator Laboratory, United States*

M16 Signal and Image Processing

Friday, Nov. 14   10:30-12:00   6B

Session Chairs: Quanzheng Li, MGH, Harvard Medical School, United States
                Andrew J. Reader, McGill University, Canada

M16-1 (10:30) Numerical Observer for Objective Assessment on Carotid Plaque Using Spectral CT

A. Lorsakul[1,2], G. El Fakhri[1], J. Ouyang[1], W. Worstell[1,3], Y. Rakvongthai[1], A. F. Laine[2], Q. Li[1]
[1]*Massachusetts General Hospital, Harvard Medical School, USA; [2]Columbia University, USA; [3]PhotoDiagnostic System Inc., USA*

M16-2 (10:45) Comparison of the Scanning Linear Estimator (SLE) and ROI Uptake Estimation for Quantitative 111In-Octreotide SPECT Imaging of Signals Embedded in Random Backgrounds

A. Konik[1], M. Kupinski[2], P. H. Pretorius[1], M. A. King[1], H. H. Barrett[2]
[1]*University of Massachussets Medical School, United States; [2]University of Arizona, United States*

M16-3 (11:00) Impact of Anatomical Noise on Model Observers for Prostate SPECT

A. Sen, F. Kalantari, H. C. Gifford
University of Houston, USA

M16-4 (11:15) No-Gold-Standard Methods for Objective Evaluation of Reconstruction Methods for Quantitative SPECT Imaging

A. K. Jha, E. C. Frey, *Johns Hopkins University, United States*; N. Song, *Yeshiva University, United States*

M16-5 (11:30) Vectorial Total Variation Smoothing for Myocardial Blood Flow Estimation in Dynamic CT

D. Modgil[1], D. S. Rigie[1], M. D. Bindschadler[2], A. M. Alessio[2], P. J. La Riviere[1]
[1]*University of Chicago, USA; [2]University of Washington, USA*

M16-6 (11:45) Texture and Shape Analysis on High and Low Spatial Resolution Emission Images

S. A. L. Blinder[1], I. Klyuzhin[1], M. E. Gonzalez[2], A. Rahmim[3], V. Sossi[1]
[1]*University of British Columbia, Canada; [2]Vancouver Coastal Health Authority, Canada; [3]Johns Hopkins Medical Institutions, USA*

M18 MIC Poster Session II - Data Analysis & Image Generation II

Friday, Nov. 14   14:00-15:30   4B

Session Chairs: Stephen C. Moore, Brigham & Women's Hospital, United States
                Kris Thielemans, University College London, United Kingdom
                David Brasse, CNRS - IPHC, France

M18-1 An Effect of Time of Flight (TOF) Information on Normalization Components in Positron Emission Tomography (PET)

M. Aykac, V. Panin, I. Hong, M. E. Casey
Siemens Molecular Imaging, USA

M18-2 Joint Estimation of Activity and Attenuation in PET/MR Using MR-Constrained Gaussian Priors

A. Mehranian[1], H. Zaidi[1,2,3]
[1]*Geneva University Hospital, Switzerland; [2]University of Geneva, Switzerland; [3]University of Groningen, Netherlands*

M18-3 Evaluation of a Local Respiratory Motion Correction (LRMC) for Oncological and Cardiac PET/CT Imaging

F. Lamare, P. Fernandez, *Univ. Bordeaux, INCIA, UMR 5287, France*; D. Visvikis, *INSERM UMR 1101, LaTIM, Universite de Bretagne occidentale, France*

M18-4 Comparison of Single-Scatter Simulation and Monte Carlo Single-Scatter Simulation on Philips Ingenuity TF PET/MR

J. Teuho[1], J. Johansson[1], M. Teräs[1,2]
[1]*Turku PET Centre, Finland; [2]Department of Medical Physics, Finland*

M18-5 Quantitative Assessment of Induced Errors in Attenuation Corrected Myocardial SPECT Images Due to Misregistration

H. Babaeifar, H. Rajabi, *Tarbiat Modares University, Iran*; A. Sen, F. Kalantari, *University of Houston, USA*

M18-6 4-D PET/MR with Volumetric Navigators

S. Pedemonte[1,2], C. Catana[1], D. Tisdall[1], K. Van Leemput[1,2]
[1]*Massachusetts General Hospital, USA; [2]Aalto University, Finland*

M18-7 MR-Based PET Attenuation Correction Through the Generation of Pseudo-CT Data from a Single MRI Sequence

F. Monnier[1], H. Fayad[1], J. Bert[1], J. Lapuyade-Lahorgue[1], P. Veit-Haibach[2], G. Delso[2], D. Visvikis[1]

[1]LaTIM, INSERM UMR 1101, France; [2]University Hospital Zurich, Switzerland

M18-8 PET/MR Motion Correction with Image-Based ITK Motion Estimation

M. Botelho[1], L. Caldeira[2], J. J. Scheins[2], N. Matela[1], E. Rota Kops[2], N. J. Shah[2]

[1]Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa, Portugal; [2]Institute of Neuroscience and Medicine (INM-4), Forschungszentrum Jülich, Germany

M18-9 Calibration and Dead Time Correction for a PET Scanner with Variable Geometry

I. P. Almeida, *IST, Portugal*; N. C. Ferreira, *FMUC / ICNAS, Portugal*; C. Ortigão, R. Bugalho, J. Varela, *LIP, Portugal*

M18-10 Quantitative Analysis in Preliminary Lung Phantom SPECT/CT Studies

J. L. Zhang, W. McDougald, R. S. Miyaoka, P. E. Kinahan, T. K. Lewellen, H. Vesselle

University of Washington, United States

M18-11 Advanced Arc Correction to Improve Sinogram Consistency and Increase Contrast in Analytic and Statistical PET Reconstruction

G. Stortz, M. D. Walker, I. Klyuzhin, V. Sossi

University of British Columbia, Canada

M18-12 Spatially-Variant Positron Range Correction in 3D PET Imaging

J. Cal-Gonzalez[1], J. Lopez-Herraiz[2], M. Perez-Liva[1], J. J. Vaquero[3], M. Desco[3,4], J. M. Udias[1]

[1]Universidad Complutense de Madrid, Spain; [2]Madrid-MIT M+Vision Consortium, USA; [3]Universidad Carlos III de Madrid, Spain; [4]Hospital General Universitario Gregorio Marañon. CIBERSAM, Spain

M18-13 Quantitative Signature of Coronary Steal in a Patient with Occluded Coronary Arteries Supported by Collateral Circulation Using Dynamic SPECT

U. Shrestha, E. H. Botvinick, Y. Yeghiazarians, Y. Seo, *Univ of California, San Francisco, USA*; G. T. Gullberg, *Lawrence Berkeley National Laboratory, USA*

M18-14 Accuracy of Respiratory Motion Compensated Image Reconstruction Using 4DPET-Derived Deformation Fields

J. Dutta, M. Chelala, X. Shao, A. Lorsakul, Q. Li, G. El Fakhri

Harvard Medical School, Massachusetts General Hospital, USA

M18-15 Propagation of Errors in Motion Field Estimation During PET Motion Correction

I. Polycarpou, D. Peressutti, A. P. King, A. J. Reader, P. K. Marsden

King's College London, UK

M18-16 Motion Modulated Sensitivity Internal Gating for Quantitative PET

K. S. Lee, D. H. Hristov

Stanford University School of Medicine, United States

M18-17 Impact of CT Attenuation Correction Method on 4D-PET/CT Activity Recovery under Respiratory Motion with an Anthropomorphic Lung Phantom

T.-C. E. Lee[1], M. J. Nyflot[1], S. R. Bowen[1], A. M. Alessio[1], S. D. Wollenweber[2], C. Stearns[2], P. E. Kinahan[1]

[1]University of Washington, U.S.A.; [2]GE Healthcare, U.S.A.

M18-18 Ultra-Short Echo Time MRI-Based Attenuation Correction for MRI Receiver Coils in Combined PET/MR Imaging

M. Eldib[1,2], J. Bini[1,2], P. M. Robson[1], D. D. Faul[3], Z. A. Fayad[1]

[1]Icahn School of Medicine at Mount Sinai, USA; [2]The City College of New York, USA; [3]Siemens Healthcare, USA

M18-19 Assessment of SNR and Quantitative Accuracy with a PET Regularized Reconstruction Algorithm

S. G. Ross[1], S. D. Wollenweber[1], J. Miao[1], X. Jin[1], S. Ahn[2], R. M. Manjeshwar[2], C. W. Stearns[1]

[1]GE Healthcare, 53188; [2]GE Global Research Center, 12309

M18-20 Quantitative Accuracy and Small Lesion Detectability for Low-Dose PET

J. D. Schaefferkoetter, J. Yan, D. W. Townsend, *A*STAR-NUS, Singapore*; M. Conti, *Siemens Healthcare, US*

M18-21 Development and Evaluation of Two 4D Image Reconstruction Methods with Dual Respiratory and Cardiac Motion Compensation for Gated Myocardial Perfusion PET

T. Feng[1], M. A. Ahlman[2], L. Guo[1], D. A. Bluemke[2], B. Tsui[1]

[1]Johns Hopkins University, US; [2]National Institutes of Health, US

M18-22 Transmission Imaging for a Simultaneous MR-PET System

S. L. Bowen, C. Catana, *Massachusetts General Hospital, USA*

M18-23 Lesion Contrast Enhancement in MRI Based Partial Volume Correction for PET Brain Image

X. Shao[1,2], C. Peng[1,2], Y. Chen[3], K. Ying[1,2]

[1]Ministry of Education, China; [2]Tsinghua University, China; [3]General Hospital of PLA, China

M18-24 Evaluation of Full Monte Carlo Based Scatter Correction in Brain PET/MR

M. E. Gaens[1], J. Bert[2], P. Lohmann[1], N. J. Shah[1], D. Visvikis[2], U. Pietrzyk[1,3]

[1]Forschungszentrum Juelich, Germany; [2]LaTIM, France; [3]University of Wuppertal, Germany

M18-25 A Maximum Likelihood Gamma Positioning Method with Accurate Calibration of the Mean Detector Response Function in a Clinical SPECT Detector

Z. Lyu[1,2], S. Chen[1,2,3], X. Wang[4], L. Gao[3], Y. Liu[1,2,3], S. Wang[1,2,3], T. Ma[1,2,3]

[1]Tsinghua University, China; [2]Ministry of Education, China; [3]NucMed Technology Ltd, China; [4]Navy General Hospital of PLA, China

M18-26 Characterisation of Inter- and Intra-Subject Variation of Internal-External Respiratory Motion Correspondence

A. A. Abd. Rahni, *Universiti Kebangsaan Malaysia, Malaysia*; E. Lewis, K. Wells, *University of Surrey, United Kingdom*

M18-27 Analytic Motion-Compensated Region-of-Interest Reconstruction from Truncated Projections

J. Hoskovec[1,2], R. Clackdoyle[1], L. Desbat[3], S. Rit[2]

[1]laboratoire Hubert Curien, CNRS and Université Jean Monnet (UMR 5516), France; [2]Université de Lyon, France; [3]TIMC-IMAG, UMR 5525 CNRS UJF-Grenoble 1, France

M18-28 Transthoracic Impedance Based Respiratory Gating in PET Imaging: a Feasibility Study

M. A. A. Ahmed[1], Q. Xie[1,2], P. Xiao[1]

[1]Huazhong University of Science and Technology, China; [2]Wuhan National Laboratory for Optoelectronics, China

M18-29 68Ge-Phantom Cross-Calibration of PET Scanners for SUV Quantitative Analysis

S. Chauvie, *Santa Croce e Carle Hospital, Italy*
On behalf of the Italian Foundation on Lymphoma

M18-30 Comparison of Atlas-Based Bone Segmentation Methods in Whole-Body PET/MRI

H. Arabi, H. Zaidi, *Geneva University Hospital, Switzerland*

M18-31 Low-Dose Cardiac 4D Cone-Beam CT Image Reconstruction Using Two-Cycle Data

S. Wi, Y. Lee, J. Lee, S. Abbas, S. Cho
KAIST(Korea advanced institute of science and technology), Korea

M18-32 Prior Image based Anisotropic Edge Guided TV Minimization for Few-View CT Reconstruction

J. Rong, P. Gao, W. Liu, Q. Liao, C. Jiao, H. Lu
The Fourth Military Medical University, China

M18-33 Novel 4D Image Reconstruction for Dynamic X-Ray Computed Tomography in Slow Rotating Sanners

M. Abella[1,2], J. F. P. J. Abascal[1,2], E. Marinetto[1,2], J. J. Vaquero[1,2], M. Desco[1,2,3]

[1]Universidad Carlos III de Madrid, Spain; [2]Instituto de Investigacion Sanitaria Gregorio Marañón (IiSGM), Spain; [3]Centro de Investigacion en Red de Salud Mental (CIBERSAM), Spain

M18-34 Parallelization of MLEM Algorithm for PET Reconstruction Based on GPUs

C. Vazquez[1], M. J. Rodriguez-Alvarez[2], C. Correcher[1], A. J. Gonzalez[2], F. Sanchez[2], J. M. Benlloch[2]

[1]Centro de Investigacion Principe Felipe, Spain; [2]Centro Mixto Universidad Politecnica de Valencia- CSIC - CIEMAT, Spain

M18-35 Evaluation of the Possibilities of Limited Angle Reconstruction for the use of Digital Radiography System as a Tomograph

C. de Molina[1,2], J. F. P. Abascal[1,2], J. Pascau[1,2], M. Desco[1,2,3], M. Abella[1,2]

[1]Universidad Carlos III de Madrid, Spain; [2]Instituto de Investigacion Sanitaria Gregorio Maraon (IiSGM), Spain; [3]Centro de Investigacion en Red de Salud Mental (CIBERSAM), Spain

M18-36 Functional Priors in Bayesian PET Reconstruction

P. Novosad[1], A. J. Reader[1,2]

[1]McGill University, Canada; [2]King's College London, UK

M18-37 Fast and Accurate Processing for Magnetic Resonance Imaging under Non-Cartesian Acquisitions Using NUFFTs and GPUs

A. Capozzoli, C. Curcio, A. Liseno
Università di Napoli Federico II, Italy

M18-38 Image Reconstruction Results for MLEM Joint Emission Activity Distribution and Photon Attenuation Map Estimation from PET data

A. Mihlin, C. S. Levin
Stanford University, United States

M18-40 An FBP-Type Reconstruction Method for CBCT with Significantly Displaced Detector

L. Zhang[1,2], D. Wu[1,2]

[1]Ministry of Education, China; [2]Tsinghua University, China

M18-41 PSF-Based Post-Back-Projection Filtering for Low-Count Iterative PET Reconstruction

B. Zhang, *Philips Healthcare, AMI, United States*

M18-42 Parallelizing Ray-Tracing Method for Matched Conical Projector and Backprojector in Compton Imaging

V.-G. Nguyen, *Le Quy Don Technical University, Vietnam*; S.-J. Lee, *Paichai University, S. Korea*

M18-43 Regulated OSEM Reconstruction for Pinhole Emission Tomography

P. E. B. Vaissier[1], M. C. Goorden[1], F. J. Beekman[1,2,3]

[1]TU Delft, The Netherlands; [2]MILabs B.V., The Netherlands; [3]Brain Center Rudolf Magnus, The Netherlands

M18-44 Regularized PET Image Reconstruction via Reparameterized MAP Estimation

M. S. Tahaei[1], A. J. Reader[1,2]

[1]McGill University, Canada; [2]King's College, UK

M18-45 GPU-Based Sparse Bayesian Learning for Adaptive Transmission Tomography

H. Jeon, Y. Kaganovsky, S. Han, L. Carin

Duke University, USA

M18-46 Parallelization of Iterative Reconstruction Algorithms in Multiple Modalities

D. Mitra, H. Pan, *Florida Institute of Technology, USA*; F. Alhassen, Y. Seo, *UCSF, USA*

M18-47 Segmentation-Free Quasi-Newton Method for Polyenergetic CT Reconstruction

T. D. Humphries, A. Faridani, *Oregon State University, USA*

M18-48 Towards Uncertainty Quantification Using a New Interval Reconstruction Algorithm in PET

K. Loquin, *IMNC UMR8165 CNRS, France*; I. Buvat, *CEA-I2BM-SHFJ, France*; D. Mariano-Goulart, *Service de Médecine Nucléaire, CHU Lapeyronie, France*; O. Strauss, *LIRMM, France*

M18-49 Simultaneous Reconstruction of Activity and Attenuation Using UTE μ-Maps and T1-Weighted MR Images for PET/MR Brain Imaging

D. Benoit[1], C. N. Ladefoged[1], A. Rezaei[2], S. H. Keller[1], F. L. Andersen[1], L. Hoejgaard[1], A. E. Hansen[1], S. Holm[1], J. Nuyts[2]
[1]*Rigshospitalet, Denmark;* [2]*Medical Imaging Research Center, Belgium*

M18-50 A prior-less quasi-symmetries search algorithm for Iterative PET Reconstruction

N. Camarlinghi[1,2], G. Sportelli[1,2], N. Belcari[1,2], S. Ferretti[1,2], E. Fabbiani[1,2], D. Panetta[3], A. Del Guerra[1,2]
[1]*University of Pisa, Italy;* [2]*Istituto Nazionale Fisica Nucleare Pisa, Italy;* [3]*Institute of Clinical Physiology (IFC) CNR, Italy*

M18-51 An effective technique for high resolution iterative reconstruction with stationary Digital Breast Tomosynthesis

S. Xu[1], J. Lu[2], O. Zhou[2], Y. Chen[1]
[1]*Southern Illinois University Carbondale, United States;* [2]*University of North Carolina Chapel Hill, United States*

M18-52 Efficient Time-Weighted Sensitivity Image Calculation for Motion Compensated List Mode Reconstruction

G. I. Angelis[1], J. E. Gillam[1], W. J. Ryder[1], A. Z. Kyme[1], R. R. Fulton[1,2], S. R. Meikle[1]
[1]*The University of Sydney, Australia;* [2]*Westmead Hospital, Australia*

M18-53 Adaptive Nonlocal Means-Regularized Iterative Image Reconstruction for Sparse-View X-Ray CT

H. Zhang[1], J. Ma[2], J. Wang[3], Y. Liu[1], H. Han[1], M. Salerno[1], Z. Liang[1]
[1]*Stony Brook University, USA;* [2]*Southern Medical University, China;* [3]*University of Texas Southwestern Medical Center, USA*

M18-54 Registration-Incorporated Joint Ictal/Interictal Reconstruction for Improved Epileptic Foci Localization

Y. Rakvongthai[1], K. Borvorntanajanya[1], F. Fahey[2], G. El Fakhri[1], J. Ouyang[1]
[1]*Center for Advanced Medical Imaging Sciences, Massachusetts General Hospital and Harvard Medical School, USA;* [2]*Boston Children's Hospital and Harvard Medical School, USA*

M18-55 Hybrid Reconstruction Method for Exterior CT

M. Cao[1,2], Y. Xing[1,2]
[1]*Department of Engineering Physics,Tsinghua University, China;* [2]*Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education, China*

M18-56 Theoretical Analysis of Noise Property in Total-Variation Regularized Image Reconstruction for PET

G. Wang, J. Qi, *University of California, Davis, USA*

M18-57 CT Image Resolution Improvement by Geometric Modelling in Iterative Reconstruction

X. Xiong[1], S. Chen[1], H. Liu[1], J. Wu[1], Y. Liu[1], S. Wang[1], T. Ma[1]
[1]*Key Laboratory of Particle & Radiation Imaging (Tsinghua University), China;* [2]*National Institute of Metrology, China*

M18-58 Efficient Bandwidth Estimation in Clinical Positron Emission Tomography Image Reconstruction

R. Maitra, *Iowa State University, USA*

M18-59 Millisecond SPECT Image Rernconstruction Acceleration Using OSEM Algorithm Based on CPU / GPU Hybrid Parallel Hardware Platform

Q. Wang[1], S. Chen[1], X. Li[2], K. Wang[2], S. Wang[1], Y. Liu[1], T. Ma[1]
[1]*Key Laboratory of Particle & Radiation Imaging , Ministry of Education, China;* [2]*Division of Metrology in Ionizing Radiation and, Medicine,, China*

M18-60 How difficult Is the SPECT Reconstruction Problem? a Comparison with Deconvolution.

C. Jeanguillaume, N. Cherif, *LARIS, France*

M18-61 An Expectation-Maximization Parameter Estimation of Arterial Spin Labeled MRI Data: a Feasibility Study

H. Han[1], L. Li[2], Z. Wang[3], F. Wu[1], B. Song[1], J. Detre[3], Z. Liang[1], H. Lu[4]
[1]*Stony Brook University, USA;* [2]*City University of New York - CSI, USA;* [3]*University of Pennsylvania, USA;* [4]*Fourth Military Medical University, China*

M18-62 Optimization with Integrated Kinetic Modeling for SPECT Dynamic Image Reconstruction

M. Khan[1], R. Boutchko[2], M. M. Abdalah[1], G. T. Gullberg[2], D. Mitra[1]
[1]*Florida Institute of Technology, FL;* [2]*Lawrence Berkeley National Lab, CA*

M18-63 Joint Estimation of the Patlak Model and Plasma Input Function Within a Direct 4D Parametric Image Reconstruction Algorithm Integrating Respiratory Motion Correction for PET Oncology Applications

T. Merlin[1], P. Fernandez[1], D. Visvikis[2], F. Lamare[1]
[1]*1. Hôpital de Bordeaux, INCIA, CNRS UMR, France;* [2]*2. UMR 1101 INSERM, LaTIM, Université de Bretagne Occidentale, France*

M18-64 N Automatic Flood Histogram Calibration Method for the 4-Layer DOI Detector Based on Light Sharing

T. Shinaji, E. Yoshida, H. Tashima, T. Yamaya
National Institute of Radiological Sciences, Japan

M18-65 Feasibility of Using Geometric Descriptors of Tracer Distribution for Disease Assessment

I. S. Klyuzhin, E. Shahinfard, M. Gonzalez, V. Sossi

University of British Columbia, Canada

M18-66 Design of a High Speed Online Maximum Likelihood Positioning Algorithm Using FPGA

X. Cheng, Y. Xiao, Y. Wang

University of Science and Technology of China, China

M18-67 Implementation of Self-Organizing Map Based Positioning Scheme on FPGA

D. Li, Y. Wang, L. Wang, X. Cheng

University of Science and Technology of China, China

M18-68 Multi-Class Multimodal SPEQTACLE: a New Fuzzy Clustering Algorithm for Fully Automatic Delineation of Tumors in Multimodality Imaging

J. Lapuyade-Lahorgue, D. Visvikis, M. Hatt, *LaTIM, France*

M18-69 Performances of Principal Component Analysis for the Extraction of Respiratory Signal from Time-of-Flight PET Coincidences Stream

L. Presotto[1,2], V. Bettinardi[2]

[1]*institute of molecular bioimaging and physiology, Italy;* [2]*San Raffaele Scientific Institute, Italy*

M18-70 Model Based 3D Registration of an EP-Ablation Catheter to Single View X-Ray Images

C. Haase[1,2], D. Schäfer[1], R. Bullens[3], A. Thran[1], O. Dössel[2], M. Grass[1]

[1]*Philips Technologie GmbH Innovative Technologies, Germany;* [2]*Karlsruhe Institute of Technology, Germany;* [3]*Philips Healthcare, The Netherlands*

M18-71 Aß-PET Image Analysis with Weighted Two-Point Correlation Functions

S. Shokouhi, H. Kang, D. Claassen, B. Rogers, W. R. Riddle

Vanderbilt University, USA

M18-72 A Random Forest-Based Feature Selection Strategy with Application to Computer-Aided Diagnosis of Colonic Lesions for CT Colonography

B. Song, Y. Hu, W. Zhu, Z. Liang

Stony Brook University, USA

M18-73 Model-Based Segmentation of Left Ventricle from Nuclear Medicine Cardiac Images

Y. Dong, E. Frey, I. Madar, Y. Du

Johns Hopkins University, USA

M18-74 Objective evaluation of photon-processing and photon-counting imaging systems for absolute quantification in SPECT

A. K. Jha, E. C. Frey

Johns Hopkins University, United States

M18-75 Frechet Distance for Model Observer Training Data Selection

I. Lorente, J. G. Brankov

Illinois Institute of Technology, USA

M18-76 Machine Learning Based Parametric Image Estimation for Analyzer-Based Phase Contrast Imaging

O. Caudevilla, J. G. Brankov

Illinois Institute of Tehnology, United States

M18-77 "Mixture" Classifier for Computer-Aided Diagnosis (CADx)

Y. Hu, B. Song, M. Ma, Z. Liang, *Stony Brook University, US*

M18-78 Automatic Detection of Vascular Lesions of the Retina Using a Localized Adaptive Thresholding Approach

E. Kapoor, M. Khanna, *SINOVA, USA*

M18-79 Iterative and Self- Adaptive PSF-Based Method for Partial Volume Effect Correction in PET-MRI Imaging

C. Peng[1,2], X. Shao[1,2], E. Johnson[3], X. Zhu[1,2], M. Chen[4], K. Ying[1,2]

[1]*Tsinghua University, China;* [2]*Ministry of Education, China;* [3]*Stanford University, United States of America;* [4]*The general hospital of Chinese People's Liberation, China*

M18-80 Comparative Methods for Metal Artifact Reduction in X-Ray CT

M. Abdoli, *The Netherlands Cancer Institute, Netherlands;* A. Mehranian, A. Ailianou, M. Becker, H. Zaidi, *Geneva University Hospital, Switzerland*

M18-81 A SPECT Aperture Simulation Method Built on the SolidWorksTM 3D-Design Package and GPU Programming That Includes Penetration, Scatter, and Fluorescence

X. Li, L. R. Furenlid, *University of Arizona, United States*

M18-82 A Next-Generation Concept Design for Positron Emission Tomographic Imaging

A. McNamara[1,2], M. Toghyani[1], C.-C. Shieh[1], J. Gillam[1], Z. Kuncic[1]

[1]*The University of Sydney, Australia;* [2]*Massachusetts General Hospital and Harvard Medical School, USA*

M18-83 Impact of Depth-of-Interaction on Image Resolution in Long Axial-FOV PET

Y. Yu[1,2], Y. Xia[1,2], H. Shang[1,2], J. Wu[1,2], Q. Wang[1,2], X. Wang[3], Y. Liu[1,2], S. Wang[1,2], T. Ma[1,2]

[1]*Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education Departme, China;* [2]*Tsinghua University, China;* [3]*Navy General Hospital, China*

M18-84 Cascaded-Systems Analysis of Charge Sharing in Photon-Counting X-Ray Detectors

J. Tanguay, *University of British Columbia, Canada*; S. Yun, H. K. Kim, *Pusan National University, Republic of Korea*; I. Cunningham, *Western University, Canada*

M18-85 Characterizing the Accuracy of Randoms Estimation in the Presence of Multiple Coincidences

J. K. Poon, J. Qi, R. D. Badawi
University of California, Davis, USA

M18-86 A Simulation Procedure to Assess the Data Sufficiency of Motion Corrected Helical X-Ray CT

J.-H. Kim[1], J. Nuyts[2], Z. Kuncic[1], R. Fulton[1,3]
[1]University of Sydney, Australia; [2]Katholieke Universiteit, Belgium; [3]Westmead Hospital, Austalia

M18-87 High throughput CUDA implementation of accurate geometric modelling for iterative reconstruction of PET data

P. J. Markiewicz, K. Thielemans, M. J. Ehrhardt, J. Jiao, N. Burgos, D. Atkinson, S. R. Arridge, B. F. Hutton, S. Ourselin
University College London, UK

M18-88 Hybrid CPU/GPU SPECT Monte Carlo Simulations: the Hexagonal Hole Collimator Case

M.-P. Garcia[1], J. Bert[2], D. Villoing[1], A. Reilhac[3], M.-C. Gregoire[3], D. Visvikis[2], M. Bardies[1]
[1]UMR 1037 INSERM/UPS, CRCT, France; [2]LaTIM UMR 1101 INSERM, CHRU Brest, France; [3]LifeSciences, ANSTO, Australia

M18-89 Can a Single Detector Provide the Best Image Quality in the Double-Shot Dual-Energy Imaging?

D. W. Kim[1], H. K. Kim[1], S. Yun[1], J. C. Han[1], H. Youn[1], S. Kam[1], J. Tanguay[2], I. A. Cunningham[3]
[1]Pusan National University, Republic of Korea; [2]University of British Columbia, Canada; [3]Western University, Canada

M18-90 Evaluation of the Quantitative Accuracy of a Breast-Imaging PET Scanner

C. Zeng[1], P. E. Kinahan[1], K. M. Champley[2], R. L. Harrison[1], L. A. MacDonald[1]
[1]University of Washington, USA; [2]Lawrence Livermore National Laboratory, USA

M18-91 Preliminary Assessment of Fully 3D Monte Carlo Reconstruction for Preclinical PET Using Iodine-124

M. Moreau[1,2], I. Buvat[3], L. Ammour[4], N. Chouin[2], F. Kraeber-Bodéré[1,4], M. Chérel[1], T. Carlier[1,4]
[1]CRCNA UMR892 INSERM - 6299 CNRS, France; [2]ONIRIS - AMAROC, France; [3]CEA-I2BM-SHFJ, France; [4]University Hospital - Nantes Hotel Dieu, France

M18-92 Fast Scattering Simulation Tool for Multi-Energy X-Ray Imaging

A. Sossin[1], J. Tabary[1], V. Rebuffel[1], J. M. Letang[2], N. Freud[2], L. Verger[1]
[1]CEA-LETI, France; [2]University of Lyon, France

M18-93 Investigation and Evaluation of a Simulated Dedicated PET Prototype for Brain Studies: Applicability to a Trimodal PET/MR/EEG System

P. Papadimitroulas, *University of Patras, Greece*; G. Loudos, *Technological Educational Institute of Athens, Greece*; J. Cabello, *Technische Universitat Munich, Germany*; J. J. Scheins, *Forschungszentrum Juelich, Germany*; N. Belcari, A. Del Guerra, *University of Pisa, Italy*

M18-94 Assessment of a Monte-Carlo Simulation of SPECT Recordings from a New-Generation Heart-Centric Semiconductor Camera: from Phantom to Human Images

L. Imbert[1,2,3], E. Galbrun[3], F. Odille[4], S. Poussier[5], A. Noel[3], D. Wolf[3], G. Karcher[1,5,6], P.-Y. Marie[1,5,6,7]
[1]Centre Hospitalier Universitaire Nancy, France; [2]Institut de Cancérologie de Lorraine, France; [3]CRAN - UMR 7039, Université de Lorraine-CNRS, France; [4]INSERM, U947, IADI, France; [5]Nancyclotep experimental imaging platform, France; [6]University of Lorraine, Faculty of Medicine, France; [7]INSERM, U1116, France

M18-95 Successful Suppression of Cone Beam Artifacts Using Iterative Reconstruction Algorithm

D. Shi, *Toshiba medical research institute, USA, Inc., USA*

M18-96 Anatomical-Based Resolution Recovery for 18F-Fluoride PET/CT

E. Grecchi[1], J. O'Doherty[1], C. Tsoumpas[2], G. J. Cook[1], F. E. Turkheimer[1]
[1]King's College London, UK; [2]University of Leeds, UK

M18-97 Respiration Average CT for Myocardial Perfusion SPECT/CT Attenuation Correction

G. S. P. Mok, D. Zhang, C. Y. T. Ho
University of Macau, China

M18-98 Reconstruction Based Respiratory Motion Correction in PET/MR Imaging

H. Fayad[1], H. Schmidt[2], C. Wuerslin[2], D. Visvikis[1]
[1]INSERM UMR1101, Université de Bretagne Occidentale, LaTIM, France; [2]University Hospital of Tubingen, Germany

M18-99 Comparison of FBP and Iterative Algorithms with Non-Uniform Angular Sampling

G. Zeng[1,2]
[1]Weber State University, USA; [2]University of Utah, USA

M18-100 A Method for Daily Setup and Quality Checks of LSO:Ce Based Time of Flight Positron Emission Tomographs

H. E. Rothfuss, A. P. Moor, J. W. Young, L. A. Eriksson
Siemens Molecular Imaging, USA

M18-101 Reduced Effective Scanning Time in SPECT Due to OSEM Accelerated Reconstruction

K. Kacperski[1], D. Switlik[1], J. Pietrzak[1,2]
[1]The Maria Sklodowska - Curie Memorial Cancer Centre and Institute of Oncology, Poland; [2]University of Warsaw, Poland

M18-102 CT-MRI Image Reconstruction with Mask-Enhanced Dual-Dictionary Learning
B. Wang, L. Li, *Tsinghua University, China*

M18-103 The Simulation of a Multi Energy Bone Mineral Densitometry Method
R. Li, L. Li, Z. Chen, *Tsinghua University, China*

M18-104 Adaptive Bilateral Filtering for PET
L. Szirmay-Kalos[1], L. Papp[2], G. Jakab[2], B. Toth[1]
[1]Budapest University of Technology and Economics, Hungary; [2]Mediso Ltd., Hungary

M18-105 4D PET Tumor Segmentation Algorithm Evaluation with Experimental Phantom Measurements.
M. Carles, T. Fechter, U. Christ, A. Schaefer, M. Mix, U. Nestle
UKL, Germany

M18-106 Automatic Parameter Tuning for X-Ray Computed Tomography Reconstruction
L. Liu, W. Lin, *Tianjin University, China*; M. Jin, *University of Texas at Arlington, USA*

M18-107 Random Forest Based Computer-Aided Detection of Polyps in CT Colonography
M. Ma, B. Song, Y. Hu, X. Gu, Z. Liang
Stony Brook University, United States

M18-108 Characterization the annihilation position distribution within a geometrical model associated with scattered coincidences in PET
H. Sun[1,2], S. Pistorius[1,2]
[1]University of Manitoba, Canada; [2]Cancercare Manitoba, Canada

M18-109 Dynamic PET Denoising Incorporating a Composite Image Guided Filter
L. Lu[1], D. Hu[1], X. Ma[1], J. Ma[1], A. Rahmim[2], W. Chen[1]
[1]School of Biomedical Engineering, Southern Medical University, China; [2]Department of Radiology, Johns Hopkins University, USA

M19 MIC Poster Session II - System & Detector Instrumentation II

Friday, Nov. 14   14:00-15:30   4B

Session Chairs: **Yuan-Chuan Tai**, Department of Radiology, Washington University School of Medicine, United States
Martin S. Judenhofer, University of California, Davis, United States
Yong Choi, Sungkyunkwan University/Sogang Institute of Advanced Technology,

M19-1 Investigation of Reflectorless Pixilated Scintillator Arrays for High Resolution PET Detectors
P. M. Dueppenbecker[1,2], S. Volkmar[1,3]
[1]RWTH Aachen University, Germany; [2]King's College London, United Kingdom; [3]Philips Research, Germany

M19-2 A SiPM Based Dual-Ended Readout Detector Using a Mean-Timing Method for TOF-DOI PET
H. G. Kang[1], G. B. Ko[2], J. S. Lee[2], S. J. Hong[1]
[1]Eulji University, Korea; [2]Seoul National University, Korea

M19-3 Scintillation Light Distribution Quantitative Analysis for LaBr3:Ce Gamma Imager
P. Bennati[1,2], M. N. Cinti[1,3], S. Lo Meo[3,4], A. Fabbri[1,3], E. Preziosi[1,3], R. Pellegrini[1,3], M. Colarieti-Tosti[2], R. Pani[1,3]
[1]Sapienza University, Italy; [2]KTH Royal Institute of Technology, Sweden; [3]INFN National Institude of Nuclear Physics, Italy; [4]ENEA National agency for new technologies, Italy

M19-4 Development of a High Resolution Detector for Positron Emission Mammography Using Finely Pitched LYSO Arrays
A. A. Wagadarikar, S. Dolinsky, C. Bircher
GE Global Research, USA

M19-5 Using Timing Information for the Estimation of the Interaction Position in a Monolithic Scintillator Detector
V. Tabacchini, G. Borghi, D. N. ter Weele, D. R. Schaart
Delft University of Technology, Netherlands

M19-6 Improved Walk-Correction Method for Timing Measurements in PET Detector
G. Fu, S. Dolinsky, J. Guo, A. Ivan
GE Global Research Center, USA

M19-7 Fully Solid-State Positron Emission Mammography Block Detector for Low Dose Screening Applications of High-Risk Women.
O. Bubon[1,2], A. Teymurazyan[1,2], G. DeCrencenzo[2], P. Joanis[2,1], J. A. Rowlands[2], A. Reznik[1,2]
[1]Lakehead University, Canada; [2]Thunder Bay Regional Research Institute, Canada

M19-8 A Novel Method for Optimizing Light Sharing in a Block Detector
H. Shi[1,2], D. Du[1], J. Xu[3], Q. Peng[2]
[1]Tsinghua University, China; [2]Lawrence Berkeley National Laboratory, USA; [3]Huazhong University of Science and Technology, China

M19-9 Integration Time Window for Pulse Width Modulation Readout of Silicon Photomultipliers for 0.5 mm Resolution 3-D Position Sensitive PET Scintillation Detectors
M. Chin, M. F. Bieniosek, B. J. Lee, C. S. Levin
Stanford University, United States

M19-10 Design and Development of Novel and Practical PET Detectors for Advanced Imaging Applications
X. Sun, K. Lou, Y. Shao, *UT MD Anderson Cancer Center, USA*

M19-11 Ultra-High Sensitivity Collimator for Low-Dose Breast Imaging

B. L. Welch, *Dilon Technologies, USA*; B. Kross, S. Lee, J. E. McKisson, J. McKisson, *Jefferson Lab, USA*; D. Gilland, *University of Florida, USA*

M19-12 Development and Evaluation of an Integrated Readout Electronics for PET Detector Using SiPM Arrays

J. Choi, Y. Choi, S. Lee, H.-J. Choe, G.-C. Ahn, Y.-S. Kwak
Sogang University, Korea

M19-13 A Pulse Modeling Tool for PET Scanners

L. J. Martinez Garbino[1,2], E. Venialgo[1,2], D. S. Estryk[1], C. A. Verrastro[1,2], M. A. Belzunce[1,2]
[1]*CNEA, Argentina;* [2]*UTN, Argentina*

M19-14 Feasibility Studies of a High Sensitivity, Stationary Dedicated Cardiac SPECT with Multi-Pinhole Collimators on a Clinical Dual-Head Scanner

H. Liu[1], S. Chen[1], J. Wu[1], B. Guo[2], S. Wang[1], Y. Liu[1], T. Ma[1]
[1]*Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education, China;* [2]*National Institute of Metrology, China*

M19-15 Design of a 32-Channel High-Performance OpenPET Detector Board

Q. Peng, W. Moses, C. Vu, J. Huber, W.-S. Choong
Lawrence Berkeley National Laboratory, USA

M19-16 A Curved Section of a Pixelated NaI(Tl) Detector for SPECT/TCT

K. Popovic, M. Rozler, S. Poopalasingam, W. Chang
Rush University Medical Center, USA

M19-17 A New Multiplexing Method Using Multi-Voltage Threshold Based PET DAQ with FPGA and Exclusive-or Logic Gate

K. B. Kim, Y. Choi, G. Kim, S. Kim, S. Lee
Sogang University, South Korea

M19-18 Experimental Characterization of a Practical Monolithic Scintillator Detector for Clinical TOF-PET Scanners Based on a 32 mm X 32 mm X 22 mm LYSO:Ce Crystal and a DPC Array

G. Borghi, V. Tabacchini, D. R. Schaart
Delft University of Technology, Netherlands

M19-19 Development of FPGA-Based DAQ Applying Dual-Tapped Delay Line TDC and TOT for TOF PET

J. H. Jung, Y. Choi, H.-J. Choe, G. Kim
Sogang University, South Korea

M19-20 An Improved Time over Threshold Method Using Bipolar Signals

J. Jung, Y. Choi, G. Kim, S. Kim, S. Lee
Sogang University, Korea

M19-21 Event Pulse Classification with Multi-Voltage Threshold Samples for Scatter Rejection in PET

Z. Deng[1,2], P. Xiao[1,2], Q. Xie[1,2]
[1]*Huazhong University of Science and Technology, P.R.China;* [2]*Wuhan National Laboratory for Optoelectronics,, P.R.China*

M19-22 Proposal of a PET Positron Detector with Scintillation Fibers for the Diagnosis of Intestinal Cancers

N. Kaneko, S. Han, S. Iijima, H. Ito, H. Kawai, S. Kodama, D. Kumogoshi, M. Tabata
Chiba university, Japan

M19-23 Effects of Out of Field-of-View Activity on Imaging Performance in a 1mm3 Resolution Clinical PET System

D. F. C. Hsu, A. Vandenbroucke, D. Innes, D. L. Freese, P. D. Reynolds, F. W. Y. Lau, C. S. Levin
Stanford University, USA

M19-24 A New Multiplexing Method Using Delay and Asynchronous Logic Gate for Pixelated Radiation Detector

H. T. Lim, Y. Choi, K. B. Kim, G. Kim, *Sogang University, Korea*; J. Y. Yeom, *Kumoh National Institute of Technology, Korea*

M19-25 Development of a TOF Detector for Brain PET

H.-J. Choe, Y. Choi, J. H. Jung, H. T. Lim, G. Kim
Sogang University, South Korea

M19-26 Adjustable Resolution/Sensitivity Slit-Slat Collimator for Task Specific SPECT Imaging

S. Poopalasingam, M. Rozler, K. Popovic, W. Chang
Rush University Medical Center, 60612

M19-27 Fast Calibration of SPECT Detector Response Using Adaptive Iterative Technique

V. Solovov[1], A. Morozov[1,2], V. Chepel[1,2], V. Domingos[1], R. Martins[1,2], F. Alves[2]
[1]*LIP-Coimbra, Portugal;* [2]*Coimbra University, Portugal*

M19-28 Imaging with a Partial C-SPECT Laboratory Prototype : a Simulations Study

J. Strologas[1], S. Metzler[2], X. Zheng[2], W. Chang[1]
[1]*Rush University Medical Center, USA;* [2]*university of pennsylvania, USA*

M19-29 Study on Four Layer Depth of Interaction LYSO Crystal on MPPC with Newly Developed Time over Threshold ASIC

Y. Yoshihara[1], Y. Nakamura[1], K. Shimozoe[1], H. Takahashi[1], F. Nishikido[2], E. Yoshida[2], T. Yamaya[2]
[1]*The University of Tokyo, japan;* [2]*National Institute of Radiological Science, Japan*

M19-30 Investigation of a Four Layer DOI Detector Combined with Laser Processed Boundaries

A. Gondo[1], T. Shinaji[2], N. Inadama[2], F. Nishikido[2], E. Yoshida[2], T. Sakai[3], T. Yamaya[2,4], T. Ohnishi[4], H. Haneishi[4]
[1]Graduate School of Engineering, Chiba University, Japan; [2]Molecular Imaging Center, National Institute of Radiological Sciences, Japan; [3]Hamamatsu Photonics K.K., Japan; [4]Center for Frontier Medical Engineering, Chiba University, Japan

M19-31 A Smart Enclosure for Open-Field Small Animal Brain PET During Learning Tasks
A. Kyme, J. Eisenhuth, G. Hart, S. Meikle
University of Sydney, Australia

M19-32 Monte Carlo Simulation Study of a Mouse PET System Consists of 256-Channel TSV-MPPC Detector Modules with Individual Crystal Readout
R. Yamada, M. Watanabe, Hamamatsu Photonics K.K., Japan

M19-33 Spatial Resolution Uniformity, Isotropy, and the Effect of Depth-of-Interaction Information in a 1mm3 Resolution, Limited-Angle PET System
D. L. Freese, A. Vandenbroucke, P. D. Reynolds, D. F. C. Hsu, D. Innes, F. W. Y. Lau, C. S. Levin
Stanford University, USA

M19-34 Studies of DOI Estimation Method in LOR Data for 3D PET List-Mode Reconstruction
J. Wu[1], T. Ma[1], H. Liu[1], J. Liang[1], S. Wang[1], Y. Liu[1], J. Cheng[1]
[1]Key Laboratory of Particle & Radiation Imaging (Tsinghua University), Ministry of Education, China; [2]National Institute of Metrology, China

M19-35 Efficient System Modeling for a Tapered PET Scanner
M. Zhang[1], J. Zhou[1], Y. Yang[1], M. Rodríguez-Villafuerte[2], J. Qi[1]
[1]Department of Biomedical Engineer, UC davis., United States; [2]Instituto de Física, Universidad Nacional Autónoma de México, Mexico

M19-36 Feasibility of Motion-Corrected Planar Projection Imaging of Single Photon Emitters: a Phantom Study
P. L. Kench[1], G. Angelis[1], A. Kyme[1], W. Ryder[1], J. Gillam[1], A. G. Weisenberger[2], J. E. McKisson[2], J. McKisson[2], S. Lee[2], S. R. Meikle[1]
[1]The University of Sydney, Australia; [2]Thomas Jefferson National Accelerator Facility (Jefferson Lab), USA

M19-37 Optimized Acquisition Protocols for Dynamic Cardiac SPECT Imaging of Rats with 123I-MIBG
Y. Zan[1], R. Boutchko[2], Q. Huang[1], G. T. Gullberg[2]
[1]Shanghai Jiao Tong University, China; [2]Lawrence Berkeley National Laboratory, USA

M19-38 cMiCE PET Detector Using a New Multi-Anode PMT
W. C. J. Hunter[1,2], R. S. Miyaoka[1], L. R. MacDonald[1,2], D. Q. DeWitt[1], T. K. Lewellen[1], P. E. Kinahan[1,2]
[1]University of Washington, USA; [2]PET/X LLC, USA

M19-39 Directional Resolution of Limited Angle SPECT Cameras
S. G. Cuddy-Walsh[1,2], R. Clackdoyle[3], R. G. Wells[2]
[1]Carleton University, Canada; [2]University of Ottawa Heart Institute, Canada; [3]Laboratoire Hubert Curien CNRS UMR 5516, France

M19-40 MADPET4 - a MRI Compatible Dual Layer PET Insert: First Tests with Two Modules
F. R. Schneider[1,2], G. Seker[1,2], J. Cabello[1], R. Sharma[1], K. Shimazoe[3], T. Orita[3], H. Takahashi[3], S. Paul[2], S. I. Ziegler[1]
[1]Technische Universität München, Klinikum rechts der Isar, Germany; [2]Technische Universität München, Germany; [3]The University of Tokyo, Japan

M19-41 First Acquisition of Data from a Prototype 3-D Position Sensitive CZT PET System
S. Abbaszadeh, Y. Gu, U. Sikora, C. Levin
Stanford University, USA

M19-42 Iterative Reconstruction with an Innovative Monte Carlo-Based System Matrix for PETiPIX Small Animal PET Scanner
K. Li[1], M. Safavi-Naeini[1], D. R. Franklin[2], A. B. Rosenfeld[1], B. Hutton[1,3], M. L. F. Lerch[1]
[1]University of Wollongong, Australia; [2]University of Technology Sydney, Australia; [3]University College London, United Kingdom

M19-43 Effect of Inter-Crystal Scatter Events on Coincidence Detection in LabPET Scanners
J. Clerk-Lamalice, M. Bergeron, C. Thibaudeau, R. Lecomte
Université de Sherbrooke, Canada

M19-44 Progress for the Large-Bore BNL/Penn PET-MRI System for Whole Body Rodent Imaging
T. Cao[1], M. Budassi[1], J. Fried[2], S. Stoll[2], M. L. Purschke[2], G. Gualtieri[3], M. E. Werner[4], J. S. Karp[4], D. J. Schlyer[2], C. L. Woody[2], P. Vaska[1,2]
[1]Stony Brook University, USA; [2]Brookhaven National Lab, USA; [3]Drexel University, USA; [4]University of Pennsylvania, USA

M19-45 Characteristics of an LYSO – [LYSO/NaI(Tl) Phoswich] Detector Pair for Simultaneous Whole-Body Single Photon and Positron Projection Imaging of Mice
J. Seidel[1,2], M. V. Green[1,2], P. L. Choyke[1]
[1]NCI, USA; [2]Leidos Biomedical Research, Inc., USA

M19-46 Development of Three-Dimensional Quantitative Imaging Analysis Method by Opposed Dual-Head Semiconductor Compton Camera GREI
S. Motomura[1], T. Ida[1,2], T. Fukuchi[1], M. Hiromura[1], H. Haba[1], Y. Watanabe[1], S. Enomoto[1,2]
[1]RIKEN, Japan; [2]Okayama University, Japan

M19-47 Analytic Determination of Rectangular-Pinhole Sensitivity with Penetration
S. D. Metzler, D. Xia, University of Pennsylvania, USA; S. C. Moore, Brigham & Women's Hospital and Harvard Medical School, USA

M19-48 Mercury-197(m) as a Promising Radionuclide for Theragnostic Application
R. Freudenberg[1], M. Walther[2], G. Wunderlich[1], J. Kotzerke[1]

[1]*University Hospital Carl Gustav Carus Dresden, Germany; [2]Institute of Radiopharmaceutical Cancer Research, HZDR, Germany*

M19-49 Toward Concurrent Imaging for in-beam Positron Emission Tomography

K. Son[1,2], S. Cho[1], J. S. Kim[2], H. Kim[3], C. M. Kao[3]
[1]*KAIST, South Korea; [2]Samsung Medical Center, South Korea; [3]The University of Chicago, USA*

M19-50 Proposal of a 4D ML Reconstruction Strategy for PET-Based Treatment Verification in Ion Beam Radiotherapy

E. De Bernardi, *University of Milano-Bicocca, Italy*; C. Gianoli, R. Ricotti, M. Riboldi, G. Baroni, *Politecnico di Milano, Italy*

M19-51 In-Silico Comparison of X-Ray and Proton Computed Tomography for Proton Therapy Dose Simulation with a Full Monte Carlo Treatment Planning

N. Arbor[1,2,3], D. Dauvergne[2], G. Dedes[4], J.-M. Letang[3,5], C.-T. Quinones[1,3], E. Testa[2,6], S. Rit[3]
[1]*Université de Lyon, France; [2]CNRS/IN2P3 UMR5822, Université Lyon 1, France; [3]CNRS UMR5220, Inserm U1044, INSA-Lyon, Université Lyon 1, France; [4]Ludwig-Maximilians-Universität München, Germany; [5]Institut National des Sciences Appliquées de Lyon, France; [6]Université Claude Bernard Lyon 1, France*

M19-52 A Novel Phantom and Method for Calibration of the Phase 2 Proton CT Scanner

V. A. Bashkirov[1], N. Vence[1], R. P. Johnson[2], V. Giacometi[3], T. Plautz[2], A. Zatserklyaniy[2], H. F. W. Sadrozinski, Senior Member IEEE[2], R. W. Schulte[1]
[1]*Loma Linda University, USA; [2]UC Santa Cruz, USA; [3]University of Wollongong, Australia*

M19-53 Spatial Resolution Studies and Measurement of the Modulation Transfer Function for a Prototype Proton CT Scanner

T. E. Plautz, R. P. Johnson, H. F.-W. Sadrozinski, A. Zatserklyaniy, *University of California, Santa Cruz, USA*; V. Baskirov, R. F. Hurley, R. Schulte, *Loma Linda University, USA*; V. Giacometti, *University of Wollongong, Australia*

M19-54 Feasibility of Secondary 15O Beam Production for in-Beam PET

A. Mohammadi, Y. Hirano, F. Nishikido, E. Yoshida, T. Inaniwa, T. Yamaya
National Institute of Radiological Sciences, Japan

M19-55 PET Isotopes and Prompt Gamma Rays for In-Vivo Dose Delivery Verification in Proton Therapy in Strongly Heterogeneous Tissues

H. J. T. Buitenhuis[1], D. C. Oxley[1], A. K. Biegun[1], A. J. van der Borden[1], S. Brandenburg[1], F. Diblen[1,2], M. J. van Goethem[1], A. van der Schaaf[1], S. Vandenberghe[2], A. A. van 't Veld[1], P. Dendooven[1]
[1]*University of Groningen, The Netherlands; [2]Ghent University, Belgium*

M19-56 An Experimental Test of a Beam Monitoring Method by Measuring Low Energy Photons Using a Gamma Camera

M. Yamaguchi, Y. Nagao, Y. Saito, N. Kawachi, S. Fujimaki, *Japan Atomic Energy Agency, Japan*; S. Yamamoto, M. Komori, *Nagoya University Graduate School of Medicine, Japan*; T. Toshito, *Nagoya Proton Therapy Center, Japan*

M19-57 Compton Imaging of Prompt-? Radiation in Proton Therapy: Simulation of the Influence of the Detector Response and the Patient Attenuation

E. Hilaire, D. Sarrut, F. Peyrin, V. Maxim, *CREATIS, France*

M19-58 TOF-PET for Quality Assurance in Proton Therapy: a Patient Case Study

F. Diblen[1,2], H. J. T. Buitenhuis[1], D. C. Oxley[1], A. K. Biegun[1], A. J. van der Borden[3], S. Brandenburg[1], A. van der Schaaf[3], S. Vandenberghe[2], A. A. van 't Veld[3], P. Dendooven[1]
[1]*KVI-Center for Advanced Radiation Technology, The Netherlands; [2]MEDISIP, Belgium; [3]University of Groningen, The Netherlands*

M19-59 An Experimental Approach to Evaluate the 11C Washout Parameters for hadronPET Applications

I. Martinez-Rovira, *IMNC - UMR 8165, France*; R. Boisgard, G. Pottier, B. Kuhnast, S. Jan, *CEA/DSV/DRM/SHFJ - Service Hospitalier Frédéric Joliot, France*

M19-60 Silicon Microstrip Detector for Microbeam Radiation Therapy

I. E. Anokhin[1], M. Lerch[2], M. Petasecca[2], O. Zinets[1], A. Rosenfeld[2]
[1]*Institute for Nuclear Research, Ukraine; [2]Centre for Medical Radiation Physics, Australia*

M19-61 Performance of a Fast Acquisition System for In-Beam PET Monitoring Tested with Clinical Proton Beams

M. G. Bisogni[1,2], P. Cerello[3,4], B. Liu[1,2], M. Morrocchi[1,2], F. Pennazio[3,4], M. A. Piliero[1,2], G. Pirrone[1,2], R. Wheadon[4], A. Del Guerra[1,2]
[1]*University of Pisa, Italy; [2]INFN, Sezione di Pisa, Italy; [3]University of Torino, Italy; [4]INFN, sezione di Torino, Italy*

M19-62 An Investigation of Tc-99m MAA as a Surrogate for Pre-Therapy Treatment Planning in Y-90 Glass Microsphere Therapy for Liver Cancer

T. Mauxion, Y. Du, R. F. Hobbs, J.-F. Geschwind, J. M. Herman, J. Yue, M. A. Lodge, D. K. Reyes, S. Mirpour, R. L. Wahl, E. C. Frey
Johns Hopkins University School of Medicine, USA

M19-63 BrachyView, a Real Time Source Tracking System for Use in HDR Brachytherapy: Experimental Results

S. Alnaghy, M. Safavi-Naeini, Z. Han, A. Rosenfeld
University of Wollongong, Australia

M19-64 Dose Enhancement at Tungsten-Tissue Interfaces with 192Ir Source in HDR Brachytherapy

Z. Han, M. Safavi-Naeini, S. Alnaghy, D. Cutajar, S. Guatelli, M. Petasecca, M. Lerch, A. Rosenfeld, *Centre for Medical Radiation Physics at University of Wollongong, Australia*; D. R. Franklin, *University of Technology, Sydney, Australia*; J. Bucci, *St George Hospital Cancer Care Centre, Australia*; M. Zaider, *Memorial Sloan Kettering Cancer Center, U.S.A*

M19-65 In-Beam Image Based ß+ Activity Measurement in ^{12}C and [11]C Irradiations Using a Small OpenPET Prototype

Y. Hirano[1], Y. Nakajima[1], F. Nishikido[1], T. Shinaji[1], M. Nitta[1], E. Yoshida[1], K. Parodi[2], T. Yamaya[1]

[1]Department of Biophysics Molecular Imaging Center National Institute of Radiological Sciences, Japan; [2]Department of Medical Physics, Ludwig Maximilians University, Germany

M19-66 Ion Beams of Therapeutical Energy on PMMA Phantoms Measurements in View of an Innovative Dose Profiler Realization for on Line Monitoring in Hadrontherapy Treatments.

M. Marafini[1,2], F. Bellini[3,2], F. Collamati[3,2], E. De Lucia[4], R. Faccini[3,2], F. Ferroni[3,2], P. M. Frallicciardi[1,2], I. Mattei[4,5], S. Morganti[2], V. Patera[6,2], L. Piersanti[7,2], D. Pinci[2], A. Russomando[3,2,6], A. Sarti[7,4], A. Sciubba[7,2], E. Solfaroli Camillucci[6], C. Voena[3,2], G. Battistoni[8]

[1]Museo Storico della Fisica e Centro Studi e Ricerche "E. Fermi", Italy; [2]INFN Sezione di Roma, Italy; [3]Dipartimento di Fisica, Sapienza Universita' di Roma, Italy; [4]Laboratori Nazionali di Frascati dell'INFN, Italy; [5]Dipartimento di Matematica e Fisica, Roma Tre Universita' di Roma, Italy; [6]Center for Life Nano Science@Sapienza, Italy; [7]Dipartimento di Scienze di Base e Applicate per Ingegneria, Sapienza Universita' di Roma, Italy; [8]INFN sezione di Milano, Italy

M19-67 Geant4 Simulation Platform for the Phase 2 Proton CT Scanner

V. Giacometti[1], V. A. Bashkirov[2], S. Guatelli[1], A. B. Rosenfeld[1], T. E. Plautz[3], F. R. Hurley[2], R. W. Schulte[2]

[1]Wollongong University, Australia; [2]Loma Linda University, USA; [3]Santa Cruz Institute for Particle Physics, USA

M19-68 Measuring the Effect on MRI Field Homogeneity of CZT Detector Materials

A. Tao, M. Noseworthy, *McMaster University, Canada*; T. H. Farncombe, *Hamilton Health Sciences, Canada*

M19-69 The Effect of Magnetic Field on Positron Range and Spatial Resolution in an Integrated Whole-Body Time-of-Flight PET/MRI System

S.-Y. Huang, U. Shrestha, Y. Seo

University of California, San Francisco, USA

M19-70 Hybrid PET/MRI Insert: B_0 Field Optimization by Applying Active and Passive Shimming on PET Detector Level

J. Wehner[1], B. Weissler[2], V. Schulz[1,2]

[1]Department for Experimental Molecular Imaging, RWTH Aachen University, Germany; [2]Philips Research Europe, Germany

M19-71 Quantitative Analysis of Effect of Shield Boxes for PET Electronics Combined with an MR Head Coil

K. Shimizu[1], M. Suga[1], F. Nishikido[2], H. Kuribayashi[3], I. Nakajima[4], Y. Kawabata[4], T. Yamaya[1,2], T. Obata[2]

[1]Chiba University, Japan; [2]National Institute of Radiological Sciences, Japan; [3]Siemens Japan K. K., Japan; [4]Takashima Seisakusho Co., Ltd., Japan

M19-72 Preliminary Simultaneous PET/MRI Images Acquired with an RF-Transmissive PET Insert

A. M. Grant, B. J. Lee, C.-M. Chang, C. S. Levin

Stanford University, USA

M19-73 Novel Rodent Imaging Results from the Simultaneous PET-MRI System Based on the RatCAP

M. Budassi[1], S. D. Smith[2], R. Madru[3], L. Knutsson[3], S.-E. Strand[3], H. Benveniste[1], H. Lee[2], S. P. Stoll[2], M. L. Purschke[2], D. J. Schlyer[2], C. L. Woody[2], P. Vaska[1,2]

[1]Stony Brook University, USA; [2]Brookhaven National Laboratory, USA; [3]Lund University, Sweden

M19-74 Development of a Quantitative Simultaneous MR/Scintimammography System

J. Cho, F. Nouizi, S. Ha, M. J. Hamamura, W. W. Roeck, M.-Y. Su, G. Gulsen, O. Nalcioglu

University of California Irvine, USA

M19-75 Parameter Optimization for the FixER Method: a PET/MRI Attenuation Correction with a Weak Fixed-Position External Radiation Source

H. Kawaguchi[1], Y. Hirano[1], E. Yoshida[1], J. Kershaw[1], T. Shiraishi[1], M. Suga[2], T. Obata[1], H. Ito[1], T. Yamaya[1]

[1]National Institute of Radiological Sciences, Japan; [2]Chiba University, Japan

M19-76 Subject-Specific Refinement of Attenuation Correction Maps for Hybrid PET/MRI Based on Multi-Resolution Regional Learning

K. Shi[1], S. Fuerst[1], M. Lukas[1], L. Sun[2], N. Navab[1], S. Foerster[1], S. I. Ziegler[1]

[1]Technical University Munich, Germany; [2]Opera Solutions, USA

M19-77 Evaluation of Performance and Stability of a MR Compatible PET Detector

E. Shams[1], J. D. Thiessen[2], D. Bishop[3], M. S. Khan[1], P. Kozlowski[4], F. Retière[3], V. Sossi[4], G. Stortz[4], C. J. Thompson[5], A. L. Goertzen[1]

[1]University of Manitoba, Canada; [2]Lawson Health Research Institute, Canada; [3]TRIUMF, Canada; [4]University of British Columbia, Canada; [5]Montreal Neurological Institute, Canada

M19-78 Performance Evaluation of a PET/MR Detector Based on the ClearPEM Technology

J. A. Neves[1,2], R. Bugalho[2], C. Ortigão[2], R. Silva[2], J. C. Silva[2], R. Gruetter[1], J. Varela[2]

[1]EPFL - École Polytechnique Fédérale de Lausanne, Switzerland; [2]LIP - Laboratory of Instrumentation and Experimental Particle Physics, Portugal

M19-79 Notch Filtering of RF Interference in PET Data for Simultaneous PET-MR Acquisition

N. C. W. Eclov[1], H. Kim[1], H. T. Chen[1], C.-T. Chen[1], A. Ronzhin[2], E. Ramberg[2], S. Los[2], P. Murat[2], A. M. Wyrwicz[3], L. Li[3], C.-M. Kao[1]

[1]University of Chicago, USA; [2]Fermi National Accelerator Laboratory, USA; [3]NorthShore University HealthSystem Research Institute, USA

M19-80 Geometrical Calibration of a PET-Scanner-Based Multi-Pinhole SPECT Using LYSO Background Radiation

Q. Wei[1], T. Ma[1], L. Hui[1], J. Wu[1], T. Dai[2], X. Huang[3], N. Jiang[1], S. Wang[1], X. Jiang[1], Y. Liu[1]

[1]Tsinghua University, China; [2]China Japan Friendship Hospital, China; [3]Nucmed Inc, China

M19-81 Magnetic Field and PET: Does the Effect of Magnetic Field Vary with the Intrinsic Resolution of PET Scanners?

J.-C. (. Cheng[1], R. Laforest[2], R. Boellaard[1]

[1]VU University Medical Center, Netherlands; [2]Washington University School of Medicine, USA

M19-82 Position Sensitive Photosensors Using Sparse Sensor Arrays

R. S. Miyaoka, W. C. Hunter, A. L. Lehnert, *University of Washington, USA*; S.-J. Lee, Y. H. Chung, *Yonsei University, Korea*

M19-83 Development of Multi-Channel Fast SiPM Readout Electronics for Clinical TOF PET Detector
T. Xu[1,2], Q. Wei[1,2], W. Liu[3], T. Ma[1,2], G. Gong[1,2], Z. Deng[1,2], Y. Liu[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China; [3]National Institute of Metrology, China

M19-84 Performance Evaluation of a GAGG:Ce Scintillation Crystal Array with SiPMs for High-Resolution Compact SPECT Detector
Y. Qi[1], M. Petasecca[1], P. Ihnat[1], M. Lerch[1], S. Meikle[2], K. Kamada[3], A. Rosenfeld[1]
[1]University of Wollongong, Australia; [2]University of Sydney, Australia; [3]C&A Corporation, Japan

M19-85 Development of a SiPM-Based PET Detector for EXPLORER
J. Du[1], X. Bai[1], Y. Yang[1], M. S. Judenhofer[1], E. Berg[1], K. Di[1], S. Buckley[2], C. Jackson[2], S. R. Cherry[1]
[1]UC Davis, USA; [2]SensL Technologies Ltd., Ireland

M19-86 High Fill Factor 8x8 SiPM Tiles Based on FBK RGB-HD Technology
A. Gola[1], F. Acerbi[1], A. Ferri[1], G. Paternoster[1], A. Picciotto[1], T. Solf[2], N. Zorzi[1]
[1]Fondazione Bruno Kessler, Italy; [2]Philips Technologie GmbH, Germany

M19-87 High Volume SiPM, Reliability Testing Procedure and Results
C. Jackson, K. O'Neill, L. Wall, B. McGarvey
SensL, Ireland

M19-88 Effective Gap Width and Implications for Position Estimation in Germanium Strip Detectors
R. S. Perea, O. Ovchinnikov, T. E. Peterson
Vanderbilt University, USA

M19-89 A Compact High-Resolution Flat Panel PET Detector for Biomedical Applications Based on the New 4-Side Buttable MPPC
Q. Wang, B. Ravindranath, K. Li, A. J. Mathews, D. Tomov, J. A. O'Sullivan, Y.-C. Tai
Washington University in St. Louis, United States

M19-90 Analysis of Detector Quantum Efficiency of a Sandwich Detector for Single-Shot Dual-Energy Mouse Imaging
J. Kim[1], H. K. Kim[1], S. Yun[1], D. W. Kim[1], J. C. Han[1], H. Youn[1], S. Kam[1], J. Tanguay[2], I. A. Cunningham[3]
[1]Pusan National University, Republic of Korea; [2]University of British Columbia, Canada; [3]Western University, Canada

M19-91 Microflow Measurements of Antibodies' Fluorescence Using Silicon Photomultipliers
P. Dorosz, M. Baszczyk, S. Glab, W. Kucewicz, L. Mik, M. Sapor
AGH University of Science and Technology, Poland

M19-92 On-Line C-Arm Intrinsic Calibration: Simulation Study
B. Spencer, L. Desbat, *UJF-Grenoble 1, France*

M19-93 Sensitive Phase Gratings for X-Ray Phase Contrast – a Simulation-Based Comparison
O. Preusche, *University Erlangen-Nuremberg, Germany*

M19-94 Graphic User Interface (GUI) Based Cervical, Thoracic, and Lumber (C-T-L) Spine Magnetic Resonance Image Stitching
D. H. Lee, *Johns Hopkins University School of Medicine, USA*; C. P. Hong, *KOREA Research Institute of Standards and Science (KRISS), South Korea*; B. S. Han, *Yonsei University, South Korea*

M19-95 Time Resolved Optical Tomographic Imaging: a Simulation Study
A.-N. Rapsomanikis[1], A. Eleftheriou[1], M. Mikeli[1], M. Zioga[1], E. Stiliaris[1,2]
[1]National & Kapodistrian University of Athens, Greece; [2]Institute of Accelerating Systems and Applications, Greece

M19-96 An Optical Therapeutic Protocol to Treat Brain Metastasis by Mapping NIR Activated Drug Release: a Pilot Study
A. Prabhu Verleker[1], Q. Fang[2], M.-R. Choi[3], S. Clare[3], K. Stantz[1]
[1]Purdue University, USA; [2]Harvard University, USA; [3]Northwestern University, USA

M19-97 Performance Evaluation of Analytic- and Optimization-Based Reconstruction Algorithms for C-Arm Cone-Beam CT in Low-Contrast Imaging
X. Han[1], S. Oishi[2], T. Satow[3], H. Yokoyama[3], M. Yamada[3], M. D. Silver[4], Z. Zhang[1], Y.-B. Chang[4], E. Y. Sidky[1], X. Pan[1]
[1]The University of Chicago, USA; [2]Toshiba Medical Systems Corporation, Japan; [3]National Cerebral and Cardiovascular Center Hospital, Japan; [4]Toshiba Medical Research Institute USA, USA

M19-98 Laboratory-Based Edge-Iillumination Phase-Contrast Imaging: Dark-Field Retrieval and High-Resolution Implementations
M. Endrizzi[1], P. C. Diemoz[1], C. K. Hagen[1], T. P. Millard[1], F. A. Vittoria[1,2], U. H. Wagner[3], C. Rau[3], I. K. Robinson[4,2], A. Olivo[1]
[1]University College London, United Kingdom; [2]Research Complex at Harwell, United Kingdom; [3]Diamond Light Source, United Kingdom; [4]London Centre for Nanotechnology, United Kingdom

M19-99 A Novel Decomposition Method for Dual-Energy Computed Tomography
Y. Li[1,2], L. Zhang[1,2], K. Kang[1,2], Z. Chen[1,2]
[1]Tsinghua University, China; [2]Ministry of Education, China

M19-100 A Predictive Model for Monitoring Brain Disease Progression
P. H. Lim, W. K. Lim, *University of Nottingham, England*

M19-101 Optimization of Sensitivity, Dose and Spatial Resolution in Edge Illumination X-Ray Phase-Contrast Imaging
P. C. Diemoz, M. Endrizzi, C. K. Hagen, F. A. Vittoria, T. P. Millard, A. Olivo
University College London, United Kingdom

M19-102 Low-Dose X-Ray Phase Contrast Tomography: Experimental Setup, Image Reconstruction and Applications in Biomedicine

C. K. Hagen, A. Zamir, P. C. Diemoz, M. Endrizzi, F. Kennedy, R. Jager, A. Olivo
University College London, UK

M19-103 aET: Alpha Emission Tomography

Y. Ding, L. Caucci, H. H. Barrett
University of Arizona, USA

M19-104 Research of Spectroscopic Method for Intense X-Ray Image Diagnostics

S. Muto, *National Institute for Fusion Science, JAPAN;* K. Mori, *Ibaraki Prefectural University of Health Sciences, JAPAN;* K. Hyodo, *High Energy Accelerator Research Organization, Japan*

M19-105 A Joint Beta and Coincidence-Gamma Data Modeling and Image Reconstruction Framework for Plant Leaf Imaging

H. Ranjbar, A. J. Mathews, J. Wen, Q. Wang, S. Komarov, J. A. O'Sullivan, Y.-C. Tai
Washington University in St. Louis, United States

M19-106 Contrast-to-noise Estimation and Optimization of a Novel Multi-Energy CT system for a Clinical Dual-Energy Imaging Task

A. Hadjipanteli*[1], W. Worstell*[2], Y. Rakvongthai[1], J. Ouyang[1], J. Bian[1], A. Lorsakul[1], G. El Fakhri[1]
[1]Massachusetts General Hospital, USA; [2]Photo Diagnostic Systems, Inc., USA

M19-107 Real-Time Brain Activation Detection by FPGA Implemented Adaptive Algorithm

M. S. Nazir, M. Aqil, A. Akram, B. C. Maheshwari, M. U. Hadi
Pakistan Institute of Engineering And Applied Sciences, Pakistan

M19-108 Curved Focusing Crystals for a Hard X-Ray Lens for Medical Imaging in Nuclear Medicine

C. Ferrari, E. Buffagni, E. Bonnini
IMEM-CNR Institute, Italy

M19-109 Phase-Contrast X-Ray Imaging Segmentation Using Tsallis Entropy

I. Dominguez Jimenez, A. Ramirez Reyes, G. Herrera Corral
CINVESTAV, Mexico

M19-110 Design and Additive Manufacturing of MRI Gradient Coils

J. P. Rigla[1], A. Sarwar[2], A. N. Nacev[2], M. Urdaneta[2,3], E. Anashkin[2], P. Stepanov[2], I. N. Weinberg[2], J. M. Benlloch[1], A. McMillan[4], S. Fricke[5]
[1]Instituto de Instrumentacion para Imagen Molecular, Spain; [2]Weinberg Medical Physics LLC, USA; [3]Additive Electromagnetics, USA; [4]University of Wisconsin, USA; [5]Children´s National Medical Center, USA

M19-111 Pre-Reconstruction Three-Material Decomposition in Dual-Energy CT with an Energy-Resolved Photon-Counting Detector

S. Lee, H.-J. Kim, *Yonsei University, Republic of Korea*

M19-112 In Vivo Radiopharmaceutical Excitation Fluorescence Imaging

Z. Hu[1], Y. Qu[2], K. Wang[1], X. Zhang[3], H. Liu[2], J. Tian[1]
[1]Institute of Automation(IA),Chinese Academy of Sicences(CAS), China; [2]General Hospital of Chinese Armed Police Forces, China; [3]Chinese PLA General Hospital, China

M19-113 Identification of a region including metals in the projection data using an energy discriminating photon counting detector

F. Kaibuki[1], M. Matsumoto[1], T. Fukui[2], A. Katsumata[2], K. Ogawa[1]
[1]Hosei University, Japan; [2]Asahi University, Japan

M19-114 Continuous or Pixelated Scintillators?, Not Longer a Discussion

S. Majewski[1], A. J. Gonzalez[2], J. Proffitt[3], P. Conde[2], L. Hernandez[2], F. Sanchez[2], A. Stolin[1], J. M. Benlloch[2]
[1]West Virginia University, United States; [2]Institute for Instrumentation in Molecular Imaging, Spain; [3]AiT Instruments, United States

M19-115 Optimization of Digital SiPMs Coupled to a Four-Layered DOI Crystal Block with Light Sharing

E. Yoshida[1], I. Somlai-Schweiger[2], H. Tashima[1], S. I. Ziegler[2], T. Yamaya[1]
[1]National Institute of Radiological Sciences, Japan; [2]Technische Universität München, Germany

M19-116 Exploiting Anatomical Information for PET Image Enhancement: a Phantom Experiment for Algorithm Validation

E. Grecchi, J. O'Doherty, F. E. Turkheimer
King's College London, UK

M19-117 Radiation Damage of the Multi-Pixel Photon Counter to Be Used for in-Beam PET in Carbon Therapy

F. Nishikido, Y. Hirano, A. Mohammadi, T. Yamaya
National Institute of Radiological Sciences, Japan

M19-118 MR Bone Density Measurement Using Water- and Fat-Suppressed Projection Imaging (WASPI) for Attenuation Correction in PET-MR

C. Huang[1,2], J. Ouyang[1,2], T. G. Reese[2,1], Y. Wu[2,3], G. El Fakhri[1,2], J. L. Ackerman[2,1]
[1]Massachusetts General Hospital, USA; [2]Harvard Medical School, USA; [3]Children's Hospital Boston, USA

M19-119 Investigation of the Impact of Count Statistics and System Resolution to Intra-fraction Proton Beam Range Verification with PET Imaging

K. Lou[1,2], D. Mirkovic[2], X. Sun[2], X. R. Zhu[2], F. Poenisch[2], D. Grosshans[2], J. W. Clark, Jr.[1], Y. Shao[2]
[1]Rice University, USA; [2]University of Texas MD Anderson Cancer Center, USA

M19-120 Randoms and TOF Gain Revisited

L. A. Eriksson[1,2,3], M. Conti[1]
[1]Siemens Medical Solutions, Molecular Imaging, USA; [2]Scintillation Materials Research Center, USA; [3]University of Stockholm, Sweden

M19-121 Probabilistic Layer Identification in a Multi-Layer Fast-Timing Detector for Time-of-Flight PET Using Machine Learning

M. G. Ertosun, J. W. Cates, C. S. Levin
Stanford University, USA

M19-122 Development of a PET/Cherenkov-Light Hybrid Imaging System

S. Yamamoto[1], F. Hamamura[1], T. Watabe[2], H. Ikeda[2], Y. Kanai[2], H. Watabe[3], K. Kato[1], J. Hatazawa[2]
[1]Nagoya University Graduate School of Medicine, Japan; [2]Osaka University Graduate School of Medicine, Japan; [3]Tohoku University CYRIC, Japan

M19-123 Quantitative X-Ray Radiography for Nondestructively Evaluating Solid Soluble Content with the Grating Interferometry

X. Jiang[1,2], L. Zhang[1,2], R. Zhang[1,2], X. Zhu[1,2]
[1]Tsinghua University, China; [2]Key Laboratory of Particle and Radiation Imaging (Tsinghua University), Ministry of Education, China

M21 High Resolution Instrumentation & Pre-Clinical Imaging

Friday, Nov. 14   16:00-18:00   6A

Session Chairs: **Roger Lecomte**, Université de Sherbrooke, Canada
                         Jae Sung Lee, Seoul National University, South Korea

M21-1 Evaluation of DoI Information Based on a Cross Strip Encoding Detector

A. Kolb[1], C. Parl[1], M. Rafecas[1], E. Lorenz[2], B. J. Pichler[1]
[1]University of Tuebingen, Germany; [2]Max Planck Institute for Physics, Germany

M21-2 (16:15) Data Processing Techniques and PET Performance Evaluation of a Preclinical PET/MR Insert with Digital Silicon Photomultiplier Technology

D. Schug[1], C. Lerche[2], B. Weissler[1,3], P. Gebhardt[4], B. Goldschmidt[1], A. Salomon[2], J. Wehner[1], P. M. Dueppenbecker[1,4], F. Kiessling[1], V. Schulz[1,3]
[1]RWTH Aachen University, Germany; [2]Philips Research, Netherlands; [3]Philips Research, Germany; [4]King's College London, United Kingdom

M21-3 (16:30) Prototype PET System with a Pair of Digital SiPM-based Continuous Depth-of-interaction Encoding PET Detector

M. S. Lee, K. Y. Kim, G. B. Ko, J. S. Lee
Seoul National University, Korea

M21-4 (16:45) Motion Uncertainty Deblurring in Motion Corrected Reconstruction for μPET Brain Imaging of Awake Rats

A. Miranda[1], J. Verhaeghe[1], J. Parthoens[1], S. Staelens[1], S. Stroobants[1,2]
[1]University of Antwerp, Belgium; [2]Antwerp University Hospital, Belgium

M21-5 (17:00) Image Reconstruction Using Tetrahedral Voxels: a List Mode Implementation for Awake Animal Imaging

J. E. Gillam, G. I. Angelis, W. J. Ryder, S. R. Meikle
The University of Sydney, Australia

M21-6 (17:15) System Calibration for Adaptive SPECT Imaging

C. Chaix[1], M. A. Kupinski[1,2], H. H. Barrett[1,2], L. R. Furenlid[1,2]
[1]College of Optical Sciences - The University of Arizona, USA; [2]Center for Gamma Ray Imaging - The University of Arizona, USA

M21-7 (17:30) MRC-SPECT-I: an Ultrahigh Resolution MR-Compatible SPECT System with Dual FOV Aperture

X.-C. Lai[1], A. Groll[1], H.-M. Tsai[2], C.-T. Chen[2], L.-J. Meng[1]
[1]University of Illinois at Urbana-Champaign, USA; [2]University of Chicago, USA

M21-8 (17:45) Dual-Resolution SPECT Imaging with a Rectangular Pinhole Collimator Tubes: System Integration and Prototype Scout-Tube Imaging

D. Xia[1], S. C. Moore[2], M.-A. Park[2], M. Cervo[2], S. D. Metzler[1]
[1]University of Pennsylvania, USA; [2]Brigham & Women's Hospital and Harvard Medical School, USA

M20 Image Reconstruction Methods II

Friday, Nov. 14   16:00-18:00   6B

Session Chairs: **Richard M. Leahy**, University of Southern California, United States
                         Adam M. Alessio, University of Washington, United States

M20-1 (16:00) Application of the Ordered-Subsets Transmission Reconstruction Algorithm to Contrast-Enhanced Dual-Energy Digital Breast Tomosynthesis

Y. Lu, B. Peng, D. Scaduto, W. Zhao, G. Gindi
Stony Brook University, USA

M20-2 (16:15) SURE-Based Regularization Parameter Selection for List-Mode Penalized-Likelihood Image Reconstruction in PET

J. Zhou[1], X. Niu[2], H. Ye[2], W. Wang[2], J. Qi[1]
[1]University of California, Davis, USA; [2]Toshiba Medical Research Institute USA, Inc., USA

M20-3 (16:30) List-Mode Reconstruction of Multiple-Pinhole MicroSPECT Data Using Origin Ensembles

M. Cervo[1,2,3], D. Xia[4], S. D. Metzler[4], S. C. Moore[1,3]

[1]Brigham and Women's Hospital, United States; [2]University of Massachusetts Lowell, United States; [3]Harvard Medical School, United States; [4]University of Pennsylvania, United States

M20-4 (16:45) Motion Compensated Reconstruction of 4D SPECT Using Parallel Computation and Content Adaptive Mesh

F. Massanes, J. G. Brankov

Illinois Institute of Technology, USA

M20-5 (17:00) Spatiotemporal Total Variation Reconstruction for Dynamic PET

J. F. P. J. Abascal[1,2], E. Lage[3], M. E. Martino[2], J. L. Herraiz[3], M. Desco[1,2,4], J. J. Vaquero[1,2]

[1]Universidad Carlos III de Madrid, Spain; [2]Instituto de Investigacion Sanitaria Gregorio Maranon (IiSGM), Spain; [3]Madrid-MIT M+Vision Consortium, United States; [4]Centro de Investigacion Biomedica en Red de Salud Mental (CIBERSAM), Spain

M20-6 (17:15) Fully 3D Image Reconstruction and Quantitative Correction for a Total-Body PET Scanner

X. Zhang, J. Zhou, R. D. Badawi, J. Qi

University of California, Davis, USA

M20-7 (17:30) Sinogram Blurring Matrix Estimation from Point Sources Measurements with Rank-One Approximation

K. Gong, J. Zhou, J. Qi

University of California Davis, USA

M20-8 (17:45) Direct Inversion of Spectral CT Data into a Materials Decomposition and the Effect of Multiple Soft Tissues

E. Y. Sidky[1], T. Gilat-Schmidt[2], X. Pan[1]

[1]University of Chicago, USA; [2]Marquette University, USA

M22 Data Corrections and Quantitative Imaging Techniques II

Saturday, Nov. 15   08:00-10:00   6B

Session Chairs: **Roger R. Fulton**, University of Sydney, Australia

Abhijit J. Chaudhari, UC Davis School of Medicine, United States

M22-1 (08:00) An ADMM Reconstruction Algorithm for Joint Registration and Attenuation Correction in Transmission-Less Gated TOF PET

H. Li[1,2], G. El Fakhri[2], A. A. Joshi[3], Q. Li[2]

[1]boston university, USA; [2]Massachusetts general hospital, harvard university, USA; [3]University of Southern California, USA

M22-2 (08:15) PET Image Reconstruction with Correction for Non-Periodic Deformable Motion

I. S. Klyuzhin, G. Stortz, V. Sossi

University of British Columbia, Canada

M22-3 (08:30) A Prompt-Gamma Correction Method for Non-Standard PET Radionuclides Based on the Detection of Triple Coincidences

J. L. Herraiz[1], S. C. Moore[2], V. Parot[1], S. R. Dave[1], M.-A. Park[2], S.-S. Yoo[2], W. Lee[2], H. Kim[3], E. Lage[1]

[1]Madrid-MIT M+Vision Consortium, United States; [2]Brigham and Women's Hospital and Harvard Medical School, United States; [3]Korea Institute of Science and Technology, Korea

M22-4 (08:45) Multi-Bed Elastic Motion Correction for Whole Body MR-PET

G. Bal[1], M. Fenchel[2], V. Panin[1], W. Howe[1], F. Kehren[1]

[1]Siemens Healthcare, USA; [2]Siemens Healthcare, Germany

M22-5 (09:00) Scatter and Crosstalk Corrections for ^{99m}Tc/^{123}I Dual-Isotope Imaging Using a CZT SPECT System with Pinhole Collimators

P. Fan[1,2], B. Hutton[3], M. Ljungberg[4], T. Ma[2], Y. Liu[2], S. Wang[2], R. Prasad[1], S. Thorn[1], M. Stacy[1], A. Sinusas[1], C. Liu[1]

[1]Yale University, USA; [2]Tsinghua University, China; [3]Univeristy College London, UK; [4]Lund Univeristy, Sweden

M22-6 (09:15) MR Based PET Attenuation Correction (MRAC) and Anatomical Localization of Human Brain Using an Optimized UTE-mDixon Pulse Sequence

L. Hu[1], C. Stehning[2], N. Nguyen[3], C. MartinezRios[3], A. Sher[3], Z. Hu[1], L. Shao[1]

[1]Philips Healthcare, USA; [2]Philips Research, Germany; [3]University Hospital, USA

M22-7 (09:30) Data-Driven Respiratory Motion Estimation and Correction Using TOF PET List-Mode Centroid of Distribution

S. Ren, X. Jin, C. Chan, T. Mulnix, C. Liu, R. E. Carson

Yale University, USA

M22-8 (09:45) CT Density Driven Continuous Bed Motion Acquisition

V. Y. Panin, H. Bal, M. E. Casey, Siemens Healthcare, USA

M23 Simulation, Modelling & Image Processing

Saturday, Nov. 15   10:30-12:00   6B

Session Chair: **Ling-Jian Meng**, University of Illinois at Urbana-Champaign, United States

M23-1 (10:30) Statistics of Nuclear Imaging

A. Sitek

Massachusetts General Hospital and Harvard Medical School, USA

M23-2 (10:45) Simulation and Validation of Burrow-SPECT for Awake Animal Imaging

F. Boisson[1,2], J. Gillam[2], P. Kench[2], G. Angelis[2], A. Kyme[2], R. Fulton[2], S. R. Meikle[2]

[1]Australian Nuclear Science and Technology Organisation, Australia; [2]University of Sydney, Australia

M23-3 (11:00) PET Detectors Using Continuous Crystals: a Simulation Study about Detector Limitations

J. Cabello[1], F. R. Schneider[1], A. M. Etxebeste[2], G. Llosá[2], S. I. Ziegler[1]

[1]Klinikum rechts der Isar der Technischen Universität München, Germany; [2]Instituto de Física Corpuscular (CSIC/UV), Spain

M23-4 (11:15) Analysis of Spatial Patterns in Tumor Imaging Data: A Method for Assessment of Tubularity

E. Wolsztynski, J. O'Sullivan, J. Eary, F. O'Sullivan

University College Cork, Ireland

M23-5 (11:30) The Evaluation of Treatment Response Using Gaussian Random Field Theory

M. Wang[1,2], H. Zhang[1], G. El Fakhri[2], Q. Li[2]

[1]Tsinghua University, China; [2]Massachusetts General Hospital, USA

M23-6 (11:45) Scatter Correction with Combined Single-Photon Simulation and Monte Carlo Simulation for 3D PET

J. Ye, X. Song, Z. Hu, *Philips Healthcare, United States*

RTSD Program

R01 RTSD Opening

Monday, Nov. 10   14:00-15:30   611 & 612

Session Chair: **Michael Fiederle**, Freiburger Materialforschungszentrum, Germany

R01-1 (14:00) Welcome and Introductory Comments
R. B. James, *Brookhaven National Laboratory, USA*; M. Fiederle, *University of Freiburg, Germany*

R01-2 (14:05, invited) Redlen's CZT Growth and Detector Technology for High Flux X-Ray Applications
U. El-Hanany, *Redlen Technologies, Canada*
On behalf of the Redlen Technologies

R01-3 (14:25) A 100cm² Spectroscopic Imaging Detector Based on the HEXITEC ASIC
M. D. Wilson[1], S. J. Bell[1,2], D. D. Duarte[1,2], A. Schneider[1], P. Seller[1], M. C. Veale[1]
[1]*STFC, Rutherford Appleton Laboratory, Oxfordshire;* [2]*University of Surrey, Surrey*

R01-4 (14:40) Stability Investigation of Photon Counting Medipix Chips with Si, GaAs and CdTe Sensors
S. Procz[1], F. Fischer[1], A. Fauler[1], E. Hamann[2], M. Fiederle[1]
[1]*FMF University of Freiburg, Germany;* [2]*KIT (Karlsruhe Institute of Technology), Germany*

R01-5 (14:55) Control of Electric Field in CdTe and CdZnTe by Light
J. Franc, V. Dedic, M. Rejhon, J. Zazvorka, *Institute of Physics, Charles University, Czech Republic;* P. Sellin, *Department of Physics, University of Surrey, Great Britain*

R01-6 (15:10, invited) Can Large Volume 3-D CdZnTe Detectors Approach HPGe Resolution?
Z. He, Y. Zhu, F. Zhang, M. Streicher, Y. A. Boucher
The University of Michigan, United States

R02 CZT1

Monday, Nov. 10   16:00-17:50   611 & 612

Session Chair: **Zhong He**, The University of Michigan, United States

R02-1 (16:00, invited) Characterization of CdZnTe Radiation Detectors at eV Products
M. Prokesch, *eV Products, Inc., USA*

R02-2 (16:20) Tellurium Inclusion Density and Distribution in THM-Grown CdZnTe Cooled at Different Rates
J. M. MacKenzie, F. J. Kumar, L. Burgess
Redlen Technologies, Canada

R02-3 (16:35) Progress of Room-Temperature Radiation Detectors Development at KAERI
M. Jeong, H. S. Kim, J. H. Ha
Korea Atomic Energy Research Institute, South Korea

R02-4 (16:50) Characterization of CdZnTe Crystal Co-Doped with Indium and Lead
T. Wang, *Northwestern Polytechnical University, China*
On behalf of the Wanqi Jie's Group

R02-5 (17:05) Atomic and Electronic Structure of Dislocations in Cd(Zn)Te
V. Lordi[1], D. Aberg[1], M. Skarlinski[1,2], E. Cho[1,3]
[1]*Lawrence Livermore National Lab, USA;* [2]*University of Rochester, USA;* [3]*Samsung Advanced Institute of Technology, South Korea*

R02-6 (17:20) 3D Position Estimation in a Crossed-Strip CdTe Detector
E. Salçin[1], H. H. Barrett[1], H. B. Barber[1], S. Takeda[2], S. Watanabe[2,3], T. Takahashi[2,3], L. R. Furenlid[1]
[1]*University of Arizona, USA;* [2]*Japan Aerospace Exploration Agency, Japan;* [3]*University of Tokyo, Japan*

R02-7 (17:35) Effects of Fabrication Processes on Electric Field Distribution and Temporal Stability of CZT Radiation Detectors
G. S. Camarda[1], A. E. Bolotnikov[1], Y. Cui[1], A. Hossain[1], K. Kim[2], W. Lee[1,2], M. F. Wart[1,3], G. Yang[1], R. B. James[1]
[1]*Brookhaven National Lab, USA;* [2]*Korea University, Republic of Korea;* [3]*Rensselaer Polytechnic Institute, USA*

R03 Imaging Applications

Tuesday, Nov. 11   08:00-09:25   611 & 612

Session Chair: **Loick Verger**, CEA-LETI, France

R03-1 (08:00, invited) System Integration and Application of CdZnTe Detectors in a Compton Camera for Medical Use
F. Fiedler[1], W. Enghardt[1,2], C. Golnik[2], F. Hueso-Gonzales[2], T. Kormoll[2], A. Mueller[2], G. Pausch[2], J. Petzold[2], H. Rohling[2], K. Roemer[1], S. Schoene[1]
[1]*Helmholtz-Zentrum Dresden-Rossendorf, Germany;* [2]*OncoRay — National Center for Radiation Research in Oncology, Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Helmholtz-Zentrum Dresden – Rossendorf, Germany*

R03-2 (08:20, invited) New Multi-Energy Photon-Counting X-Ray Detectors for CT Systems

L. Verger, M. Jurdit, P. Ouvrier-buffet, A. Peizerat, J.-P. Rostaing, M. Tchagaspanian, V. Rebuffel
MINATEC Campus, Univ. Grenoble Alpes, FRANCE

R03-3 (08:40, invited) CdZnTe Detector Based Systems for Imaging Applications
B. W. Harris, *eV Products, Inc., USA*

R03-4 (08:55) Photon Counting X-Ray CT for Low Dose Imaging
T. Aoki[1,2], A. Koike[1], H. Morii[1], T. Okunoyama[1], H. Mimura[1]
[1]Shizuoka University, Japan; [2]ANSeeN Inc., Japan

R03-5 (09:10) Mini Compton Camera Based on an Array of Frisch-Ring CdZnTe Detectors
W. Lee, *Korea University, Korea*; A. Bolotnikov, G. Camarda, Y. Cui, A. Hossain, G. Yang, R. Utpal, R. B. James, *Brookhaven National Laboratory, USA*

R04 CZT2
Tuesday, Nov. 11   10:30-11:45   611 & 612

Session Chair: **Jan Franc**, Institute of Physics, Charles University, Czech Republic

R04-1 (10:30, invited) Differential Capacitance Measurement for MIS CdZnTe Detector
K. Kim, P. Kim, C. Park, *Korea University, Republic of Korea*; G. S. Camarda, A. E. Bolotnikov, R. B. James, *Brookhaven National Laboratory, USA*

R04-2 (10:50, invited) Spectral Imaging Performance of a CZT Sensor Bonded to Medipix3RX
E. Frojdh, *Mid Sweden University, Sweden*; R. Ballabriga, M. Campbell, *CERN, Switzerland*; A. Cherlin, I. Radley, *Kromek Ltd., U.K.*

R04-3 (11:10) Characterization of the VIP-PIX Detector, a Novel Room Temperature Pixelated CdTe Detector for PET Applications.
G. De Lorenzo, M. Chmeissani, G. Arino, J. G. Macias Montero, C. Puigdengoles, J. Garcia, *IFAE, Barcelona, Spain*; R. Martinez, E. Cabruja, *IMB-CNM (CSIC), Spain*

R04-4 (11:25, invited) Focused Ion Beam Investigation of Cathodoluminescence Features in Cadmium Zinc Telluride
N. M. Haegel, P. J. Young, S. K. Menon, *Naval Postgraduate School, USA*; H. Chen, *Henry Chen Consulting Inc., Canada*

R05 Materials 1
Tuesday, Nov. 11   14:40-15:30   611 & 612

Session Chair: **Keitaro Hitomi**, Tohoku University, Japan

R05-1 (14:40) Large Volume Crystalline Zinc Telluride Doped with Oxygen as a High Performance Scintillator
J. T. Mullins[1], Z. Kang[2], C. J. Summers[2], E. Marsden[1], I. Radley[1]
[1]Kromek Ltd., U.K.; [2]Georgia Institute of Technology, U.S.A.

R05-2 (14:55, invited) Defect Characterization of N-Type 4H-SiC Epitaxial Schottky Detectors: Deep Level Transient Spectroscopy, Cathodoluminescence, and Electron Beam Induced Current Studies
K. V. Nguyen[1], M. A. Mannan[1], S. K. Chaudhuri[1], M. H. Zaldivar[2], U. Pal[3], K. C. Mandal[1]
[1]University of South Carolina, USA; [2]CNyN-UNAM, Mexico; [3]Autonomous University of Puebla, Mexico

R05-3 (15:15) Evaluation of Radiation Detection Characteristic for GaN Semiconductor Material
M. Sugiura, K. Atsumi, Y. Inoue, H. Mimura, T. Aoki, T. Nakano
Shizuoka University, Japan

R06 Crystal growth and characterization
Tuesday, Nov. 11   16:00-18:00   611 & 612

Session Chair: **Larry A. Franks**, , United States

R06-1 (16:00, invited) The History and Future of Bridgman Crystal Growth and Why This Is Important for Radiation Detector Crystals
J. J. Derby, *University of Minnesota, U.S.A.*

R06-2 (16:20, invited) The Effect of Crystal Quality on the Behavior of Semi-Insulating CdZnTe Detectors for X-Ray Spectroscopic and High Flux Applications.
G. Prekas, A. Densmore, J. MacKenzie, J. Kumar, V. Perumal
Redlen Technologies Inc., Canada

R06-3 (16:40, invited) Advances in THM Growth of Large Diameter CdZnTe Crystals and Virtual Hemispherical Detectors
S. Motakef, P. Becla, K. Becla, M. Overholt, J. Fiala
CapeSym, Inc., USA

R06-4 (17:00) The Physical Property and Crystal Growth of CdMnTe Single Crystals by Using a Modified Floating Zone Method
G. D. Gu, T. S. Liu, A. Hossain, G. Yang, Y. Cui, G. S. Camarda, U. Roy, A. E. Bolotnikov, R. B. James
Brookhaven National Laboratorty, USA

R06-5 (17:15) Novel Post Growth Cooling and Its Impact on Bridgman Grown Detector Grade CdZnTe Characteristics
S. K. Swain[1], Y. Cui[2], K.-M. Figueroa[1], A. Burger[2], K. Lynn[1]
[1]Washington State University, USA; [2]Fisk University, USA

R06-6 (17:30) Influence of Thermal Annealing on the Defects in CdZnTe Crystals
G. Yang[1], A. E. Bolotnikov[1], Y. Cui[1], G. S. Camarda[1], A. Hossain[1], U. N. Roy[1], P. M. Fochuk[1,2], R. B. James[1]

[1]*Brookhaven National Laboratory, USA;* [2]*Chernivtsi National University, Ukraine*

R06-7 (17:45) Material and Device Engineering for High Performance CZT Detectors
S. Taherion, P. Lu, P. Gomolchuk, J. Kumar, E. Chen
Redlen Technologies, Canada

J01 NSS-RTSD Joint

Wednesday, Nov. 12   08:00-10:00   6A

Session Chairs: **Douglas S. McGregor**, Kansas State University, United States
                       Paul J. Sellin, University of Surrey, United Kingdom

J01-1 (08:00) Direct Measurement of 235U in Spent Fuel Rods with Gamma-Ray Mirrors
J. Ruz[1], N. F. Brejnholt[1], T. A. Decker[1], M. A. Descalle[1], R. M. Hill[1], R. Soufli[1], K. Ziock[2], M. J. Pivovaroff[1]
[1]*Lawrence Livermore National Laboratory, US;* [2]*Oak Ridge National Laboratory, US*

J01-2 (08:15) Microstructured Semiconductor Neutron Detector (MSND)-Based Helium-3 Replacement Technology
S. L. Bellinger, *Radiation Detection Technologies, Inc., USA*; R. G. Fronk, T. J. Sobering, D. S. McGregor, *Kansas State University, USA*

J01-3 (08:30) Characterisation of Silicon Carbide and Diamond Neutron Detectors for Active Interrogation Security Applications.
M. Hodgson, A. Lohstroh, P. Sellin, *University of Surrey, U.K.*; D. V. Lewis, *AWE, U.K.*

J01-4 (08:45) Ultra Low Noise Silicon Drift Detector and CMOS Front-End for X-Ray Spectroscopy with Less than 100 eV Energy Resolution at Room Temperature
G. Bertuccio[1,2], M. Ahangarianabhari[1,2], C. Graziani[1], D. Macera[1,2], Y. Shi[1,2], A. Rachevski[3], I. Rashevskaya[3], A. Vacchi[3], G. Zampa[3], N. Zampa[3], P. Belluti[4], G. Giacomini[4], A. Picciotto[4], C. Piemonte[4]
[1]*Politecnico di Milano, Italy;* [2]*National Institute of Nuclear Physics, INFN sez. Milano, Italy;* [3]*National Institute of Nuclear Physics, INFN sez. Trieste, Italy;* [4]*Fondazione Bruno Kessler - FBK, Italy*

J01-5 (09:00, invited) Fabrication and Development of BGaN Device for the Novel Neutron Semiconductor Detector
T. Nakano, Y. Inoue, H. Mimura, T. Aoki
Shizuoka University, Japan

J01-6 (09:15) Design of Time-Encoded Thermal Neutron Imaging System for a 3-D Position-Sensitive CdZnTe Array
S. T. Brown, Z. He, *University of Michigan, US*

J01-7 (09:30) Production of Large Area 10B Neutron Detectors
J.-C. Buffet[1], J.-F. Clergeau[1], S. Cuccaro[1], B. Guerard[1], R. Hall-Wilton[2,3], C. Hoglund[2,4], S. Jonchery[1], A. Khaplanov[2,1], F. Piscitelli[2,1], P. Van Esch[1]
[1]*Institut Laue-Langevin ILL, France;* [2]*European Spallation Source ESS AB, Sweden;* [3]*Mid-Sweden University, Sweden;* [4]*Link oping University, Sweden*

J01-8 (09:45, invited) Crystal Growth and Its Effect on Radiation Detection Properties for 6LiInSe2
A. C. Stowe[1,2], B. Wiggins[1,2], J. Tower[3], H. Hong[3], A. Kargar[3], Z. Bell[4], P. Bhattacharya[5], E. Tupitsyn[5], L. Matei[5], M. Groza[5], A. Burger[5]
[1]*Y-12 National Security Enterprise, USA;* [2]*Vanderbilt University, USA;* [3]*Radiation Monitoring Devices, Inc, USA;* [4]*Oak Ridge National Laboratory, USA;* [5]*Fisk University, USA*

R07 Imaging and growth

Wednesday, Nov. 12   10:30-12:00   611 & 612

Session Chairs: **Beatrice Fraboni**, Department of Physics and Astronomy, University of Bologna, Italy
                       Henry Chen, Redlen Technologies, Canada

R07-1 (10:30, invited) Cadmium Telluride Detector System for Identifying Illicit Substances by X-Ray Energy Dispersive Diffraction
J. S. Iwanczyk, *DxRay, Inc., USA*; E. Nygard, *Interon AS, Asker, Norway, Norway*; D. Kosciesza, *Morpho Detection Germany GmbH, Germany*

R07-2 (10:50, invited) High Resistivity, Cr-Compensated GaAs for Photon Counting Pixel Detectors
E. Hamann[1], T. Koenig[1], M. Zuber[1], O. Tolbanov[2], A. Tyazhev[2], S. Procz[3], A. Fauler[3], M. Fiederle[1,3]
[1]*IPS/ANKA, Karlsruhe Institute of Technology (KIT), Germany;* [2]*Tomsk State University, Russia;* [3]*FMF, Germany*

R07-3 (11:10, invited) Prospect of CdTexSe1-X for Room Temperature Radiation Detector Applications
U. N. Roy[1], A. Bolotnikov[1], G. Camarda[1], Y. Cui[1], A. Hossain[1], W. Lee[1,2], R. Tappero[1], G. Yang[1], Y. Cui[3], A. Burger[3], R. B. James[1]
[1]*Brookhaven National Laboratory, USA;* [2]*Korea University, Korea;* [3]*Fisk University, USA*

R07-4 (11:30) Reducing the Production Cost of THM-Grown CdZnTe Crystals by Utilizing Recycled and Reduced Purity Metals.
J. M. MacKenzie, F. J. Kumar, L. Burgess
Redlen Technologies, Canada

R07-5 (11:45) Purification, Bulk Growth, and Characterization Results of LiZnP and LiZnAs for Solid-State Neutron Detectors
B. W. Montag[1], M. A. Reichenberger[1], P. B. Ugorowski[1], M. Sunder[2], D. S. McGregor[1]
[1]*Kansas State University, USA;* [2]*Bruker AXS Inc., USA*

J02 NSS-MIC-RTSD Joint Session

Wednesday, Nov. 12   14:00-15:30   6B

Session Chairs: **Maxim P. Titov**, CEA Saclay, IRFU/SPP,
                       Dimitris Visvikis, LaTIM, France

J02-1 (14:00) Application of Subpixelated CZT Detectors to Gamma-Ray Imaging

G. Montemont, O. Monnet, S. Stanchina, L. Verger
CEA, LETI, France

J02-2 (14:15) Microscopic SPECT Imaging with Inverted Compound Eye Cameras

X.-C. Lai[1], J. George[1], H. Li[2], Q. Li[2], L.-J. Meng[1]
[1]University of Illinois at Urbana-Champaign, USA; [2]Harvard Medical School, USA

J02-3 (14:30) Investigation of Trapping and Bulk Damage in Silicon Photomultipliers

E. Garutti, M. Ramilli, R. Klanner, *University of Hamburg, Germany*; C. Xu, *DESY Hamburg, Germany*

J02-4 (14:45) Development of Ultrahigh Resolution Monolithic Si-PM-Based Block Detectors Using 0.32mm Pixel Scintillators

S. Yamamoto, *Nagoya University Graduate School of Medicine, Japan*; H. Watabe, *Tohoku University CYRIC, Japan*; H. Sato, T. Endo, Y. Usuki, *FURUKAWA Co., LTD, Japan*

J02-5 (15:00) EndoTOFPET-US: Commissioning of a Multi-Modal Endoscope for Ultrasound and Time of Flight PET

J. Varela, *LIP, Portugal*
On behalf of the EndoTOFPET-US Collaboration

J02-6 (15:15) Challenges for Intra-Operative SPECT

B. Frisch, M. Eiber, J. Gardiazabal, P. Matthies, T. Maurer, A. Okur, T. Lasser, N. Navab
Technische Universität München, Germany

R08 Poster 1

Wednesday, Nov. 12   16:00-18:00   4B

Session Chair: **Krishna C. Mandal**, University of South Carolina, United States

R08-1 High Resolution Mapping of the Electrical Response of CdZnTe Pixelated Detectors in the Dark and under Optical Excitation: a Novel Method for Probing the Material Properties and a Screening Tool for Detector Evaluation.

G. Prekas, A. Densmore, C. Neilly
Redlen Technologies Inc., Canada

R08-2 Silicon Photomultiplier Arrays for High Performance Scintillation Detectors

E. Marsden[1], P. Joshi[2], D. Jenkins[2], A. Tuff[1]
[1]Kromek Ltd., U.K.; [2]University of York, U.K.

R08-3 Optically Excited Transient Current Pulse Shape Formation in (CdZn)Te Detectors

P. Praus, E. Belas, R. Grill, J. Pekarek
Charles University in Prague, Czech Republic

R08-4 A Setup for Gamma Ray Sources Localization Using Coded Apertures and CdTe Detectors

C. Papadimitropoulos[1], I. Kaissas[2], K. Karafasoulis[3], C. Potiriadis[2], C. P. Lambropoulos[1]
[1]Technological Educational Institute of Sterea Ellada, Greece; [2]Greek Atomic Energy Commission, Greece; [3]Hellenic Army Academy, Greece

R08-5 Quantitative Investigation of the Conditioning Phase in Pixelated TlBr Detectors

W. Koehler, S. O'Neal, Z. He, *University of Michigan, United States*; L. Cirignano, H. Kim, K. Shah, *Radiation Monitoring Devices, United States*

R08-6 Structural, Electrical and Optical Properties of CdMnTe Crystals Grown by the Floating-Zone Technique

G. Yang[1], A. E. Bolotnikov[1], Y. Cui[1], G. S. Camarda[1], G. Gu[1], A. Hossain[1], W. Lee[1,2], U. N. Roy[1], R. B. James[1]
[1]Brookhaven National Laboratory, United States; [2]Korea University, South Korea

R08-7 Improving and Characterization of the (Cd,Zn)Te Crystal Quality for the Detection of Gamma Radiation

A. Gerasimenko[1], M. Kosmyna[1], N. Kovalenko[1], L. Davydov[1], V. Sklyarchuk[3], O. Panchuk[3], I. Terzin[1], A. Zakharchenko[2], V. Kutniy[2], A. Rybka[2], P. Fochuk[3], A. Bolotnikov[4], R. B. James[4]
[1]Institute for Single Crystals, Ukraine; [2]National Science Centre Kharkov Institute of Physics & Technology, Ukraine; [3]Chernivtsi NAtional University, USA; [4]Brookhaven National Laboratory, USA

R08-8 Influence of the Electric Field on the Energy Resolution of Cr/CdTe/Pt Detectors

V. Sklyarchuk[1], P. Fochuk[1], Z. Zakharuk[1], I. Rarenko[1], Y. Nykoniuk[2], O. Sklyarchuk[1], A. Rybka[3], N. Kovalenko[4], A. Bolotnikov[5], R. B. James[5]
[1]Chernivtsi National University, Ukraine; [2]National University of Water Management and Natural Resources Application, Ukraine; [3]Kharkiv Institute of Physics & Technology, Ukraine; [4]Institute for Single Crystals, Kharkiv, Ukraine; [5]Brookhaven National Laboratory, USA

R08-9 Simulation of Characteristics of Cd(Zn)Te-Detectors for Radionuclide Identification Devices

A. I. Skrypnyk, A. V. Rybka, *National Science Centre "Kharkov Institute of Physics & Technology", Ukraine*; P. M. Fochuk, *Chernivtsi National University, Ukraine*; A. E. Bolotnikov, R. B. James, *Brookhaven National Laboratory, USA*

R08-10 Investigation of the Dislocations-Related Microstructural Defects Induced by Inclusions in CdZnTe Single Crystals

Y. He, W. Jie, Y. Xu, T. Wang, N. Jia, Y. Zhou, X. Guo, H. Liu, Y. Zaman, G. Zha
Northwestern Polytechnical University, China

R08-11 Stress Distribution in TlBr Crystals and Its Effect on Detector Performance

A. Datta, S. Motakef, *Capesym, Inc., USA*

R08-12 Photoluminescence of CdTe(111) Single Crystal after Laser Irradiation

D. V. Gnatyuk, T. Ito, T. Aoki, *Shizuoka University, Japan*

R08-13 Characteristics and Stability of Diode Type CdTe-based X-Ray and Gamma-Ray Detectors

V. A. Gnatyuk[1,2], O. I. Vlasenko[1], T. Aoki[2,3], A. Koike[3]

[1]V.E. Lashkaryov Institute of Semiconductor Physics of the National Academy of Sciences of Ukraine, Ukraine; [2]Research Institute of Electronics, Shizuoka University, Japan; [3]ANSeeN Inc., Japan

R08-14 Simulation and Measurement of Pixelated CZT Detector

J. Fu[1,2], Y. Li[1,2], L. Zhang[3], Y. Liu[1,2], J. Li[3], W. Zhang[3], Y. Li[1,2]

[1]Tsinghua University, China; [2]Ministry of Education, China; [3]Nuctech Company Limited, China

R08-15 Photoluminescence of Polished and Etched Semi-Insulating CdTe:In

J. Zazvorka, J. Franc, P. Hlidek

Faculty of Mathematics and Physics, Charles University in Prague, Czech Republic

R08-16 Radiation Response Characteristics of Thick Polycrystalline CdTe Deposited by Vapor Transport Deposition

K. Yang, B. Cha, S. Jeon

Korea Electrotechnology Research Institute, South Korea

R08-17 A Compton Scatter Experiment for the Discrimination of Single- vs. Multi-Site Events in CZT-CPG Detectors

D. Gehre, Technical University Dresden, Germany

On behalf of the COBRA Collaboration

R08-18 Through Silicon Vias in ASICs for Modular Pixellated X-Ray Detectors

P. Seller, M. C. Veale, M. D. Wilson, A. Schneider, S. L. Thomas, Rutherford Appleton Laboratory, UK; S. J. Bell, D. D. Duarte, University of Surrey, UK

R08-19 Microbeam Studies and Simulation of a CZT Ring-Drift Detector

V. H. Boothman, A. Alruhaili, P. Sellin, A. Lohstroh, V. Perumal, University of Surrey, UK; K. Sawhney, S. Kachkanov, Diamond Light Source, UK

R08-20 Simulation and Characterization of Edge Surfaces in Cd(Zn)Te Radiation Detectors

D. D. Duarte[1,2], S. J. Bell[1,2], J. D. Lipp[1], A. Schneider[1], P. Seller[1], M. C. Veale[1], M. D. Wilson[1], M. A. Baker[2], P. J. Sellin[2]

[1]STFC Rutherford Appleton Laboratory, United Kingdom; [2]University of Surrey, United Kingdom

R08-21 Direct Deposition of Polycrystalline CdTe Films on the Medipix Readout Chip, Evaluation of Layer Quality and Imaging Results

A. Vogt, S. Schuett, F. Fischer, C. Disch, J. Feyrer, Y. Lu, M. Fiederle

Freiburg Materials Research Center, University of Freiburg, Germany

R08-22 Characterization of a Digital ASIC Readout System for 11 X 11 Pixelated TlBr Detectors

S. O'Neal, W. Koehler, Z. He, University of Michigan, United States; H. Kim, L. Cirignano, K. Shah, Radiation Monitoring Devices, United States

R08-23 Different Surface Contacts on CdTe and CdZnTe Based Radiation Detectors

J. Pekarek, E. Belas, P. Praus, R. Grill

Institute of Physics, Charles University, Czech Republic

R08-24 Comparison of Spectroscopic and Imaging Performance of Schottky CdTe Medipix3RX and HEXITEC Pixelated Detectors

V. Astromskas[1], A. Lohstroh[1], E. N. Gimenez[2], N. Tartoni[2], M. Veale[3], P. Sellin[1], P. Seller[3], M. D. Wilson[3]

[1]University of Surrey, United Kingdom; [2]Diamond Light Source, United Kingdom; [3]Rutherford Appleton Laboratory, United Kingdom

R08-25 Coded Aperture Imaging with Sub-Pixel Position Resolution Using VAD_UM V1.2

Y. Zhu, S. Brown, Z. He, University of Michigan, USA

R08-26 CZT Detector Modeling for Coded Aperture X-Ray Diffraction Imaging Applications

J. Greenberg[1], K. Iniewski[2], D. Brady[1]

[1]Duke University, USA; [2]Redlen Technologies, Canada

R08-27 Primary Radiation Sources Tracking in Large Contaminated Area Using Gamma-Ray Imaging Spectrometers

J. C. Kim[1], G. Wakabayashi[2], G. D. Kim[1], Y.-K. Kim[1]

[1]Institute for Basic Science, Korea; [2]Kinki University, Japan

R08-28 Performance of the First 3x3 Digital 3D CZT Imaging Spectrometer System

M. W. Streicher, H. Yang, Y. Zhu, F. Zhang, Z. He

University of Michigan, USA

R08-29 Ternary Halide Perovskites: a New Class of Radiation Detection Semiconductors

C. C. Stoumpos[1], H. Li[1], C. D. Malliakas[1], J. Im[2], M. Sebastian[2], J. A. Peters[2], Z. Liu[2], D. Y. Chung[2], A. J. Freeman[2], B. W. Wessels[2], M. G. Kanatzidis[1,2]

[1]Argonne National Laboratory, United States; [2]Northwestern University, United States

R08-30 Refined Crystal Growth of Thallium Chalcohalide Hard Radiation Detectors

P. L. Wang, W. Lin, Z. Liu, B. W. Wessels, M. G. Kanatzidis

Northwestern University, United States

R08-31 Effect of Purification on TlBr Crystal for Radiation Detectors

D. J. Kim[1], H. Kim[1], Y. Kim[1], M. Jeong[1], H. Choi[1,2], W. Jo[1], J. Ha[1]

[1]Korea Atomic Energy Research Institute, Republic of Korea; [2]SungkyunkwanUniv, Republic of Korea

R08-32 Development of the CdTe X-Ray Sensor for XRF System Analyzing Compound Semiconductor Material with High-Efficiency

H. Choi[1,2], Y. Kim[1], M. Jeong[1], H. Kim[1], D. Kim[1], W. Jo[1], J.-S. Chai[2], J. Ha[1]

[1]Korea Atomic Energy Research Institute, Republic of Korea; [2]SungKyunKwan University, Republic of Korea

R08-33 Development of a Quad CdTe-Medipix3RX Detector with Spectroscopic Capability for Synchrotron Applications

E. N. Gimenez[1], V. Astromskas[2], N. Tartoni[1]
[1]Diamond Light Source, UK; [2]Surrey University, UK

R08-34 Effect of Intense Illumination on the Time-of-Flight Current Waveforms of Detector Materials

K. Suzuki, T. Sawada, *Hokkaido University of Science, Japan*; S. Seto, *Ishikawa National College of Technology, Japan*

R08-35 Performance of Single Photon Counting High-Z Pixel Detectors

M. Schneebeli, S. Commichau, T. Donath, V. Radicci, M. Rissi, T. Sakhelashvili, S. Traut, G. Tudosie, C. Broennimann
Dectris Ltd., Switzerland

R08-36 Charge Carriers Properties Measurements in the VIP CdTe Detector

G. Ariï¿½o-Estrada, M. Chmeissani, G. De Lorenzo, M. Kolstein, C. Puigdengoles, J. Garcia, *Institut de Fï¿½sica d'Altes Energies, Spain*; E. Cabruja, *IMB-CNM (CSIC) Centro Nacional de Microelectrï¿½nica, Spain*

R08-37 The Effect of Pixel and Inter-Pixel Gap Size on Detection Efficiency and Spectrum Resolution of CZT Gamma-Ray Detectors

A. Ofan, Y. Glazer, R. Har-Lavan, *GE Healthcare, Israel*

R08-38 Performance of Commercial CdTe Semiconductor Sensors

O. Korchak, M. Carna, M. Havranek, M. Marcisovsky, G. Neue, Z. Janoska, V. Kafka, L. Tomasek, V. Vrba
FNSPE - Czech Technical Univerzity, Czech Republic

R08-39 Real Time Wide Area Radiation Surveillance System (REWARD) Based on 3D Silicon and (Cd,Zn)Te for Neutron and Gamma-Ray Detection

C. Disch, *Freiburger Materialforschungszentrum, Germany*
On behalf of the REWARD Collaboration

R08-40 Positron Annihilation Spectroscopy of Annealed CdTe/CdZnTe

L. Šedivý, J. Cížek, E. Belas, R. Grill
Charles University in Prague, Faculty of Mathematics and Physics, Czech republic

R08-41 Split Charge Model for CZT Pulse Height Spectroscopy

I. M. Blevis, A. Altman, O. Zarchen
Philips Medical Systems, Israel

R08-42 New Nonlinearity Calibration Method for 3-D Position-Sensitive CdZnTe Detectors

F. Zhang, Y. Zhu, M. Streicher, Z. He
The University of Michigan, USA

R08-43 Gold Electroless Deposition by Water-Based and Alcoholic Solutions

G. Benassi[1], M. Bettelli[1], N. Zambelli[1], D. Calestani[2], S. M. Pietralunga[2], A. Tagliaferri[3], M. H. Abdellatif[3], L. Nasi[2], A. Zappettini[2]
[1]due2lab srl, Italy; [2]CNR, Italy; [3]Polytechnic of Milan, Italy

R08-44 Investigation of the Radiation Dose in Computed Micro Tomography Using the Medipix3 Semiconductor Detector in Combination with an Iterative Reconstruction Algorithm

F. Fischer, S. Procz, A. Fauler, *Freiburg Materials Research Center (FMF), Germany*; M. Fiederle, *Karlsruhe Institute of Technology (KIT), Germany*

R08-45 Correction on Temperature Drift on Pixelated CdZnTe Detector Systems

J. D. Mann, F. Zhang, Z. He, *University of Michigan, USA*

R08-46 Elimination of Inclusions in CdTe Crystals by THM

P. M. Fochuk[1], Z. Zacharuk[1], Y. Nykonyuk[2], I. Rarenko[1], M. Kolesnik[1], A. Bolotnikov[3], R. B. James[3]
[1]Chernivtsi National University, Ukraine; [2]National University of Water Management and Natural Resources Application, Ukraine; [3]Brookhaven National Laboratory, USA

R08-47 Evaluation of Mercury Iodide Crystals Cast Resin Applied as Radiation Detector

M. Fiederle, J. Trenscher, *Freiburger Materialforschungszentrum, Germany*; M. M. Hamada, *1Institute for Nuclear and Energy Research (IPEN-CNEN/SP, Brazil*

R08-48 Electrical Properties of Lithium Indium Diselenide

E. Lukosi[1], M. Rust[1], E. Herrera[1], A. Stowe[2], B. Wiggins[3], A. Burger[3,4]
[1]University of Tennessee, USA; [2]Y12 National Security Comples, USA; [3]Vanderbilt University, USA; [4]Fisk University, USA

R08-49 Current Transient, Polarization and Electromigration Phenomena in Metal – Semiconductor – Metal Structure of Schottky Contacts and Parameter Retrieval of CdTe/CdZnTe Structures

H. Elhadidy, *Institute of Physics of Materials of the Academy of Sciences of the Czech Republic, Czech Republic*; J. Franc, R. Grill, *Institute of physics of Charles University, Czech Republic*; J. Sikula, *Brno University of Technology, Czech Republic*

R08-50 In-Situ Monitoring of Resistivity in CdZnTe under Cd/Te Overpressure Annealing

K. Kim, C. Park, P. Kim, *Korea University, Republic of Korea*; G. S. Camarda, A. E. Bolotnikov, R. B. James, *Brookhaven National Laboratory, USA*

R08-51 Neutron Source Localization Using Artificial Neural Networks to Enhance Data Analytics of Moderator Based Solid State Detection Systems

J. E. Currie[1], C. Hoshor[1], E. Myers[1], S. Young[1], T. Oakes[2], J. Crow[1], P. Scott[1], S. Bellinger[3], W. Miller[2], D. McGregor[3], A. Caruso[1]
[1]University of Missouri - Kansas City, USA; [2]University of Missouri - Columbia, USA; [3]Kansas State University, USA

R08-52 New Method for Simultaneous Single-Exposure Dark-Field, Phase-Gradient and Absorption X-Ray Imaging

F. Krejci, J. Jakubek, J. Zemlicka, J. Dudak
Czech Technical University in Prague, Czech Republic

R08-53 PGRIS: Towards Portable Compton Camera Imaging and Spectroscopy

S. J. Colosimo[1], A. J. Boston[1], H. C. Boston[1], L. J. Harkness-Brennan[1], D. S. Judson[1], I. Lazarus[2], P. J. Nolan[1], P. Seller[3], J. Simpson[2], M. Veale[3]
[1]University of Liverpool, UK; [2]STFC Daresbury Laboratory, UK; [3]STFC Rutherford Appleton Laboratory, UK

R08-54 VIP-PIX: a 100-Channel Readout ASIC for Pixelated CdTe Detectors for Medical Imaging Applications

J.-G. Macias-Montero[1], M. Sarraj[2], M. Chmeissani[1], G. De Lorenzo[1], J. Garcia[1], C. Puigdengoles[1], R. Martinez[3]
[1]Institut de Fisica d'Altes Energies (IFAE), Spain; [2]Texas Instruments Inc., USA; [3]IMB-CNM (CSIC), Spain

R08-55 Inflight Conditions Experimental Analysis of a Squared Pixel Matrix CdTe Polarimeter

R. M. Curado da Silva[1], J. M. Maia[1,2], M. Pinto[1], J. Marques[1,3], L. Pereira[1], E. Caroli[4], N. Auricchio[4], J. B. Stephen[4], A. M. F. Trindade[1]
[1]Laboratório de Instrumentação e Física Experimental de Partículas, Portugal; [2]University of Beira-Interior, Portugal; [3]Universidade do Porto, Portugal; [4]INAF/IASF-Bologna, Italy

R08-56 Multidimensional Characterization of Cadmium-Zink-Telluride Coplanar-Grid Detectors

R. Michiels[1], C. Disch[2], U. Parzefall[1], A. Fauler[2], M. Fiederle[2]
[1]University of Freiburg, Germany; [2]Material Research Center Freiburg, Germany

R08-57 CdZnTe Technology Development for Small Pixel, High Flux X-Ray Detectors

A. Densmore, V. Perumal, G. Prekas, C. Neilly
Redlen Technologies Inc., Canada

R08-58 Charateristic Comparison of the Frisch Collar Grid CdZnTe Radiation Detectors

W. J. Jo, M. Jeong, H. S. Kim, Y. S. Kim, H. J. Choi, D. J. Kim, J. H. Ha
Korea Atomic Energy Research Institute, Republic of Korea

R08-59 Production of High Crystalline Quality CdZnTe Crystals by Low Stress Travelling Heater Method

F. J. Kumar, J. M. MacKenzie, L. Burgess
Redlen Technologies, Canada

R08-60 Studying the Detection Performance of HgI2 Nanoparticle Pellets

M. Perez Barthaburu[1], I. Aguiar[2], I. Galain[2], H. Bentos Pereira[1], L. Fornaro[1]
[1]CURE/Univasidad de la Republica, Uruguay; [2]Facultad de Química/Universidad de la Republica, Uruguay

R08-61 Monitoring the Dose Distribution of Therapeutic Photons on Korean Typical Man-2 Phantom (KTMAN-2) by Using Multiple Scattering Compton Camera

T. Lee, W. Lee, *Korea University, Korea*

R08-62 Sintering of Bismuth Tri-Iodide Nanoparticles: a New Procedure for Fabricating Direct Ionizing Radiation Detectors

I. Aguiar, M. E. Pérez Barthaburu, M. Mombrú, H. Bentos Pereira, L. Fornaro
Universidad de la República, Uruguay

R08-63 A Study on CZT and Scintillator Based Micro-PETs with Compton Tracing Technology

C. Yoon, W. Lee, *Korea Univ., Korea*

R08-64 Optically Switching Readout X-Ray Detector Using LED Line Beam

D. Heo[1], J.-S. Kim[2], S. Jeon[1], K. Yang[1], B. Cha[1], R. K. Kim[1], B. J. Moon[2], J. Yoon[2]
[1]Korea Electrotechnology Research Institute, South Korea; [2]DRTECH, South Korea

R08-65 Comparative Study on the Effects of Chemical Treatments on CdZnTe Nuclear Detectors

S. U. Egarievwe, I. O. Okwechime, *Alabama A&M University, USA*; A. Hossain, R. B. James, *Brookhaven National Laboratory, USA*

R08-66 Effect of Ampoule Carbon Coating on Defects in CdMnTe Crystals for Radiation Detection Applications

S. U. Egarievwe, *Alabama A&M University, USA*; U. N. Roy, A. Hossain, R. B. James, *Brookhaven National Laboratory, USA*

R08-67 Charge Transport Investigation in Lead Oxide with CELIV

O. Semeniuk[1,2], G. Juska[3], G. DeCrescenzo[2], J. A. Rowlands[2], A. Reznik[1,2]
[1]Lakehead University, Canada; [2]Thunder Bay Regional Research Institute, Canada; [3]Vilnius University, Lithuania

R08-68 Numerical Simulation of Thermoelectric Effect Spectroscopy of Defect Structure in CdTe Radiation Detectors

H. Elhadidy, *Institute of Physics of Materials of the Academy of Sciences of the Czech Republic, Czech Republic*; J. Franc, R. Grill, *Institute of physics of Charles University, Czech Republic*

R08-69 Etch-Pit Studies in $Cd_{1-y}X_yTe$ (X=Zn, Mn, Se, Mg; y=0.05-0.1) as-Grown and Annealed Crystals

A. Hossain[1], A. E. Bolotnikov[1], G. S. Camarda[1], Y. Cui[1], G. D. Gu[1], W. Lee[2], U. N. Roy[1], G. Yang[1], R. B. James[1]
[1]Brookhaven National Laboratory, USA; [2]Korea University, Republic of Korea

R08-70 A Small 3D CZT Payload for Hard X Ray Polarimetry and Spectroscopic Imaging

E. Caroli[1], N. Auricchio[1], C. Budtz-Jørgensen[2], G. De Cesare[1], R. M. Curado da Silva[3], S. Del Sordo[4], P. Ferrando[5], P. Laurent[5], O. Limousin[5], J. L. Galvèz[6], M. Hernanz[6], J. Isern[6], I. Kuvvetli[2], J. M. Maja[3,7], A. Meuris[5], M. Pinto[3], N. Produit[8], J. B. Stephen[1], A. Zappettini[9]
[1]INAF/IASF-Bologna, Italy; [2]DTU Space, Denmark; [3]LIP, Portugal; [4]INAF/IASF-Palermo, Italy; [5]CEA, France; [6]IEEC, CSIC, Spain; [7]Universidade da Beira Interior, Portugal; [8]ISDC, University of Geneva, Swiss; [9]IMEM/CNR, Italy

R08-71 Development of a CZT 3D Imager Prototype for Hard X Ray Astronomy

N. Auricchio[1], E. Caroli[1], A. Basili[1], G. Benassi[2], C. Budtz Jørgensen[3], R. M. Curado da Silva[4], S. Del Sordo[1], I. Kuvvetli[3], L. Milano[5], F. Moscatelli[2], N. Zambelli[2], A. Zappettini[2]

[1]INAF, Italy; [2]CNR, Italy; [3]Technical University of Denmark, Denmark; [4]University of Coimbra, Portugal; [5]University of Ferrara, Italy

R08-72 Crystal Growth and Characterization of Chalcogenide Semiconductors for Radiation Detectors

R. O. Pak, K. V. Nguyen, M. A. Mannan,, S. K. Chaudhuri, K. C. Mandal

University of South Carolina, USA

R08-73 Amorphous Selenium Stabilized Alloys for Nuclear Radiation Detector Applications

K. C. Mandal, R. O. Pak, K. V. Nguyen, M. A. Mannan, S. K. Chaudhuri

University of South Carolina, USA

R08-74 Characterization of Icosahedral Boron Arsenide (B12As2) for Thermal Neutron Detection

Y. Cui[1], A. Bolotnikov[1], G. Camarda[1], G. Camino[1], A. Hossain[1], U. Roy[1], G. Yang[1], J. H. Edgar[2], C. E. Whiteley[2], U. Nwagwu[2], R. B. James[1]

[1]Brookhaven National Laboratory, USA; [2]Kansas State University, USA

R08-75 Modeling the Growth of Cadmium Zinc Telluride (CZT) by the Traveling Heater Method (THM)

J. H. Peterson, A. Yeckel, J. J. Derby

University of Minnesota, U.S.A.

R08-76 Particle Detectors Based on 4H-SiC High Quality Epitaxial Layer

B. Zatko[1], F. Dubecký[1], A. Šagátová[2], K. Sedlacková[2], L. Ryc[3], V. Necas[2]

[1]Institute of Electrical Engineering, Slovak Academy of Sciences, Slovakia; [2]Faculty of Electrical Engineering and Information Technology, Slovak University of Technology, Slovakia; [3]Institute of Plasma Physics and Laser Microfusion, Poland

R08-77 High Energy Resolution Pixel Detectors Based on Boron Oxide Vertical Bridgman Grown CdZnTe Crystals

A. Zappettini[1], D. Macera[2], G. Benassi[3], N. Zambelli[3], D. Calestani[1], M. Ahangarianabhari[2], Y. Shi[2], G. Rotondo[4], B. Garavelli[5], P. Pozzi[6], G. Bertuccio[2,7]

[1]CNR, Italy; [2]Polytechnic of Milan, Italy; [3]due2lab srl, Italy; [4]Altalab srl, Italy; [5]Base srl, Italy; [6]Xnext srl, Italy; [7]National Institute of Nuclear Physics, Italy

R08-78 Chloride Surface Incorporation into Pixelated TlBr Gamma Spectrometers

A. M. Conway, A. J. Nelson, L. F. Voss, E. L. Swanberg, P. R. Beck, R. T. Graff, R. J. Nikolic, S. A. Payne, Lawrence Livermore National Laboratory, United States; H. Kim, L. Cirignano, K. Shah, RMD Inc, USA

R09 Materials 2

Thursday, Nov. 13   08:30-09:55   611 & 612

Session Chair: **Laura Fornaro**, Universidad de la República, Uruguay

R09-1 (08:30, invited) Hybrid-Organic Photodetectors for Radiography

O. Schmidt, S. F. Tedde, P. Buechele, Siemens AG, Germany; T. Kraus, G. N. Ankah, INM - Leibniz Institute for New Materials, Germany; C. Gimmler, K. Poulsen, CAN GmbH, Germany

R09-2 (08:50, invited) Organic Semiconducting Single Crystals for X-Ray Detection: Relation Between Molecular Structure and Packing, Carrier Mobility and Sensitivity

B. Fraboni, University of Bologna, Italy

R09-3 (09:10) Electrode Configuration Effects on Charge Collection in Organic Single Crystal X-Ray Detectors

A. Ciavatti[1], A. Fraleoni-Morgera[2], G. Tromba[2], D. Dreossi[2], P. Sellin[3], B. Fraboni[1]

[1]University of Bologna, Italy; [2]Elettra, Italy; [3]University of Surrey, UK

R09-4 (09:25) Crystal Growth and Characterization of Mercury Chalcohalide Semiconductors for Radiation Detection Applications

C. D. Malliakas[1,2], H. Li[1], A. C. Wibowo[1], C. C. Stoumpos[1], H. Jin[2], D. Y. Chung[1], A. J. Freeman[2], M. G. Kanatzidis[1,2]

[1]Argonne National Laboratory, USA; [2]Northwestern University, USA

R09-5 (09:40) Development of a GaN Sensor for Neutron Detection

P. Mulligan, L. R. Cao, The Ohio State University, USA

R10 Materials 3

Thursday, Nov. 13   10:30-11:55   611 & 612

Session Chair: **Andrea Zappettini**, IMEM-CNR, Italy

R10-1 (10:30, invited) Recent Progress in Thallium Bromide Gamma-Ray Spectrometer Development

K. Shah, H. Kim, A. Churilov, Y. Ogorodnik, A. Kargar, G. Ciampi, L. Cirignano, A. Gueorguiev, S. Kim, Radiation Monitoring Devices Inc., USA; Z. He, W. Koehler, S. O'Neil, University of Michigan, USA

R10-2 (10:50) Characterization of TlBr Gamma-Ray Detectors

K. Hitomi[1], T. Onodera[2], S.-Y. Kim[1], T. Shoji[2], K. Ishii[1]

[1]Tohoku University, Japan; [2]Tohoku Institute of Technology, Japan

R10-3 (11:10) Direct Observation of Bulk Degradation in TlBr Detectors and Its Correlation with Temperature, Growth and Fabrication Processes

S. Motakef, A. Datta, Capesym, Inc., USA

R10-4 (11:25) Isochronal Annealing and Deep Level Transient Spectroscopy in 4H-SiC Schottky Barrier Detectors

M. A. Mannan, K. Nguyen, S. K. Chaudhuri, <u>K. C. Mandal</u>
University of South Carolina, USA

R10-5 (11:40) Development of Large Area Micro-Structured Solid State Neutron Detectors at Low Cost
<u>R. Dahal</u>, K.-C. Huang, J. J-Q. Lu, A. Weltz, Y. Danon, I. B. Bhat
Rensselaer Polytechnic Institute, USA

R11 Poster 2

Thursday, Nov. 13   14:00-15:30   4B

Session Chairs: **Manhee Jeong**, Korea Atomic Energy Research Institute, South Korea
Jang Ho Ha, Korea Atomic Energy Research Institute, South Korea

R12 RTSD Scientist Award

Thursday, Nov. 13   16:00-17:45   611 & 612

Session Chair: **Arnold Burger**, Fisk University, United States

R12-1 (16:00) RTSD Scientist Award Winner
<u>R. B. James</u>, *Brookhaven National Laboratory, USA*; M. Fiederle, *University of Freiburg, Germany*

R12-2 (16:05, invited) Need for High-Granularity Position Sensing to Improve Performance of Large-Volume CZT Defectors
<u>A. E. Bolotnikov</u>[1], G. Camarda[1], Y. Cui[1], G. De Geronimo[1], J. Fried[1], A. Hossain[1], H. Lee[2], U. Roy[1], G. Yang[1], E. Vernon[1], R. B. James[1]
[1]*Brookhaven National Laboratory, USA;* [2]*Korea University, Korea*

R12-3 (16:25, invited) Complex Study of Deep Levels Participating in Polarization of CdTe:In Radiation Detectors with and Without Radiation Flux
<u>J. Franc</u>, V. Dedic, J. Zazvorka, P. Hlidek, R. Grill, M. Hakl, M. Rejhon, *Faculty of Mathematics and Physics, Charles University, Czech Republic*; P. Sellin, *University of Surrey, Great Britain*

R12-4 (16:45) Charge Transport in CdTe Radiation Detectors with Traps
<u>R. Grill</u>, J. Zazvorka, J. Pekarek, E. Belas, J. Franc, A. Musiienko, P. Moravec, J. Bok, P. Hoschl
Charles University, Faculty of Mathematics and Physics, Czech Republic

R12-5 (17:00) Analyses of CdTe Semiconductor Detectors for 2D and 3D Non-Destructive Fluorescent X-Ray Computed Tomography (FXCT) Experiments
<u>C. Yoon</u>, W. Lee, *Korea Univ., Korea*

R12-6 (17:15) Temperature-Gradient Post-Growth Annealing of CdMnTe Wafers for Nuclear Radiation Detection Applications
<u>S. U. Egarievwe</u>[1], Z. M. Hales[1], A. A. Egarievwe[1], A. Hossain[2], W. Chan[1], G. S. Camarda[2], R. B. James[2]
[1]*Alabama A&M University, USA;* [2]*Brookhaven National Laboratory, USA*

R12-7 (17:30) Modeling the Migration of Second-Phase Particles in Cadmium Zinc Telluride (CZT) via Temperature Gradient Zone Melting (TGZM)
K. Wang, A. Yeckel, <u>J. J. Derby</u>
University of Minnesota, U.S.A.

R13 Pixel Detectors

Friday, Nov. 14   08:00-10:00   611 & 612

Session Chair: **Simon Procz**, FMF Universität Freiburg, Germany

R13-1 (08:00) Spatial Variations in the Polarization Phenomena of Cadmium Telluride Detectors with Pixelated Schottky Anodes
<u>M. C. Veale</u>[1], S. J. Bell[1,2], D. D. Duarte[1,2], A. Schneider[1], P. Seller[1], M. D. Wilson[1]
[1]*STFC Rutherford Appleton Laboratory, United Kingdom;* [2]*University of Surrey, United Kingdom*

R13-2 (08:15) A CdTe-CMOS Hybrid for Energy, Position and Time Identification
D. Hatzistratis[1], G. Theodoratos[1], I. Kazas[2], E. Zervakis[1], S. Vlassis[3], <u>C. P. Lambropoulos</u>[1]
[1]*Technological Educational Institute of Sterea Ellada, Greece;* [2]*NCSR Demokritos, Greece;* [3]*University of Patras, Greece*

R13-3 (08:30) Evaluation of 1D- and 2D-Type CdTe Detectors Combined with Photon-Counting ASICs
<u>H. Toyokawa</u>, M. Kawase, S. Wu, T. Ohata, K. Kajiwara, K. Osaka, M. Sato, *Japan Synchrotron Radiation Research Institute, Japan*; T. Hirono, *Universitaet Bonn, Germany*; A. Suenaga, *Howa Sangyo Co., Ltd., Japan*; H. Ikeda, *Japan Aerospace Exploration Agency, Japan*

R13-4 (08:45) Characterization of a Large Area CdTe Hybrid Pixel Counting Detector for High-Energy Applications
<u>C. Broennimann</u>, T. Donath, M. Schneebeli, M. Rissi, V. Radicci
DECTRIS AG, Switzerland

R13-5 (09:00) Development of a Quad CdTe-Medipix3RX Detector with Spectroscopic Capability for Synchrotron Applications
<u>E. N. Gimenez</u>[1], V. Amstromskas[2], N. Tartoni[1]
[1]*Diamond Light Source, UK;* [2]*University of Surrey, UK*

R13-6 (09:15) Characterization of GaAs:Cr Sensors for High Flux X-Ray Imaging Applications
<u>M. C. Veale</u>[1], S. J. Bell[1,2], D. D. Duarte[1,2], M. J. French[1], M. Hart[1], A. Schneider[1], P. Seller[1], M. D. Wilson[1], D. Bogg[1], J. Headspith[1], S. Kachkanov[3],
A. D. Lozinskaya[4], O. P. Tolbanov[4], A. Tyazhev[4], A. N. Zarubin[4]
[1]*Science & Technology Facilities Council, UK;* [2]*University of Surrey, UK;* [3]*Diamond Light Source, UK;* [4]*Tomsk State University, Russia*

R13-7 (09:30) Radiation Detectors Fabricated on High-Purity GaAs Epitaxial Materials

X. Wu[1], M. Mattila[2], T. Riekkinen[1], A. Gädda[1], M. Partanen[1], P. Kostamo[2], S. Nenonen[3], H. Lipsanen[2], J. Salonen[1], H. Pohjonen[1], S. Eränen[1], A. Oja[1]

[1]VTT, Finland; [2]Aalto University, Finland; [3]Oxford Instruments Analytical Oy, Finland

R13-8 (09:45) Comparison of Ohmic and Schottky CdTe Medipix Camera for Spectral Imaging of Ore

J. J. Kalliopuska, S. Vähänen, *Advacam Oy, Finland*; J. Jakubek, D. Turecek, P. Soukup, *Widepix s.r.o, Czech Republic*

R14 Applications

Friday, Nov. 14   10:30-11:50   611 & 612

Session Chair: **Robert D. McLaren**, Consultant, United States

R14-1 (10:30, invited) Position Interpolation Technique Used for a 3D CZT Drift Strip Detector

I. Kuvvetli, C. Budtz-Jørgensen, *DTU Space, National Space Institute, Technical University of Denmark, Denmark*; A. Zappettini, *IMEM-CNR, Italy*; N. Zambelli, G. Benassi, *DUE2lab, Italy*

R14-2 (10:50) Sharp Spectroscopic X-Ray Imaging with a CdTe Large Area Pixel Sensor at 62 Microns Pitch

R. Bellazzini[1,2], M. Minuti[1,2], G. Spandre[1,2], A. Brez[1,2], M. Pinchera[1,2], A. Vincenzi[1,2], L. de Ruvo[1,2]

[1]INFN - sez. Pisa, Italy; [2]PiXirad Imaging Counters srl, Italy

R14-3 (11:05) Investigations on the Long Term Stability of Underground Operated CZT Detectors Based on the [113]Cd-Decay Analysis

D. Gehre, *Technical University Dresden, Germany*
On behalf of the COBRA Collaboration

R14-4 (11:20) Performance Comparison of Threshold and Multi-Energy Cd(Zn)Te Detectors for Material Discrimination

V. Moulin[1], C. Boudou[2], G. Gonon[1], G. Alexia[1], C. Paulus[1], P. Radisson[2], L. Verger[1]

[1]CEA, LETI, MINATEC Campus, France; [2]MULTIX S.A., France

R14-5 (11:35) Enhanced Molecular Breast Image Quality Through Improved CZT Detector Performance

T. Garcia, A. Kivenson, H. Kudrolli
Gamma Medica, Inc., USA

R15 Characterization and Imaging

Friday, Nov. 14   14:00-15:35   611 & 612

Session Chair: **Ian Radley**, Kromek,

R15-1 (14:00) Charge Trapping and Detrapping in CdTe/CdZnTe Detectors Characterized by Transient Current Technique

E. Belas, P. Praus, J. Pekarek, R. Grill
Institute of Physics, Charles University, Czech Republic

R15-2 (14:15, invited) Digital Techniques for High-Rate High-Resolution Radiation Measurements

L. Abbene, G. Gerardi, *University of Palermo, Italy*

R15-3 (14:35) Signal Processing of a Strengthened Electric Field Line Anode CdZnTe Detector

L. Zhang[1], J. Fu[2], Y. Li[2], Y. Li[2], Y. Du[1], J. Li[1], W. Zhang[1], H. Jiang[2], Y. Liu[1]

[1]Nuctech Company Limited, China; [2]Tsinghua University, China

R15-4 (14:50) Electrical and Optical Characterization of Cadmium Zinc Telluride Co-Doped with Indium and Lead.

Y. Zaman, W. Jia, T. Wang, L. Xu, Y. He, Y. Xu, G. Zha, R. Guo
Northwestern Polytechnical University, P.R China

R15-5 (15:05) Characterization Results of Sphinx1 ASIC for X-Ray Detection by Photon Counting and Charge Integration with a 100 Electron LSB

A. Habib[1], M. Arques[1], J.-L. Moro[1], M. Accensi[1], S. Stanchina[1], B. Dupont[1], P. Rohr[2], G. Sicard[3], M. Tchagaspanian[1], L. Verger[1]

[1]CEA-Leti MINATEC CAMPUS, France; [2]TRIXELL, France; [3]TIMA, France

R15-6 (15:20) A New Detector for X-Ray Spectrometric Imaging: Material Discrimination for Non-Destructive Testing and Security Applications

C. Boudou, S. Lux, E. Gaboriau, P. Radisson, *Multix, France*

R16 Defects

Friday, Nov. 14   16:00-17:30   611 & 612

Session Chair: **Giuseppe S. Camarda**, Brookhaven National Lab, United States

R16-1 (16:00) Detailed Characterization of Small-Pixel CZT Detectors Using Hybrid Pixel-Waveform Readout for Gamma-Ray Imaging Applications

J. George[1], Y. Cui[2], G. Camarda[2], A. Hossain[2], U. Roy[2], G. Yang[2], L.-J. Meng[1], R. B. James[2]

[1]University of Illinois at Urbana-Champaign, United States; [2]Brookhaven National Laboratory, United States

R16-2 (16:15) 4D Coded Aperture X-Ray Coherent Scatter Imaging System Based on Energy-Sensitive Detectors

S. Pang, M. Hassan, J. A. Greenberg, A. Holmgren, D. J. Brady
Duke University, United States

R16-3 (12:35) Determining the Density of Dislocations in Detector-Grade CZT Crystals and Their Influence on the Detector's Properties

A. Hossain[1], A. E. Bolotnikov[1], G. S. Camarda[1], Y. Cui[1], W. Lee[2], U. N. Roy[1], G. Yang[1], R. B. James[1]

[1]Brookhaven National Laboratory, USA; [2]Korea University, Republic of Korea

R16-4 (12:50) Research on the Size Effect of Te Inclusions and the Extended Defects in CdZnTe Crystals by CL and IBIC Imaging

Y. Xu, Y. Gu, R. Guo, Y. He, W. Jie

Northwestern Polytechnical University, China

R16-5 (13:05) Common point defects in CdZnTe, CdMnTe, and CdMgTe detectors: Their nature and influence on device performance

R. Gul, A. Bolotnikov, A. Hossain, G. Camarda, G. Yang, R. B. James

Brookhaven National Laboratory, USA

R16-6 (13:15) Concluding Remarks

R. B. James, *Brookhaven National Laboratory, USA*; M. Fiederle, *University of Freiburg, Germany*

Satellite Workshops

(WKSP) Instrumentation and Measurement in a Nuclear Environment

NE1 Research and Innovation in Nuclear Reactor Instrumentation & Measurement I

Sunday, Nov. 9   09:00-10:00,   608 & 609

Session Chairs: **Abdallah Lyoussi**, CEA / French Atomic Energy Commission, France
Patrick Le Du, IPNL,IN2P3, France

NE1-1 (09:00, overview) General Introduction to the Workshop
A. Lyoussi, *CEA, France*

NE1-2 (09:15) Neutron And Gamma Flux And Fluence Measurements: State Of The Art In The CEA Experimental Nuclear Reactors
C. Destouches, *CEA, France*

NE2 Research and Innovation in Nuclear Reactor Instrumentation & Measurement II

Sunday, Nov. 9   10:30-11:30,   608 & 609

Session Chairs: **Abdallah Lyoussi**, CEA / French Atomic Energy Commission, France
Patrick Le Du, IPNL,IN2P3, France

NE2-1 (10:30) Nuclear Heating Measurements By Means Of Differential Calorimeters. New Approach To Improve Instrumentation Characteristics And Out-Of-Pile Calibration Method.
C. Reynard-Carette, *Aix-Marseille University, France*

NE2-2 (11:15) Vertigo; Vertically Integrated Heterogeneous Micro-System
C. Da Vià, *University of Manchester /CERN, UK*

NE3 Research and Innovation in Instrumentation for Nuclear Fuel Cycle, Homeland Security, Severe Media I

Sunday, Nov. 9   13:30-15:00,   608 & 609

Session Chairs: **Abdallah Lyoussi**, CEA / French Atomic Energy Commission, France
Adam Bernstein, Lawrence Livermore National Laboratory, United States

NE3-1 (13:30) Applications and Advances of Nondestructive Nuclear Measurements in the Fields of Nuclear Fuel Cycle and Homeland Security.
B. Perot, *CEA, France*

NE3-2 (14:15) Spent Fuel Assay: Technologies for an Application Crossroads
E. Smith, *Pacific Northwest National Laboratory, USA*

NE4 Research and Innovation in Instrumentation for Nuclear Fuel Cycle, Homeland Security, Severe Media II

Sunday, Nov. 9   15:30-17:00,   608 & 609

Session Chairs: **Abdallah Lyoussi**, CEA / French Atomic Energy Commission, France
Adam Bernstein, Lawrence Livermore National Laboratory, United States

NE4-1 (15:30) Coincidence Counting Using Alternative Neutron Detection
R. T. Kouzes, A. Lintereur, E. Siciliano, S. Stave
PNNL, USA

NE4-2 (16:15) Silicon-Carbide based Thermal Neutron Detectors
L. Ottaviani, V. Vervisch, F. Issa, R. Ferrone, S. Biondo, W. Vervisch, *Aix-Marseille University, France*; D. Szalkai, A. Klix, *KIT, Germany*; M. Lazar, *INSA de Lyon, France*; L. Vermeeren, *SCK, Belgium*; A. Kuznetsov, *University of Oslo, Norway*; A. Hallen, *KTH, Sweden*; A. Lyoussi, *INSTN, France*

(WKSP) Workshop on large area, low background, VUV sensitive photo-detectors and associated electronics

RD1 NSS WS2 - Applications

Friday, Nov. 14   08:00-09:40,   608 & 609

Session Chair: **Fabrice Retiere**, TRIUMF, Canada

RD1-1 (08:00) EXO, liquid Xenon TPCs for neutrinoless double beta decay
L. Yang, *University of Illinois at Urbana-Champaign, USA*
On behalf of the EXO-200 and nEXO Collaborations

RD1-2 (08:20) Topology reconstruction in a gaseous TPC using SiPMs for neutrinoless double beta searches
F. Monrabal, J. J. Gomez Cadenas, *Unknown, unknown*; D. Nygren, *Lawrence Berkeley National Laboratory, USA*

RD1-3 (08:40) Dark matter search with Liquid Argon and Liquid Xenon
E. Pantic, *UC Davis, USA*

RD1-4 (09:00) Neutrino detection with liquid Argon
T. Kutter, *Louisiana State University (LSU), USA*

RD1-5 (09:20) XEMIS, Positron Emission Tomography with liquid Xenon
L. Gallego[1], S. Bassetto[2], N. Beaupere[1], P. Briend[2], T. Carlier[3], M. Cherel[3], J.-P. Cussonneau[1], J. Donnard[1], M. Gorski[2], R. Hamanishi[4], F. Kraeber-Bodéré[5], O. Lemaire[1], P. Leray[1], J. Masbou[1], S. Mihara[4], E. Morteau[1], L. Scotto Lavina[1], J.-S. Stutzmann[1], T. Tauchi[4], L. Virone[1], D. Thers[1]
[1]SUBATECH, Ecole des Mines de Nantes, CNRS/In2p3, Université de Nantes, France; [2]AIR LIQUIDE, France; [3]Centre Hospitalier Universitaire de Nan, France; [4]High Energy Accelerator Research Organization (KEK), Japan; [5]INSERM U892 equipe 13, France

RD2 NSS WS2 - SiPMs
Friday, Nov. 14   10:30-12:30,   608 & 609
Session Chair: **Fabrice Retiere**, TRIUMF, Canada

RD2-1 (10:30) MEG liquid Xenon calorimeter

RD2-2 (10:50) SiPM test for nEXO

RD2-3 (11:10) SiPM development for LAr DM experiments
G. Fiorillo[1], B. Rossi[2], S. Walker[1], A. Razeto[3], M. D'Incecco[3], D. Sablone[3], G. Korga[3], C. Piemonte[4], A. Gola[4]
[1]Universita' di Napoli, Italy; [2]INFN Napoli, Italy; [3]INFN Laboratori Nazionali del Gran Sasso, Italy; [4]Fondazione Bruno Kessler, Italy

RD2-4 (11:30) KETEK

RD2-5 (11:50) RMD Presentation

RD2-6 (12:10) SensL

RD3 NSS WS2 - Other photo-detectors
Friday, Nov. 14   14:00-15:40,   608 & 609
Session Chair: **Fabrice Retiere**, TRIUMF, Canada

RD3-1 (14:00) SiPM with WLS

RD3-2 (14:20) Silicon Geiger Hybrid Tube: an ultra low background photosensor

RD3-3 (14:40) Wafer scale detector arrays with extrinsic uniform detection/amplification capabilities: Application of amorphous selenium (a-Se) to VUV photon counting detectors
J. Rowlands, *University of Toronto, Canada*

RD3-4 (15:00) PMT for XENON1T Dark Matter experiment
A. Lyashenko[1], Y. Wang[1,2], A. Fan[1], Y. Meng[1], T. Nguyen[1], A. Renshaw[1], A. Teymourian[1], H. Wang[1], E. Pantic[3], M. Guan[2], C. Wang[2]
[1]University of California, Los Angeles, USA; [2]Institute of High Energy Physics, China; [3]University of California, Davis, USA

RD3-5 (15:20) GEM-based photo-detector

RD4 NSS WS2 - Readout Electronics and Discussion
Friday, Nov. 14   16:00-18:00,   608 & 609
Session Chair: **Lorenzo Fabris**, Oak Ridge National Laboratory, United States

RD4-1 (16:00) MEG readout system

RD4-2 (16:20) OMEGA SiPM ReadOut chips
S. Ahmad[1], S. Callier[2], C. de La Taille[2], F. Dulucq[2], J. Fleury[1], G. Martin-Chassard[2], L. Raux[2], N. Seguin-Moreau[2], D. Thienpont[2]
[1]Weeroc SAS, France; [2]Ecole Polytechnique, France

RD4-3 (16:40) Concepts of SiPM readout electronics
L. Fabris, *Oak Ridge National Laboratory, USA*
On behalf of the nEXO Collaboration

RD4-4 (17:00) Round Table Discussion

(WKSP) Workshop on Prospects and Challenges in Hadron Therapy

HT1 Prospects and challenges in Hadron Therapy
Tuesday, Nov. 11   13:30-16:30,   6B

HT1-1 (13:30) Status of Hadron Therapy worldwide and developments in accelerators
H. Paganetti, *Massachusetts General Hospital, USA*

HT1-2 (13:55) Status of instrumentation for Hadron Therapy

D. Schaart, *TNW, Netherland*

HT1-3 (14:20) Status of Biologically Weighted Treatment Planning in Hadron Therapy

X. Tbd, *TBD, TBD*

HT1-4 (14:45) Big Data and Computational Challenges for Hadron Therapy

R. Mather, *Toshiba Medical Research Institute, USA*

HT1-5 (15:10) Beam transport and dosimetry for laser-driven proton beams: from the conventional hadrontherapy to the laser-based concept

V. Scuderi

Istituto Nazionale di Fisica Nucleare, Laboratori Nazionali del Sud, Italy

HT1-6 (15:25) Large scale data and computation management in radiotherapy

S. Gerace, *Department of Radiation Oncology, USA*

HT1-7 (15:40) Updates in OpenPET project toward in situ 3D imaging during particle therapy

T. Yamaya

National Institute of Radiological Sciences, Japan

HT1-8 (15:55) Prompt gamma imaging with a slit-camera: acquisition of a 2D map on heterogeneous targets

I. Perali, *Politecnico di Milano, Italy*

HT1-9 (16:10) Progress towards quantified Monte Carlo simulation

M. G. Pia, *INFN Sezione di Genova, Italy*

HT1-10 (16:25) Usages and Prospects of Particle Therapy System Simulation Framework in Particle Therapy Facilities in Japan

T. Aso, *National Institute of Technology, Japan*