



Bichebois L.P.A., Baillot A.J.B. Raising of the Alexander Column in 1832

IFTToMM Workshop on History of Machine and Mechanism Science

Saint-Petersburg, Russia, May 26-28, 2015

Organization and patronage of



Department
"Theory of
Mechanisms
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Scientific Electronic Journal

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IFTToMM Workshop on History of Machine and Mechanism Science 26-28 May 2015



Saint-Petersburg, Russia

PROGRAM

Day 1 (26 May)

- 8.30 - 9:00 Registration
- 9.00 - 10:00 Opening act (Vice-Rector Vladimir V. Gloukhov, WHMMS2015 Chair Alexander Evgrafov, PC Chair Olga Egorova, IFTToMM past President Marco Ceccarelli)
- 10.00 - 10:20 coffee break
- 10.20 - 12:00 session [5 papers x 20 min.]
- 12.00 – 13.00 poster session [16 papers]
- 13.00 - 14:30 lunch
- 14:30 - 16:30 session [6 papers x 20 min.]
- 16:30 – 17.00 coffee break
- 17.00 - 18:20 session [4 papers x 20 min.]
- 19:00 – social event (city tour) – see Excursion Program

Day 2 (27 May)

- 9.00 - 10:20 session [4 papers x 20 min.]
- 10.20 - 10:40 coffee break
- 10.40 - 12:00 session [4 papers x 20 min.]
- 12.00 – 13.00 poster session [16 papers]
- 13.00 – 14:30 lunch
- 14:30 - 15:50 session [4 papers x 20 min.]
- 15:50 closing act
- 16.00-16.30 meeting of the IFTMM Permanent Commission for History of MMS
- 18.00 – conference/gala dinner – see Excursion Program

Day 3 (28 May)

- 10.00 - 19:00 excursion – see Excursion Program

Venue

Workshop on History of Machine and Mechanism Science will be held at the Peter the Great St. Petersburg Polytechnic University, Main University Building, 29 Politekhnicheskaya, 195251 St.-Petersburg, Russia.

On May 26 at 8:00 - 8:15 and 27 May at 8:30-8:45 a special bus will bring the Workshop participants from the hotel "Sputnik" to the university.



DAY 1 (26 May)

- 10.20 - 12:00 session [5 papers x 20 min.]

Title: Figures of the Past

Chair: Olga Erogo

- Paper1: 20-16 Baichun Zhang. One of the Mechanical Engineers in pre-modern China: Ma Jun
Paper2: 20-22 Michela Cigola, Yibing Fang. Preliminary study of the work of Xu Guangqi in the technical knowledge in 17th century: from the perspective of drawing and representation
Paper3: 50-47 Vera Chinenova. General Ideas of Academician V. P. Goryachkin Concerning the Construction of Agricultural Mechanics
Paper4: 20-17 Yexin Liu. Baichun Zhang. One of the Mechanists in pre-modern China: YAN Su
Paper5: 20-01 Agamennon R.E.Oliveira. History of Krylov-Bogoliubov-Mitropolsky Methods of Nonlinear Oscillations

- 12.00 – 13.00 poster session [16 papers]

Chair: Monroe Nam

- Paper: 20-03 Marco Ceccarelli. Italian Landmarks in the History of MMS
Paper: 20-20 Kypros F. Milidonis, Thomas G. Chondros, Stefanos Paipetis. The Trojan Horse and Primitive Design Activity
Paper: 50-01 Vladimir A. Godlevskiy. Technological lubricating means: evolution of materials and ideas
Paper: 50-12 Gudimova L.N. Development of ideas of structural synthesis mechanical systems in historical perspective
Paper: 50-38 Vladimir Algin. History and State of Art of Belarussian Scientific School in the Field of Computation and Designing Mobile Machine Transmission.
Paper: 50-16 Felix Doronin. Quaternions and screw calculation in the modern theory of mechanisms
Paper: 50-45 Gennady Petrov. 3D Modelling of mechanisms with the help of “model vision” package.
Paper: 50-27 Vladimir V. Supin, Victor E. Starzhinsky, Vladimir E. Antonyuk. Design Automation of Gear Drive and Gear Forming Tool
Paper: 50-22 Victor E. Starzhinsky, Vladimir E. Antonyuk, Mark M. Kane, Serge V. Shilko. Contribution of Belarussian Scientists in the Problem of Gearing Terminology Identification
Paper: 50-29 Victor E. Starzhinsky, U.L. Basiniuk, A.I. Mardasevich, M.P. Lobkova. Optimization Computation of Multistage and Multi-Path Instrument Toothed Mechanisms
Paper: 50-33 Valentin Tarabarin, Alexey Kozov, Arina Titova. Analysis of Structure, Kinematic and 3D Modeling of Ferguson's Mechanisms
Paper: 50-35 Vladimir E. Antonyuk, Arkadi M. Goman, Nikolai N. Ishin, Victor E. Starzhinsky, Vladimir V. Supin. Methods of Increasing Gear Drive Serviceability.
Paper: 50-36 Mark M. Kane, Victor E. Starzhinsky. Quality rise of high-loaded cylindrical gear drives in design and manufacture.
Paper: 50-39 Nikolay N. Ishin, Arcady M. Goman, Andrey S. Skorokhodov. Vibrating monitoring technical condition of the transmission systems of mobile machines.
Paper: 50-51 Anastasiya Borina, Valeriy Tereshin. History of biped robots. Problems.Solutions.
Paper: 50-53 Valeriy Klyukin, Valentin Kharitonov. The history of development of domestic pneumatic automation

- 14:30 - 16:30 session [6 papers x 20 min.]

Title: Designs of the Past

Chair: Agamennon Oliveira

- Paper1: 20-11 Teun Koetsier. The Escape from Malthusian Trap
Paper2: 50-18 Mikhail Malenkov. Self-propelled automatic chassis of Lunokhod-1: history of creation in episodes.
Paper3: 20-12 Alessandro Gasparetto. History of Robotics: from Ancient Times to the 18th Century.
Paper4: 20-15 Lie SUN. Rolling Bearings in China: From Ancient to the 20th Century.
Paper5: 50-37 Boris Timofeev, Mikhail Sachkov. Approximate gears: history and modern state.
Paper6: 50-32 Olga Egorova, Kirill Samsonov, Alexandra Sevryukova, Vitaly Omelchenko, Roman Jakovlev. Ferguson's Model from the Russian Mechanisms Collection.

- 17.00 - 18:20 session [4 papers x 20 min.]

Title: History of Developments

Chair: Galina Kuteeva

- Paper1: 20-05 Monroe Nam. Transmission of Western Scientific Knowledge to Korea and the Advent of a Unique Astronomical Clock in 1669.
Paper2: 50-11 Natalya Barmina, Marya Karelina, Eduard Krylov. MMS study in Russian Universities: the recent past and the desired future.
Paper3: 20-04 Emanuela Chiavoni, Claudio Impiglia. Ephemeral constructions and pyrotechnic machinery: dialogue between history and representation.
Paper4: 50-15 Vladimir E. Antonjuk, Victor E. Starzhinsky, Mark M. Kane, Leonid A. Sosnovskiy, Victor V. Komissarov. Actual Problems of Standardization in the Field of Gear Drives

DAY 2 (27 May)

- 9.00 - 10:20 session [4 papers x 20 min.]

Title: Russian Works

Chair: Teun Koetsier

- Paper1: 50-48 Mikhail Guryev. The Laboratory for Clock and Musical Machine Restoration in the State Hermitage Museum.
- Paper2: 50-19 Dmitry Babichev, Sergey Lagutin, Natalya Barmina. Review of the Russian school in the theory and geometry of gearing. Part 1. Origins of the theory of gearing and its Golden period of 1935-1975.
- Paper3: 50-28 Alexander Belyaev, Alexander Sukhanov, Alexander Tsvetkov. Gushing chain.
- Paper4: 50-34 Alexander N.Evgrafov, Pavel A.Andrienko. The role of St. Petersburg scientists of XVIII-XIX centuries in the development of MMS.

- 10.40 - 12:00 session [4 papers x 20 min.]

Title: Past Publications

Chair: Monroe Nam

- Paper1: 50-14 Andrey B. Kikin. Roberts-Chebyshev Theorem and Least-Squares Synthesis of Four-Bar Path Generators
- Paper2: 20-06 Francesco Sorge. The "Mathematical Table" in the Chinese Palace of Palermo.**
- Paper4: 50-23 Munir G. Yarullin. Marat R. Mingazov, Ilnar Galiullin. Historical review of studies of spatial nR linkages
- Paper5: 20-09 Kuroki Hidetaka. How did Archimedes discover "The Law of BUOYANCY" by experiment?

- 12.00 – 13.00 poster session [16 papers]

Chair: Marco Ceccarelli

Poster presentation is not of secondary value but will facilitate better one-to-one discussions

- Paper: 20-02 Agamenon R. E. Oliveira. Charles Augustin Coulomb the Founder of Biomechanics.
- Paper: 20-08 Kuroki Hidetaka. What did Archimedes Find at "Eureka" Moment?
- Paper: 20-19 Cesare Rossi. The Artillery of the Roman Legion: Design, Behaviour and Performances.
- Paper: 20-21 Irimi T. Chondrou. Despina D. Deligianni. Kypros F. Milidonis. Thomas G. Chondros. Ilizarov K-wire tensioning device with a tapered spring grip.
- Paper: 50-02 Alexander K. Belyaev Vladimir V. Eliseev, Evgeniy A. Oborin. Elementary model of elastic slip in belt drive.
- Paper: 50-04 Vladimir Puhly. From steam turbines to gasturbines engines: development of methods of calculation of disks
- Paper: 50-13 Sergey N. Kunkin, Leonid B. Aksenov. 100 years cinematic development of rotary forging machines.
- Paper: 50-44 Serge V. Shil'ko, Victor E. Starzhinsky, V.L. Basinyuk, Dmitry A. Chernous. Mesomechanical modeling of muscle type actuator elements for controlled electric drive.
- Paper: 50-46 Leriya Salekhov. Experience in industrial use of production waste in Russia.
- Paper: 50-49 Grigory Tsy-pin. Maketburg laboratory: Nartov's machine Restoration.
- Paper: 50-21 Mikhail J. Platovskikh. Self-oscillations in Machine and Mechanism
- Paper: 50-52 Galina Kuteeva. Some historical mechanisms in St. Petersburg.
- Paper: 50-40 I.I. Grigorev, G.A. Timofeev. Revealing the Historical Path and Making a Model: The Responsive Drive.
- Paper: 50-41 Daria Spasskaya, Maxim Vlasov, Natalia Kunova. Mechanisms of Franz Reuleaux collection.
- Paper: 50-30 Olga V. Egorova, Dmitry Yu. Shcherbinin. The Experience of Creating of Technical Heritage Objects Replicas in the Virtual Environment
- Paper 50:42 Olga Egorova, Andrei Vukolov. Perspectives of 3D Modeling in Theory of Mechanisms and Machines

- 14:30 - 15:50 session [4 papers x 20 min.]

Title: Findings in Antiquity and early machines

Chair: Baichun Zhang

- Paper1: 20-18 Cesare Rossi, Thomas G. Chondros, Stefanos Paipetis, Kypros Milidonis, Flavio Russo. Development of Wheeled Carts from the Bronze Age to the Roman Empire.
- Paper2: 20-07 Yu-Hsun CHEN, Hong-Sen YAN. Mechanical Study on the Calligraphy Writing Automaton in the Forbidden City.
- Paper3: 50-31 Gennady Timofeev, Olga Egorova, Marina Samoilova. Design Features of Wave Gearings from Musser to the Present Day.
- Paper6: 20-14 Tian, Miao. Mechanism in Ancient China: Utility and Threaten

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