



**20th International Conference of Young Specialists  
on Micro/Nanotechnologies and Electron Devices  
EDM 2019**

**Program**

Erlagol, Altai Republic, Russia  
June 29 – July 3, 2019

## **ORGANIZER**

Novosibirsk State Technical University

## **SPONSORS**

Novosibirsk State Technical University

IEEE Russia Siberia Section

## **UNDER SUPPORT OF**

Institute of Semiconductor Physics SB RAS

Biysk Technological Institute (branch) of Altay State Technical University named after I.I. Polzunov

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**Valery P. Dovgun**, Dr.Sc., Prof., Department of Systems of automatic equipment, automated management and design, Institute of Space and Information Technologies, Krasnoyarsk, Russia

**Alexey Ivanov**, Dr.-Ing., research fellow, Fraunhofer Institute for Solar Energy Systems (Fraunhofer ISE), Freiburg, Germany.

## SECRETARIES

**Tatiana E. Shults**, engineer of the Power Electronics Institute, NSTU, Novosibirsk, Russia;

**Alexandra I. Khristolyubova**, Senior Lecturer of the Department of Electronics and Electrical Engineering, NSTU, Novosibirsk, Russia;

**Andrey V. Sidorov**, engineer of the Power Electronics Institute, NSTU, Novosibirsk, Russia;

**Anton Rassolkina**, PhD, Research Scientist, Department of Electrical Power Engineering and Mechatronics, Tallinn University of technology (TalTech), Tallinn, Estonia.

## CONTACTS

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## WORKING LANGUAGES

Russian, English.

# Event Schedule

Date	Time	Activity
June 29 Saturday	8.00 – 8.30	Participants collecting (NSTU, bld.4)
	9.00	Departure to Erlagol
	18.30	Arrival in Erlagol
	18.30 – 19.00	Accommodation of the participants
	19.00 – 20.00	Dinner
	20.00 – 20.15	Registration of the participants (hall A)
	20.15 – 21.00	Participant's kit issue (hall A)
June 30 Sunday	8.30 – 8.45	Morning workout
	9.00 – 10.00	Breakfast
	10.10 – 11.15	Conference opening. Plenary Session (Hall A)
	11.15 – 11.30	Coffee break (hall B)
	11.30 – 12.50	Plenary Session
	13.00 – 14.00	Lunch
	14.30 – 16.20	Section 5, 3, 4
	16.20 - 16.35	Coffee break (hall B)
	16.35 – 18.15	Section 5, 3, 6
19.00 – 20.00	Dinner	
July 1 Monday	8.30 – 8.45	Morning workout
	9.00 – 10.00	Breakfast
	10.10 – 12.00	Section 7, 2, 1
	12.00 – 12.15	Coffee break (hall B)
	12.15 – 13.15	Section 7, 2
	14.00 – 15.00	Lunch
	15.30 – 17.00	Program Committee Session
	15.30 – 17.30	Volleyball EDM Cup
	19.00 – 20.00	Dinner
21.30 – 23.30	Best reports awards (hall A)	
July 2 Tuesday	8.30 – 8.45	Morning workout
	9.00 – 10.00	Breakfast
	10.00 – 14.00	Free time (rafting, horse riding, excursion)
	14.00 – 15.00	Lunch
	15.15 – 18.00	Chemal hydropower plant excursion (optional)
	19.00 – 20.00	Dinner
July 3 Wednesday	8.00 – 9.00	Breakfast
	9.00 – 9.30	Preparation for departure
	9.30	Departure to Novosibirsk
	19.00	Arrival in Novosibirsk

# Plenary Session (Hall A)

June 30, 2019

- 10.10 – 10.15 **Opening.** Chair - prof. **Sergey Kharitonov**
- 10.15 – 10.45 Report «**Planar Semiconductor Nanowires: Application, Formation, Simulation of NW Growth**». Presenter **Nataliya Shwartz**, Cand. Sc., associate prof., A.V. Rzhanov Institute of Semiconductor Physics SB RAS (ISP SN RAS), Russia
- 10.45 – 11.15 Report «**Features of Modern Power Electronic Devices Development**». Presenter **Andrey Antonov**, Cand. Sc., R&D Engineer, Sibis LLC, Russia
- 11.15 – 11.30 Coffee break (Hall B)**
- 11.30 – 12.00 Report «**Superconductive Digital Electronics for Enhancing Superconductive Sensors and Detectors**». Presenter **Hannes Toepfer**, Prof. Dr.-Ing. habil, Technische Universität Ilmenau (TUI), Ilmenau, Germany
- 12.00 – 12.30 Report «**Electric vehicles infrastructure on the example of Estonia and ISEAUTO - Estonian first self-driving vehicle**». Presenter **Anton Rassõlkin**, PhD. of Tallinn University of Technology (TalTech), Estonia
- 12.30 – 12.50 Report «**TalTech, PhD studies in Estonia, Electrical Machine Research**». Presenter **Toomas Vaimann**, PhD. of Tallinn University of Technology (TalTech), Estonia

	June 30, 2019	July 1, 2019
<b>Hall A</b>	<b>14:30 - 18:15</b> <b>Section 5. Power Electronics and Power Engineering</b> Chair prof. Gennady Zinoviev	<b>10:10 – 13.15</b> <b>Section 7. Robotics, Mechatronics and Automation</b> Chair prof. Oleg Nos, Novosibirsk, Russia
<b>Hall B</b>	<b>14:30 - 17:15</b> <b>Section 3. Sonic and Ultrasonic Devices: Physics, Electronics, Application</b> Chair prof. Vladimir Khmelev	<b>10:10 - 13:05</b> <b>Section 2. Radio and Microwave Technology. Computer Science and Telecommunications</b> Chair associate prof. Svetlana Vorobiova
<b>Hall C</b>	<b>14:30 - 16:10</b> <b>Section 4. Optoelectronic Devices and Systems: Physics, Electronics, Application</b> Chair prof. Eugene Sypin	<b>10:10 - 11:50</b> <b>Section 1. Semiconductor Physics and Technology. Photovoltaics</b> Chair associate prof. Nataliya Shwartz
	<b>16:35 – 18.15</b> <b>Section 6. Medical Electronics</b> Chair prof. Vladimir Makukha	

## Section 1. Semiconductor Physics and Technology. Photovoltaics July 1, 2019 (Hall C)

- 10.10 – 10.20 **Opening**  
Chair - **Nataliya L. Shwartz**, Cand.Sc., Senior Researcher, ISP SB RAS,  
Associate Prof., NSTU, Novosibirsk, Russia
- 10.20 – 10.30 MBE of InAsSb Solid Solutions on Misoriented GaAs(100) Substrates:  
Experiment and Kinetic Analysis  
**Eugene A. Emelyanov**, A.V. Rzhanov Institute of Semiconductor  
Physics SB RAS (ISP SN RAS), Novosibirsk, Russia
- 10.30 – 10.40 Vanadium Dioxide–Based Metasurface for Polarization Dynamic  
Control in Subterahertz Range  
**Alexey E. Gayduk**, A.V. Rzhanov Institute of Semiconductor Physics  
SB RAS (ISP SN RAS), Novosibirsk, Russia
- 10.40 – 10.50 Features of Magnetotransport and Microwave Response of Two  
Dimensional Electron Gas in Sign-Alternating Magnetic Field  
**Denis B. Sultanov**, A.V. Rzhanov Institute of Semiconductor Physics  
SB RAS (ISP SN RAS), Novosibirsk, Russia
- 10.50 – 11.00 XPS and RHEED Study of Chemically Treated PbSnTe Surface  
**Andrey S. Tarasov**, A.V. Rzhanov Institute of Semiconductor Physics  
SB RAS (ISP SN RAS), Novosibirsk, Russia
- 11.00 – 11.10 Investigation of Carbon Nanotube Networks Surface Conductivity in  
Sensor Structures  
**Evgeny R. Zakirov**, A.V. Rzhanov Institute of Semiconductor Physics  
SB RAS (ISP SN RAS), Novosibirsk, Russia
- 11.10 – 11.20 An Evaluation of SiGe HBT Operation at Cryogenic Temperatures  
**Anton A. Cherepanov**, Sibis LLC, Novosibirsk, Russia
- 11.20 – 11.30 Effect of ZrO<sub>2</sub> Additive on the Morphology of Lithium Ferrite  
**Svetlana A. Nikolaeva**, Tomsk Polytechnic University (TPU), Tomsk,  
Russia
- 11.30 – 11.40 Essential Factors for Explosive Compaction of Nanodiamond-Metal  
Composite  
**Kristina N. Solovyeva**, BTI AltSTU, Byisk, Russia
- 11.40 – 11.50 Development of Technology Formation of the Optical Waveguide  
Structures Based on InP by Plasma Etching  
**Sergey V. Ishutkin**, TUSUR, Tomsk, Russia

Section 2. Radio and Microwave Technology. Computer Science and  
Telecommunications  
July 1, 2019 (Hall B)

- 10.10 – 10.20 **Opening**  
Chair - **Svetlana Vorobiova**, Cand.Sc., assoc.prof. SibSUTIS,  
Novosibirsk, Russia
- 10.20 – 10.30 Algorithm for an Estimation of the Electromagnetic Field  
Uniformity in the Working Volume of a Reverberation Chamber  
**Alexander V. Demakov**, TUSUR, Tomsk, Russia
- 10.30 – 10.40 Logic Circuit Based Test Derivation for Microcontrollers  
**Andrey V. Laputenko**, TSU, Tomsk, Russia
- 10.40 – 10.50 Model Based JUnit Testing  
**Andrey V. Laputenko**, TSU, Tomsk, Russia
- 10.50 – 11.00 Frequency Shift Chirp Modulation with Additional Differential  
Phase Shift Keying  
**Victor V. Erokhin**, OmSTU, Omsk, Russia
- 11.00 – 11.10 Modal Filter for Spacecraft Busbar Protection Against Ultrashort  
Pulses  
**Roman Khazhibekov**, TUSUR, Tomsk, Russia
- 11.10 – 11.20 A High Gain 450/900 MHz Dual Band Low Noise Amplifier for IoT  
and LTE Low-Band Receivers  
**Andrey A. Antonov**, Sibis LLC, Novosibirsk, Russia
- 11.20 – 11.30 Informativeness Assessment of the Thermal Pattern Features of  
the Face and Neck Region in the Tasks of Recognition of the  
Subject's Changed State  
**Denis V. Lukin**, OmSTU, Omsk, Russia
- 11.30 – 11.40 Experimental Evaluation of Timed Finite State Machine Based Test  
Derivation  
**Evgenii M. Vinarskii**, Lomonosov Moscow State University,  
Moscow, Russia
- 11.40 – 11.50 Research of the New Structure of Reflection Symmetric Modal  
Filter  
**Yevgeniy S. Zhechev**, TUSUR, Tomsk, Russia
- 11.50 – 12.00 Dual-Receiver Radiometric System for Near Field Measurements in  
Hyperspectral Mode  
**Anton V. Ubaychin**, TPU, Tomsk, Russia
- 12.00 – 12.15 Coffee break (Hall B)**
- 12.15 – 12.25 Broadband Low Noise Distributed-Gain Amplifier Designed in 130  
nm Process  
**Rodion R. Fakhrutdinov**, OmSTU, Omsk, Russia

- 12.25 – 12.35 The Connection Unit for Wideband Microwave Active Mixer  
**Pavel I. Puzyrev**, OmSTU, Omsk, Russia
- 12.35 – 12.45 The Ultra-Wideband Double Balanced Active Mixer with Integrated LO Frequency Doubler and Frequency Response Correction in the SiGe BiCMOS130 nm  
**Konstantin V. Murasov**, OmSTU, Omsk, Russia
- 12.45 – 12.55 Electromagnetic Response of 3D Printed Resonant Periodic Structures in the EHF Range  
**Kseniya V. Simonova**, TSU, Tomsk, Russia
- 12.55 – 13.05 Measurements and Calculation of the Electromagnetic Response from Polymer Composite Materials Containing Carbon Fillers  
**Tatiana N. Shematilo**, TSU, Tomsk, Russia



### Section 3. Sonic and Ultrasonic Devices: Physics, Electronics, Application June 30, 2019 (Hall B)

- 14.30 – 14.40 **Opening**  
Chair - **Vladimir Khmelev**, Dr.Sc., prof., AltSTU, Byisk, Russia
- 14.40 – 14.50 Experimental Study of the Influence of the Ultrasonic Cavitation on Raw Components of the Polymer Composite Material  
**Roman A. Lopatin**, BTI AltSTU, Byisk, Russia
- 14.50 – 15.00 Theoretical Study Coagulation of Aerosols in Thin Resonant Gaps  
**Andrey V. Shalunov**, BTI AltSTU, Byisk, Russia
- 15.00 – 15.10 Active RC-Filter with Differential Input for Signal Processing of Piezoelectric Sensors  
**Anna V. Bugakova**, DSTU, Rostov-on-Don, Russia
- 15.10 – 15.20 Efficiency of Ultrasonic Treatment of Liquid Media through Wall of the Test Tube  
**Sergey N. Tsyganok**, BTI AltSTU, Byisk, Russia
- 15.20 – 15.30 The Study of the Superposition of Vibrations on the Large Thin-Walled Structures  
**Dmitry V. Genne**, BTI AltSTU, Byisk, Russia
- 15.30 – 15.40 The Installation of the Filtering Membranes into the Packets for the Mushroom Beds by the Ultrasonic Welding  
**Alexey N. Slivin**, BTI AltSTU, Byisk, Russia
- 15.40 – 15.50 Control of the Impedance Characteristics of the Ultrasonic Radiators for the Study of the Processes and the Phenomena Occurring in Fluid Media  
**Roman V. Barsukov**, BTI AltSTU, Byisk, Russia
- 15.50 – 16.00 Ultrasonic Cavitation Influence on Mechanical Molecules Activation during Bioethanol Obtaining from Micro Powder Cellulose  
**Roman N. Golykh**, BTI AltSTU, Byisk, Russia
- 16.00 – 16.10 Experimental Stand for the Research of the Process of Ultrasonic Coagulation of Aerosols  
**Alexander S. Bochenkov**, BTI AltSTU, Byisk, Russia
- 16.10 – 16.20 Application of Ultrasound for Sedimentation of Aerosol Particles under Various External Conditions  
**Maria Yu. Stepkina**, IPCET SB RAS, Byisk, Russia
- 16.20 – 16.35 Coffee break (Hall B)**
- 16.35 – 16.45 Specific Features of the Realization of Ultrasonic Action in Liquid Media under Excessive Pressure  
**Svetlana F. Ryzhova**, BTI AltSTU, Byisk, Russia

- 16.45 – 16.55 The Complex of Multi-Frequency Ultrasonic Apparatuses for the Generation of Mechanical Vibrations of the Physical Objects  
**Evgeniy V. Ilchenko**, BTI AltSTU, Byisk, Russia
- 16.55 – 17.05 The Effect of Ultrasonic Processing on the Dispersivity of Detonation Carbon  
**Anastasia A. Kolesova**, BTI AltSTU, Byisk, Russia
- 17.05 – 17.15 Study of Ultrasonic Coagulation of Dispersed Particles in the Implementation of the Standing Wave Mode  
**Viktor A. Nesterov**, BTI AltSTU, Byisk, Russia

Section 4. Optoelectronic Devices and Systems: Physics, Electronics,  
Application  
June 30, 2019 (Hall C)

- 14.30 – 14.40    **Opening**  
Chair - **Eugene Sypin**, Cand.Sc., prof., Byisk AltSTU, Byisk, Russia
- 14.40 – 14.50    Rotational Projection Optical System for Nanopowder Combustion  
Monitoring  
**Fedor A. Gubarev**, TPU, Tomsk, Russia
- 14.50 – 15.00    Optimization of CCD-Based Gated-Viewing System for Low  
Illumination Conditions  
**Natalia A. Seyfi**, NSTU, Design and Technology Institute of Applied  
Microelectronics Novosibirsk, Russia
- 15.00 – 15.10    Optimization of RF Electrodes for Electro-Optic Modulator Based  
on Quantum-Confined Stark Effect  
**Igor V. Yunusov**, TUSUR, Tomsk, Russia
- 15.10 – 15.20    Development of Experimental Sample of Multi-Criteria Electro-  
Optical Device for Monitoring Emergency and Pre-Emergency  
Situations in the Coal Mines  
**Ivan S. Zorin**, BTI AltSTU, Byisk, Russia
- 15.20 – 15.30    Laboratory Study of Dynamic Characteristics for Optical Noise  
Sources  
**Eugene A. Korenev**, BTI AltSTU, Byisk, Russia
- 15.30 – 15.40    Development of Experimental Installations and Techniques for the  
Research of the Dynamic Characteristics of Optical Noise in the  
Form of Radiation Incandescent Lamp  
**Eugene A. Korenev**, BTI AltSTU, Byisk, Russia
- 15.40 – 15.50    Development of a Neural Network Algorithm of Making Decision  
on Emergency and Pre-Emergency Situations in the Coal Mine for  
Multicriterial Electro-Optical System  
**Anton I. Sidorenko**, BTI AltSTU, Byisk, Russia
- 15.50 – 16.00    Simulation of High-Speed Electro-Optical Device for Fire Detection  
at Early Stage under the Influence of Dynamic Optical Noise  
**Alexey Yu. Sidorenko**, BTI AltSTU, Byisk, Russia
- 16.00 – 16.10    Simulation of Characteristics of Dynamic Optical Interference  
**Alexey Yu. Sidorenko**, BTI AltSTU, Byisk, Russia

Section 5. Power Electronics and Power Engineering  
June 30, 2019 (Hall A)

- 14.30 – 14.40 **Opening**  
Chair - **Gennady Zinoviev**, Dr.Sc., prof., NSTU, Novosibirsk, Russia
- 14.40 – 15.00 Modular Multilevel Converters and their Use in Hybrid AC-DC Grids  
**Thomas Ellinger**, PD Dr.-Ing. habil., Technische Universität Ilmenau, Ilmenau, Germany
- 15.00 – 15.10 Variable Frequency Zero Voltage Switching Stacked-up Converter  
**Raimdzhan A. Latypov**, JSC Academician M.F. Reshetnev Information Satellite Systems, Zheleznogorsk, Russia
- 15.10 – 15.20 Investigation of the Electronic Transformer Effectiveness for Electric Traction  
**George S. Leus**, NSTU, Novosibirsk, Russia
- 15.20 – 15.30 An Investigation of Two-Stage AC-AC Converter with High-Frequency Galvanic Isolation  
**Evgeny D. Baranov**, NSTU, Novosibirsk, Russia
- 15.30 – 15.40 Comparison of Five Schemes Used for Reactive Power Compensation  
**Aleksey V. Udovichenko**, NSTU, Novosibirsk, Russia
- 15.40 – 15.50 Development of an Effective Matching Device of Battery with a Voltage Inverter in an Electrical Energy Storage  
**Aleksey V. Udovichenko**, NSTU, Novosibirsk, Russia
- 15.50 – 16.00 Monitoring and Diagnostics of the Technical Condition of Built-in Power Sources of Aviation Equipment  
**Victoria I. Pavlova**, Moscow State Technical University of Civil Aviation, Moscow, Russia
- 16.00 – 16.10 Sensorless Control System for Three-Stage Synchronous Machine  
**Vadim E. Sidorov**, NSTU, Novosibirsk, Russia
- 16.10 – 16.20 Converter for Induction Heating Nuts on the Basis of a Series-Parallel Resonant Network  
**Sergey A. Zapolskiy**, TUSUR, Tomsk, Russia
- 16.20 – 16.35 **Coffee break (Hall B)**
- 16.35 – 16.45 Distributed Series Impedance Devices Based on Controlled Transformer  
**Ivan I. Zhuravlev**, Moscow Power Engineering Institute, Moscow, Russia

- 16.45 – 16.55 Design of Static VAR Compensators with Voltage Regulators  
**Ivan I. Zhuravlev**, Moscow Power Engineering Institute, Moscow, Russia
- 16.55 – 17.05 Experimental Verification of the Impedance-Based Approach for the Feedback Loop Design of the DC-DC Converter  
**Nikita A. Sevostyanov**, NSTU, Novosibirsk, Russia
- 17.05 – 17.15 Spectral Mathematical Model of Five Phase Voltage Source Inverter with SVPWM Control Technique  
**Dmitry B. Kuguchev**, NSTU, Novosibirsk, Russia
- 17.15 – 17.25 Current Sharing in Digitally Controlled DC-DC Converters Connected in Parallel  
**Sergey V. Klassen**, NSTU, Novosibirsk, Russia
- 17.25 – 17.35 Voltage Control of Autonomous Three-Phase Four-Leg VSI Based on Scalar PR Controllers  
**Raef Aboelsaud**, TPU, Tomsk, Russia
- 17.35 – 17.45 Active Earth Fault Current Compensation in Medium Voltage Grids  
**Pavel Smirnov**, Technische Universität Ilmenau (TUI), Ilmenau, Germany
- 17.45 – 17.55 The Bypass Power Supply Implementation for Medium Voltage AC Drive with Cascaded H-bridge Converter  
**Ekaterina E. Abramushkina**, NSTU, Novosibirsk, Russia
- 17.55 – 18.05 Combined PWM Algorithm for Voltage Source Inverter with Microprocessor Control System  
**Ivan V. Alexandrov**, NSTU, Novosibirsk, Russia
- 18.05 – 18.15 Comparison of Shunt Regulators Based on DC-DC Boost Topologies  
**Denis A. Kurochkin**, NSTU, Novosibirsk, Russia

## Section 6. Medical Electronics

June 30, 2019 (Hall C)

- 16.35 – 16.45 **Opening**  
Chair - **Vladimir Makukha**, Dr.Sc., prof., NSTU, Novosibirsk, Russia
- 16.45 – 16.55 A Prototype of Optical Blood Coagulometer  
**Lin Li**, TPU, Tomsk, Russia
- 16.55 – 17.05 The Use of Unmanned Aerial Vehicle for Emergency Medical Assistance  
**Nurlan A. Bayanbay**, Satbayev University
- 17.05 – 17.15 Experimental Equipment and Methodology for Testing the Irradiation Effect on the Antibacterial Activity of Nanoparticles  
**Daria A. Goncharova**, SPhTI TSU, Tomsk, Russia
- 17.15 – 17.25 Neural Network Analysis of Electrocardiogram Signal  
**Zhadyra N. Alimbayeva**, Satbayev University
- 17.25 – 17.35 System of Non-Invasive Electrocardiac Diagnostics  
**Chingiz A. Alimbaev**, Satbayev University
- 17.35 – 17.45 Electrochemical Study of Sensor with Aptamer Specific to Glioblastoma  
**Darya O. Sharko**, SPhTI TSU, Tomsk, Russia
- 17.45 – 17.55 Statistical Approach of the Isoline Drift Compensating in the Systems of Bifunctional Biomedical Signals Monitoring  
**Marina V. Markulyova**, Penza State University, Penza, Russia
- 17.55 – 18.05 Hemodynamic Parameters Non-Invasive Hydro-Cuff Monitoring System  
**Marina V. Markulyova**, Penza State University, Penza, Russia
- 18.05 – 18.15 Study of the Skin-Electrode Contact Effect on the Electrocardiography Signal Recorded by Capacitive Electrodes  
**Ivan Viktorov**, TPU, Tomsk, Russia

## Section 7. Robotics, Mechatronics and Automation

### July 1, 2019 (Hall A)

- 10.10 – 10.20 **Opening**  
Chair - **Oleg Nos**, Dr.Sc., prof., NSTU, Novosibirsk, Russia
- 10.20 – 10.30 Obtaining Robotic Object Models from the Equations of the Potential-Flow Method  
**Sergey P. Khalyutin**, Moscow State Technical University of Civil Aviation, Moscow, Russia
- 10.30 – 10.40 Technologies for Additive Manufacturing of Electrical Machines  
**Hans Tiismus**, Tallinn University of Technology (TalTech)
- 10.40 – 10.50 Design of the Information System for Conducting of the Technological Competitions in the Remote-Apportioned Format  
**Anastasija A. Fokina**, BTI AltSTU, Byisk, Russia
- 10.50 – 11.00 Statement of the Problem of Tracking the Position of a Robot during Technological Competitions in Robotics  
**Anastasija A. Fokina**, BTI AltSTU, Byisk, Russia
- 11.00 - 11.10 Stochastic Mathematical Model of Wave Solid-State Gyroscope  
**Olga S. Khalyutina**, LLC «Experimental Laboratory NaukaSoft», Moscow, Russia
- 11.10 – 11.20 The Amplitude Responses of the Basic Connection Circuit of a Differential Difference Operational Amplifier in Analog Sensor Interfaces with Nonlinear Input Stages  
**Anna V. Bugakova**, DSTU, Rostov-on-Don, Russia
- 11.20 – 11.30 The Third Order Active Low-Pass RC-Filters Based on Differential and Differential Difference Operational Amplifiers  
**Anna V. Bugakova**, DSTU, Rostov-on-Don, Russia
- 11.30 – 11.40 Electric Starter System for Launching a Gas Turbine Aircraft Engine  
**Maksim A. Zharkov**, NSTU, Novosibirsk, Russia
- 11.40 – 11.50 Methods for Balancing of Secondary Current Lead of Ore-Thermal Furnaces  
**Nina K. Badashkova**, NSTU, Novosibirsk, Russia
- 11.50 – 12.00 Development of Neuromorphic Accelerator  
**Dmitry E. Ipatov**, A.V. Rzhanov Institute of Semiconductor Physics SB RAS (ISP SN RAS), Novosibirsk, Russia
- 12.00 – 12.15 Coffee break (Hall B)**
- 12.15 – 12.25 Simulation of Hysteresis Clutches in ANSYS MAXWEL  
**Din K. Kyui**, TPU, Tomsk, Russia

- 12.25 – 12.35 Aspects of Energy Transformation and Energy Control Capabilities in Electric Machines with a Liquid-Metal Working Body  
**Maksim Y. Khatsayuk**, Siberian Federal University, Krasnoyarsk, Russia
- 12.35 – 12.45 Analysis of the Process of Energy Transformation in Magnetohydrodynamic Stirrer of Liquid Metals with Nonsinusoidal Current  
**Maksim Y. Khatsayuk**, Siberian Federal University, Krasnoyarsk, Russia
- 12.45 – 12.55 Analysis of Electromagnetic Characteristics of Magnetohydrodynamic Rotator for Liquid Metals  
**Maksim Y. Khatsayuk**, Siberian Federal University, Krasnoyarsk, Russia
- 12.55 – 13.05 Application of a Hyper-Complex Impedance Model for Indirect Measurements of Materials Parameters of Functional Electronics  
**Anastasia V. Pushkareva**, Penza State Technological University, Penza, Russia
- 13.05 – 13.15 Multi-Axis Electric Drive with Permanent Magnets  
**Irina Yu. Semykina**, T.F. Gorbachev Kuzbass State Technical University, Kemerovo, Russia