

# I. Plenary Session

July 01, 09:00-14:00, Hall A  
Chair - **Dr. Sergey Kharitonov**

## Join Zoom Meeting

<https://us02web.zoom.us/j/89984281330?pwd=cVRiK3RwSWRsQXUyVTRScnBJSkc4UT09>

**Meeting ID:** 899 8428 1330

**Passcode:** 627976

1. IEEE 22nd International Conference of Young Professionals in Electron Devices and Materials

**Sergey Kharitonov**

Novosibirsk State Technical University  
Novosibirsk, Russia

2. The Institute of Electrical and Electronics Engineers (IEEE)

**Vasilii Borisov**

IEEE Russia (Siberia) Section,  
Ural Federal University  
Yekaterinburg, Russia

3. Actual Problems in Wireless and Fiber Communication

**Igor Punkov**

Huawei Moscow Research Center  
Moscow, Russia

4. How to See the Invisible or Life Hacks for Near-Field Optical Spectroscopy of Semiconductor Nanostructures

**Alexander Milekhin**

Rzhanov Institute of Semiconductor Physics  
Novosibirsk, Russia

5. \*IEEE Today. How to Boost Your Career Through a Professional Organization

**Antonio Luque**

2021-2022 IEEE Region 8 Director,  
University of Seville  
Seville, Spain

6. SARS-CoV-2, from Molecular Biology to Vaccines

**Dmitry Shcherbakov**

State Research Center of Virology and Biotechnology VECTOR,  
Altai State University  
Novosibirsk, Russia

# II. Special Session on Mobile Systems and Telecom

## Join Zoom Meeting

<https://us02web.zoom.us/j/86254948430?pwd=a0o0ekVERTBzOU1qMXYxVjd6N21FUT09>

**Meeting ID:** 862 5494 8430

**Passcode:** 873336

July 01, 15:00-20:00, Hall A

Chair - **Dr. Vera Drozdova**

1. *\*Machine Learning Methods in 5G/6G Wireless Networks*

**Alexey Frolov**

*Skolkovo Institute of Science and Technology*

*Moscow, Russia*

2. *\*Duplexer Based on Volumetric Modular Technology*

**Dmitry Fomin**

South Ural State University (national research university)

Chelyabinsk, Russia

3. Open Questions in WiFi Transceiver Design

**Konstantin Tafintsev**

Huawei Moscow Research Center

Moscow, Russia

4. Application of the Finite Element Method for Calculating the S-parameters of Duplexers

**Kirill Kolupaev**

Lomonosov Moscow State University, Huawei Moscow Research Center

Moscow, Russia

5. Improved Permutation-Based Successive Cancellation Decoding of Polar Codes

**Mikhail Kamenev**

Huawei Moscow Research Center  
Moscow, Russia

6. 5G PBCH Reliability Estimation

**Vera Drozdova**

Siberian State University of Telecommunication and Information Sciences  
Novosibirsk, Russia

7. Eight-Channel Polychromator for Spectral Measurements in the Frequency Band of 0.1-0.6 THz

**Denis Samtsov**

Budker Institute of Nuclear Physics  
Novosibirsk, Russia

8. Sensorex: The Challenges for Engineering Implementation of Low-cost Non-invasive Pulse Oximeter Applicable to Diverse Patient Population

**Daria Lipchak**

Joint Stock Company "Production Association "Urals Optical & Mechanical Plant" named after Mr. E. S. Yalamov"  
Yekaterinburg, Russia

9. 5G System Simulator Development for Scheduler Efficiency Analysis

**Ruslan Akhpashev**

Siberian State University of Telecommunication and Information Sciences  
Novosibirsk, Russia

10. Engineering the Program for Error Reduction in Determining the Location of a Wi-Fi Network Connected Mobile Terminal Indoors

**Ilya Doshchinsky**

Siberian State University of Telecommunication and Information Sciences  
Novosibirsk, Russia

11. Performance evaluation of the SRS based MIMO channel estimation on 5G NR open source channel model

**Alexander Stenin**

Siberian State University of Telecommunication and Information Sciences  
Novosibirsk, Russia

12. Comparison of the Coplanar Waveguide to Microstrip Line Transition Design in the 77 GHz Frequency Range

**Victor Chechetkin**

Ural Federal University  
Ekaterinburg, Russia

13. An Effects Set Related to the Radio Signal Propagation in a Moving Reference Frame

**Kirill Zeyde**

Ural Federal University  
Ekaterinburg, Russia

14. Resonant Cavity Second Order Perturbation by Moving Medium with Stationary Domain

**Kirill Zeyde**

Ural Federal University  
Ekaterinburg, Russia

# III. Technical Session

## Section 1 – Semiconductor Physics and Technology

### Join Zoom Meeting

<https://us02web.zoom.us/j/86311131876?pwd=MjlxM3ltUmpLRjk1TWk3VzIRaZFTZz09>

**Meeting ID:** 863 1113 1876

**Passcode:** 648764

July 02, 09:30-20:00, Hall A  
Chair - **Dr. Nataliya Shwartz**

1. *Straintronics of 2D Inorganic Materials*

**Irina Antonova**

*Rzhanov Institute of Semiconductor Physics SB RAS  
Novosibirsk, Russia*

2. *Requirements to Materials for 5G-6G Mobile Communication System*

**Igor Punkov**

*Huawei Moscow Research Center  
Moscow, Russia*

3. Development of the Dispersion-Geometric Model of MOSFET's Gate Structures for Production In-line Control by Means of Optical Scatterometry

**Ilya Nelyubin**

*LLC "NM-Tech"  
Zelenograd, Russia*

4. Photoelectromagnetic Phenomena in n-type HgCdTe Heterostructures

**Vadim Kuznetsov**

*Novosibirsk State Technical University  
Novosibirsk, Russia*

5. InAs Islands Formation on the InP(001) During High-Temperature Annealing in an As Flux

**Danil Kolosovsky**

*Institute of Semiconductor Physics of SB RAS  
Novosibirsk, Russia*

6. The Thermoelectric Properties of Nanostructured SiGe Phosphorus Doped by Spark Plasma Sintering  
**Iurii Kuznetsov**  
Lobachevsky State University of Nizhny Novgorod  
Nizhny Novgorod, Russia
7. Experimental and Theoretical Study of Intrinsic Variability in Hafnium Oxide Based RRAM  
**Mikhail Fedotov**  
Scientific Research Institute of Molecular Electronics  
Moscow, Russia
8. Shapes of Ge and Si Particles Created on a Si/SiO<sub>2</sub> Substrate by Lift-off Technique  
**Dmitrii Utkin**  
ISP SB RAS/NSU  
Novosibirsk, Russia
9. Development of Infrared Scene Model in a Wide Wavelength Range  
**Dmitry Ipatov**  
Institute of Semiconductor Physics of SB RAS  
Novosibirsk, Russia
10. Composite Nanoparticles Based on h-BN and Graphene for 2D Printing  
**Dmitriy Poteryaev**  
Novosibirsk State Technical University  
Novosibirsk, Russia
11. Thermal Hysteresis in the Resistance of In<sub>2</sub>Se<sub>3</sub> Film on Si(111) Surface  
**Sergei Ponomarev**  
Institute of Semiconductor Physics of SB RAS  
Novosibirsk, Russia
12. Investigation of the Conductivity of Polycrystalline Silicon under Joule Heating  
**Margarita Ashikhmina**  
Novosibirsk State Technical University  
Novosibirsk, Russia

13. Role of Cone-Shaped Contacts in VO<sub>2</sub> Nanoswitches

**Kirill Kapoguzov**

Rzhanov Institute of Semiconductor Physics, SB RAS  
Novosibirsk, Russia

14. Conditions for the Formation of Vertical Nanowires and Crystalline Clusters of GaAs during the Self-Catalyzed Growth

**Pavel Zhikharev**

Novosibirsk State Technical University  
Novosibirsk, Russia

15. Resistive Switching Effect in Thermal SiO<sub>2</sub> Films Treated in Electron-Cyclotron Resonance Hydrogen Plasma

**Ramin Iskhakzay**

Rzhanov Institute of Semiconductor Physics, SB RAS  
Novosibirsk, Russia

16. Formation of Chiral Metamaterials by Direct Imprinting of Thin-Film Metal Elements

**Alexey Gayduk**

Rzhanov Institute of Semiconductor Physics, SB RAS  
Novosibirsk, Russia

17. Selective Area Deposition of Vanadium Dioxide Films by MOCVD

**Evgenii Bagochus**

Rzhanov Institute of Semiconductor Physics, SB RAS  
Novosibirsk, Russia

18. Area-Selective MOCVD Synthesis of VO<sub>2</sub>(B) and VO<sub>2</sub>(M) Phases on a Si Substrate

**Nikita Lysenko**

Rzhanov Institute of Semiconductor Physics, SB RAS  
Novosibirsk, Russia

19. Influence of the Elemental Composition on the Surface of the GaN Layer on the Surface Energy in Ammonia MBE

**Yan Maidebura**

Novosibirsk State Technical University  
Novosibirsk, Russia



20. Simulation of a Sensitive Element of a MEMS-based Pressure Sensor  
Operating on The Thermal Detection Principle

**Mikhail Pozdnyakov**  
National Research University of Electronic Technology (MIET)  
Moscow, Russia

21. A New Technique of Au Nanopattern Formation for Metal-Assisted Chemical  
Etching of Silicon

**Vitaliy Tumashev**  
Rzhanov Institute of Semiconductor Physics, SB RAS  
Novosibirsk, Russia

22. \*High-Voltage Picosecond Range Sharpening Diode Commutating "Long"  
Pulses: Double Avalanche Injection vs. Plasma Extraction

**Mikhail Ivanov**  
Ioffe institute  
Saint-Petersburg, Russia

23. \*GaAs Planar Nanowire Growth on Vicinal GaAs(111)A Substrates

**Anna Spirina**  
Institute of Semiconductor Physics of SB RAS  
Novosibirsk, Russia

## Section 2 – Microwave Technology and Telecommunications

### Join Zoom Meeting

<https://us02web.zoom.us/j/89741370222?pwd=eExnTXZteEtCTm4xdjFsQmxrK3IBQT09>

**Meeting ID:** 897 4137 0222

**Passcode:** 216533

July 02, 09:30-20:00, Hall B

Chair - **Dr. Svetlana Vorobiova**, Co-chair - **Dr. Maksim Stepanov**

1. \*Ultrashort Pulse Decomposition in Hybrid Protection Devices Based on the Cascade-Connected Modal Filter and Meander Line With Broad-Side Coupling

**Georgiy Kim**

Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia

2. \*Measurement of Microcontroller Radiated Emissions at Different Operation Modes

**Alexander Demakov**

Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia

3. \*Features of Calculating the Noise Immunity of UWB Radiosystems in the INDOOR Mode

**Vitaliy Karbolin**

Siberian State University of Telecommunication and Information Sciences  
Novosibirsk, Russia

4. \*The Application of the Method of the Square Four-Point Partially Coherent Model of the Volume Distributed Object Synthesis Based on its Multipoint Model

**Artemy Podkopayev**

Novosibirsk State Technical University  
Novosibirsk, Russia

5. Experimental Study of a Nonreciprocal Controllable Device Based on a Split Strip Line Containing a Ferrite Substrate  
**George Malyutin**  
Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia
6. The Use of Quarter-Wave Resonators to Improve Modal Filters Performance  
**Yevgeniy Zhechev**  
Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia
7. Comparing the Estimates of the Radiated Emission from a Structure with Modal Reservation by Two Approaches  
**Adnan Alhaj Hasan**  
Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia
8. Estimation of the Radiated Emission from a Single and Coupled Wires with Insulation above the Ground Plane  
**Adnan Alhaj Hasan**  
Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia
9. Parametric Optimization of Shielded Multiconductor Modal Filters with Circular Cross Section  
**Natalya Vlasova**  
Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia
10. Multivariate Analysis of Multiconductor Transmission Lines for Triple Modal Reservation  
**Evgeniya Chernikova**  
Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia
11. Studying the Propagation of an Ultrashort Pulse in a Cable Attached to a PCB System with Modal Reservation  
**Artem Medvedev**  
Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia

12. Printed Radiating and Radiation Pattern – Forming Elements for Digital Antenna Arrays Purposes

**Natal'ja Tarasenko**

Novosibirsk State Technical University  
Novosibirsk, Russia

13. Modal Filters Based on a Microstrip Line with Overhead Conductors Grounded at Both Ends

**Indira Sagiyeva**

Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia

14. Radiation of Radio Pulses Excited in a Nonlinear Transmission Line with Periodically Arranged Diodes Based on GaAs Structures

**Valeriy Barmin**

Institute of High Current Electronics  
Tomsk, Russia

15. Simulation of Helical Antenna with a Resistor for Radiating Powerful Microwave Pulses

**Valeriy Barmin**

Institute of High Current Electronics  
Tomsk, Russia

16. Analytical Model and Software for Evaluating the Shielding Materials Properties

**Ivan Onischenko**

Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia

17. Simulation of Land Clutter for Surveillance Radar Based on Reflected Power Dataset

**Margarita Oreshkina**

Novosibirsk State Technical University  
Novosibirsk, Russia

18. Investigation and Modeling of the Spatiotemporal Signal Recorded by the Digital Antenna Array

**Daria Zima**

Novosibirsk State Technical University  
Novosibirsk, Russia

19. Full-Scale Experiment on Monostatic Radar Sounding of the Non-Reciprocal Object

**Alexey Khristenko**

Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia

20. Experimental Stand to Determine the Scattering Matrix of the Studied Objects in the Impact of Radio Frequency Pulses

**Vladislav Pozdnyakov**

Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia

## Section 3 – X-ray, Sonic and Ultrasonic Devices: Physics, Electronics, Application

### Join Zoom Meeting

<https://us02web.zoom.us/j/87599742070?pwd=bXhhd1BnMzJlZlFGNGtRbUI2dTVOdz09>

**Meeting ID:** 875 9974 2070

**Passcode:** 891393

July 01, 15:00-20:00, Hall C

Chair - **Dr. Alexey Soldatov**

1. \*Experimental Studies of Partial Discharges in Bubbles Exposed to X-Ray Radiation

**Aleksandr Ridel**

Novosibirsk State Technical University  
Novosibirsk, Russia

2. Ultrasonic Non-contact Diagnostics of the Surface of Burning Aluminum Nanopowder

**Abay Moldabekov**

Tomsk Polytechnic University  
Tomsk, Russia

3. Influence of Ultrasonic Treatment on the Microstructure of Particles of Detonation Synthesis Nanodiamonds

**Kristina Elunina**

Biysk Technological Institute (branch) of the Altay State Technical University  
Biysk, Russia

4. Bilateral Filter for Small-Angle Ultrasonic Tomography Using Linear Arrays

**Jianglei Chang**

National Research Tomsk Polytechnic University  
Tomsk, Russia

## Section 4 – Optoelectronic Devices and Systems: Physics, Electronics, Application

### Join Zoom Meeting

<https://us02web.zoom.us/j/87917435397?pwd=d0VGaU5xRnZac2NpczI3ekpic3pGUT09>

**Meeting ID:** 879 1743 5397

**Passcode:** 987869

July 02, 09:30-14:00, Hall D

Chair - **Dr. Eugene Sypin**

1. *Laser Monitors Based on Metal Halide Brightness Amplifiers. Schemes, Features, Applications*

**Maxim Trigub**

*V.E. Zuev Institute of Atmospheric Optics SB RAS (IAO SB RAS)*

*Tomsk, Russia*

2. Laser Monitor with Independent Illumination from Capacitive-Discharge-Pumped CuBr Laser for Metal Nanopowder Combustion Study

**Abay Moldabekov**

Tomsk Polytechnic University

Tomsk, Russia

3. Increase of Radiation Pulse Duration of CuBr-Laser in the Train Mode

**Nikolay Karasev**

*V.E. Zuev Institute of Atmospheric Optics of Siberian Branch of the Russian*

*Academy of Science (IAO SB RAS)*

*Tomsk, Russia*

4. Research on Adaptation of Multi-Criterial Electro-Optical System under Object in the Form of Belt Roadway of Coal Mine for Fire Control

**Sergey Lisakov**

*Biysk Technological Institute (branch) of the Altay State Technical University*

*Biysk, Russia*

5. Experimental Study of the Multicriterial Electro-Optical System Operation in Control of Pre-Emergency and Emergency Situations in the Form of Methane Contamination, Dustiness and Fire

**Anton Sidorenko**

Biysk Technological Institute (branch) of the Altay State Technical University  
Biysk, Russia

6. Experimental Testing of the Complex Method for Increasing Decision-Making Reliability by Electro-Optical Device for Fire Detection on Background of Dynamic Optical Interferences

**Andrey Kin**

Biysk Technological Institute (branch) of the Altay State Technical University  
Biysk, Russia

7. Influence of the Pretreatment of Lithium Niobate Surface with Plasma and Ultraviolet Radiation on the Proton Exchange in Benzoic Acid Melts

**Roman Ponomarev**

PNPPK

Perm, Russia

8. Metal Vapor Laser Pumping Source with a Multistage Charge of Storage Capacitor

**Konstantin Semenov**

V.E. Zuev Institute of Atmospheric Optics of Siberian Branch of the Russian  
Academy of Science (IAO SB RAS)  
Tomsk, Russia

9. \*Synthesis of Oxide Materials for Electrochromic Panels by Spray Pyrolysis

**Timur Zinchenko**

Penza State University  
Penza, Russia



## Section 5 – Power Electronics and Power Engineering

### Join Zoom Meeting

<https://us02web.zoom.us/j/83913066429?pwd=TWpyaXBrejdjSXd5Q2FuTlZSdGRpUT09>

**Meeting ID:** 839 1306 6429

**Passcode:** 754211

July 01, 15:00-20:00, Hall B  
Chair - **Dr. Gennady Zinoviev**

1. \*PELS Student Activities Committee - A walk through

**Indhumathi Gunasekaran**

Student Membership Chair  
IEEE Power Electronics Society  
Accenture, India

2. \*Optimum Choice of Reactive Elements Parameters for Step-up DC Voltage Capacitor Converter

**Ivan Bolshakov**

Novosibirsk State Technical University  
Novosibirsk, Russia

3. \*Determining Individual Relative Share Contributions of Nonlinear Consumers in Overall Distortions of AC Power Line Voltage and Current

**Aleksey Udovichenko**

Novosibirsk State Technical University  
Novosibirsk, Russia

4. \*AC Voltage Regulators Review

**Aleksey Udovichenko**

Novosibirsk State Technical University  
Novosibirsk, Russia

5. \*Development of Energy Efficient Regulators-Compensators for AC Systems

**Evgeniy Kosykh**

Novosibirsk State Technical University  
Novosibirsk, Russia

6. \*Application of High-Voltage IGBT Modules in Surge Generators

**Alexander Myulbaer**

Novosibirsk State Technical University  
Novosibirsk, Russia

7. Comparative Analysis of DC-DC Boost Converters for Spacecraft Power Supply Systems

**Denis Kurochkin**

Novosibirsk State Technical University  
Novosibirsk, Russia

8. The Investigation of a Hybrid Cascaded Multilevel Matrix Converter

**Evgeny Baranov**

Novosibirsk State Technical University  
Novosibirsk, Russia

9. Pulse Measurements of Samples Frequency-Dependent Devices

**Valentin Loman**

Novosibirsk State Technical University  
Novosibirsk, Russia

10. Three-Phase Grid Interface Converter Control System Design to Limit a DC-side Output Impedance

**Ivan Alexandrov**

Novosibirsk State Technical University  
Novosibirsk, Russia

11. Topology Morphing Control with Soft Transients for Multimode Series Resonant DC-DC Converter

**Vadim Sidorov**

Tallinn University of Technology  
Tallinn, Estonia

12. Diagnostics of the State of Secondary Power Supplies Input Circuits Parameters Based on Analytical Expressions

**Viktoria Pavlova**

Moscow State Technical University of Civil Aviation  
Moscow, Russia

13. Formation of Thermal Portraits of Electrical Devices Based on the Finite Element Method

**Elena Punt**

Moscow State Technical University of Civil Aviation  
Moscow, Russia

14. Improving the Dynamic Characteristics of the Autonomous Electric Generating Unit

**Sergey Kuchak**

Novosibirsk State Technical University  
Novosibirsk, Russia

15. Resonant Controllers Design for Frequency-Selective Impedance Controlled DC Microgrids

**Nikita Sevostyanov**

Novosibirsk State Technical University  
Novosibirsk, Russia

16. Solid State Transformer as a Part Electrical Circuit for Data Center Application

**Andrey Sidorov**

Novosibirsk State Technical University  
Novosibirsk, Russia

## Section 6 – Biomedical Electronics and Engineering

### Join Zoom Meeting

<https://us02web.zoom.us/j/87599742070?pwd=bXhhd1BnMzJlZlFGNGtRbUJ2dTVlOdz09>

**Meeting ID:** 875 9974 2070

**Passcode:** 891393

July 01, 15:00-20:00, Hall C

Chair - **Dr. Gennady Evtushenko**

1. *Indication of the Coronavirus Model by Nanowire Biosensors*

**Vladimir Generalov**

*Federal State Research Institution State Research Center of Virology and  
Biotechnology “Vector”  
Novosibirsk, Russia*

2. Researches for Primary Reference Bioparticle Polarizability Measurement  
Procedure Development

**Lidiya Dmitrieva**

West Siberian branch FSUE "VNIIFTRI"  
Novosibirsk, Russia

3. OculusGraphy: Filtering of Electroretinography Response in Adults

**Aleksei Zhdanov**

Ural Federal University named after the First President of Russia B. N. Yeltsin  
/ Joint Stock Company “Production Association “Urals Optical & Mechanical  
Plant” named after Mr. E. S. Yalamov”  
Yekaterinburg, Russia

4. OculusGraphy: Norms for Electroretinogram Signals

**Aleksei Zhdanov**

Ural Federal University named after the First President of Russia B. N. Yeltsin  
/ Joint Stock Company “Production Association “Urals Optical & Mechanical  
Plant” named after Mr. E. S. Yalamov”  
Yekaterinburg, Russia

5. Non-Thermal Effects of Electromagnetic Radiation on a Living Organism  
**Vitaly Nevezhin**  
Tomsk State University of Control Systems and Radioelectronics  
Tomsk, Russia
6. The Efficiency of Use of a Thermal Imager in Telemedicine Planning of Treatment for Venous Patients  
**Tatyana Rostovskaya**  
Clinic LastikMed  
Saint-Petersburg, Russia
7. Laboratory Preparation of Biosensor Based on Silicon Nanowire Field-Effect Transistor for Virus Indication  
**Anastasia Cheremiskina**  
SRC VB «Vector» of Rospotrebnadzor  
Koltsovo, Russia
8. Application of Neural Networks in the Problem of Indirect Estimation of Blood Pressure According to the Heart Rate Variability Features  
**Anton Dolganov**  
Ural Federal University  
Yekaterinburg, Russia
9. Visualization of a Digital Twin of the Heart  
**Ruslan Rakhmatullov**  
Penza State Technological University  
Penza, Russia
10. Optical-Vibration Method for Studying the Process of Agglutination of Red Blood Cells  
**Aryuna Banzanova**  
Tomsk Polytechnic University  
Tomsk, Russia
11. \*Development of a Radiofrequency Ablation Device with Simultaneous Determination of the Transmural Effect Achievement  
**Vladimir Antipenko**  
Penza State University  
Penza, Russia

## Section 7 – Robotics, Mechatronics, and Automation

### Join Zoom Meeting

<https://us02web.zoom.us/j/89918663594?pwd=NkRFekRvN2x6WmFBMi9OV3RMYnRoUT09>

**Meeting ID:** 899 1866 3594

**Passcode:** 028086

July 01, 16:00-20:00, Hall D

Chair - **Dr. Oleg Nos**

1. \*Application of the Least Squares Method to Estimate the Gain of the Mathematical Model of the Aircraft Structure Strength Test Bench

**Maksim Trubin**

Novosibirsk State Technical University  
Novosibirsk, Russia

2. \*A Method for Suppressing Industrial Noise During Voice Control of an Industrial Robot

**Andrey Spirkin**

Penza State University  
Penza, Russia

3. Torque Ripple Reduction of Permanent Magnet Synchronous Motor Using Proportional-Integral-Resonant Controller with Delay of Control Response Compensation

**Egor Ignatev**

Novosibirsk State Technical University  
Novosibirsk, Russia

4. Development and Operation of Software for Controlling the Components of a "Digital" Recloser

**Stanislav Ponomarev**

Novosibirsk State Technical University  
Novosibirsk, Russia

5. Development of a Hybrid Method for Planning the Movement of a Group of Marine Robotic Complexes in a Priori Unknown Environment with Obstacles

**Artem Gorelyy**

Baltic State Technical University  
Saint Petersburg, Russia

6. Electric Flying Wing Design

**Aleksey Altukhov**

LLC "Experimental Laboratory NaukaSoft"  
Moscow, Russia

7. Identification of the DC Discharge Model of a Lithium-ion Battery Using the Potential Streaming Method and Scilab

**Igor Starostin**

Moscow State Technical University of Civil Aviation  
Moscow, Russia

## Section 8 – Software Engineering and Cyber-Physical Systems

### Join Zoom Meeting

<https://us02web.zoom.us/j/86125129071?pwd=U2tJQkVPekFuTnlkZkIFV3BZSEZuQT09>

**Meeting ID:** 861 2512 9071

**Passcode:** 448497

July 02, 09:30-20:00, Hall C  
Chair - **Dr. Vladimir Zyubin**

1. \*Application of the Metric Learning for Security Incident Playbook Recommendation

**Irina Kraeva**

Novosibirsk State University  
Novosibirsk, Russia

2. \*Development and Research of the Convolutional Neural Network for Pneumonia Recognition in Radiographs

**Konstantin Antonov**

Novosibirsk State Technical University  
Novosibirsk, Russia

3. Platform-Independent Client Applications for Working with Industrial Controllers

**Nikolai Gervas**

Novosibirsk State Technical University  
Novosibirsk, Russia

4. Proving Reflex Program Verification Conditions in Coq Proof Assistant

**Ivan Chernenko**

Institute of Automation and Electrometry, SB RAS  
Novosibirsk, Russia



5. Development and Research of Multifactor Ensemble Models for Forecasting the Time Series of Electricity Prices

**Alexander Peshkov**

Novosibirsk State Technical University  
Novosibirsk, Russia

6. Checking Robustness of Web Services based on Solving Automata Equations

**Ekaterina Shirokova**

National Research Tomsk State University  
Tomsk, Russia

7. Towards the Translation of Reflex Programs to Promela: Model Checking Wheelchair Lift Software

**Tatiana Liakh**

Institute of Automation and Electrometry SB RAS  
Novosibirsk, Russia

8. RIDE: Theia-Based Web IDE for the Reflex Language

**Tatiana Liakh**

Institute of Automation and Electrometry of the Siberian Branch of the RAS  
Novosibirsk, Russia

9. *\*Cyber-Physical Engineering Concepts in the Context of Industry 4.0*

**Valeriy Vyatkin**

Aalto University  
Espoo, Finland

10. A System for Visualizing the Three-Dimensional Spherical and Elliptic Spaces

**Denis Migranov**

Novosibirsk State University  
Novosibirsk, Russia

11. PoST2ST: a Web Service for Translating poST Programs to the IEC 61131-3 Structured Text

**Vladislav Bashev**

Institute of Automation and Electrometry SB RAS  
Novosibirsk, Russia

12. Developing Reflex IDE Kernel with Xtext Framework

**Vladislav Bashev**

Institute of Automation and Electrometry SB RAS  
Novosibirsk, Russia

13. Methods for Developing Digital Twins of Roles Based on Semantic Domain-Specific Languages

**Anna Vaganova**

Novosibirsk State University  
Novosibirsk, Russia

14. Using Convolutional Neural Networks to Restore Audiosignals

**Kristina Morozova**

Siberian State University of Telecommunications and Information Science  
Novosibirsk, Russia

15. Development and Verification of Smart-Contracts for the ScientificCoin Platform

**Evgeniy Zhdarkin**

Institute of Automation and Electrometry  
of the Siberian Branch of the Russian Academy of Sciences  
Novosibirsk, Russia

16. Time Series Forecasting Method Based on Finite State Machine

**Ulyana Pavlova**

Siberian State University of Telecommunications and Information Sciences  
Novosibirsk, Russia

17. The Use of Model-Theoretical Methods for Automated Knowledge Extraction from Medical Texts

**Ruslan Pogodin**

Novosibirsk State Technical University  
Novosibirsk, Russia

18. Development of Automated Methods for the Domain Ontology Population with the Help of a Virtual Assistant

**Andrey Orlovsky**

Novosibirsk State University  
Novosibirsk, Russia

19. Gaussian Based Active Learning Algorithm for Image Classification Problem

**Andrey Shcherbin**

Novosibirsk State University

Novosibirsk, Russia

## Section 9 – History and Prospects for the Informatics and Electronics Development in the Context of Humanitarian Problems of Society Solving

### Join Zoom Meeting

<https://us02web.zoom.us/j/83236704229?pwd=WkozZ3Bob0Z2b2krSVdBaVIPUUNJdz09>

**Meeting ID:** 832 3670 4229

**Passcode:** 789938

July 01, 21:00-23:00, Hall A

Chair - **Dr. Alexander Savostyanov**

1. *Connection of Fundamental Linguistics and Philosophy of Language with Development of Information Technologies: Historical Analysis and Perspective Prognosis*

**Alexander Savostyanov**

*Scientific Research Institute of Neuroscience & Medicine  
Novosibirsk, Russia*

2. *\*Methodological Problems of Modeling the Interaction Between People and Digital Systems*

**Dmitry Palchunov**

*Sobolev Institute of Mathematics  
Novosibirsk, Russia*

3. Building the Ontology of Cognitive Functions

**Alexandra Pustovalova**

*Novosibirsk State Technical University  
Novosibirsk, Russia*

4. Using Ontologies for the Development of the University Educational Ecosystem

**Alexandra Pustovalova**

*Novosibirsk State Technical University  
Novosibirsk, Russia*

5. Information Technologies in Evidence-Based Education

**Anna Popova**

Siberian State University of Telecommunications and Information Science  
Novosibirsk, Russia

6. Use of Computer Methods for Analyzing Brain Signals to Assess the Success of Adaptation of Labor Migrants to Extreme Climate Conditions

**Natalya Milakhina**

Institute of Cytology and Genetics of the Siberian Branch  
of the Russian Academy of Sciences  
Novosibirsk, Russia

7. EEG Data Preprocessing for Assessing the Degree of Connectivity of Areas of the Human Brain Under Resting Conditions and their Application to the Diagnosis of Socially Significant Diseases

**Evgeny Zavarzin**

Novosibirsk State University  
Novosibirsk, Russia

# IV. Young Professionals Involvement (YPI) Competition

## Join Zoom Meeting

<https://us02web.zoom.us/j/87018667412?pwd=dXNQdXZlV0ZSK29SM1BvWkxsYmg0dz09>

**Meeting ID:** 870 1866 7412

**Passcode:** 185845

July 02, 21:00-23:00, Hall A

Chair - **Dr. Kirill Zeyde**

1. Topology Morphing Control with Soft Transients for Multimode Series Resonant DC-DC Converter

**Vadim Sidorov**

Tallinn University of Technology  
Tallinn, Estonia

2. Sensorex: The Challenges for Engineering Implementation of Low-cost Non-invasive Pulse Oximeter Applicable to Diverse Patient Population

**Daria Lipchak**

Joint Stock Company "Production Association "Urals Optical & Mechanical Plant" named after Mr. E. S. Yalamov"  
Yekaterinburg, Russia

3. Comparison of the Coplanar Waveguide to Microstrip Line Transition Design in the 77 GHz Frequency Range

**Victor Chechetkin**

Ural Federal University  
Ekaterinburg, Russia

4. Resonant Controllers Design for Frequency-Selective Impedance Controlled DC Microgrid

**Nikita Sevostyanov**

Novosibirsk State Technical University  
Novosibirsk, Russia

5. Simulation of a Sensitive Element of a MEMS-based Pressure Sensor Operating on The Thermal Detection Principle

**Mikhail Pozdnyakov**

National Research University of Electronic Technology (MIET)  
Moscow, Russia

6. Radiation of Radio Pulses Excited in a Nonlinear Transmission Line with Periodically Arranged Diodes Based on GaAs Structures

**Valeriy Barmin**

Institute of High Current Electronics  
Tomsk, Russia

7. Development of Infrared Scene Model in a Wide Wavelength Range

**Dmitry Ipatov**

Institute of Semiconductor Physics of SB RAS  
Novosibirsk, Russia

8. Area-Selective MOCVD Synthesis of VO<sub>2</sub>(B) and VO<sub>2</sub>(M) Phases on a Si Substrate

**Nikita Lysenko**

Rzhanov Institute of Semiconductor Physics, SB RAS  
Novosibirsk, Russia

9. A New Technique of Au Nanopattern Formation for Metal-Assisted Chemical Etching of Silicon

**Vitaliy Tumashev**

Rzhanov Institute of Semiconductor Physics, SB RAS  
Novosibirsk, Russia

# V. Junior Session

## Join Zoom Meeting

<https://us02web.zoom.us/j/82495519235?pwd=UE9MUUNCdUI0REIFY1d0bEw3SHRudz09>

**Meeting ID:** 824 9551 9235

**Passcode:** 926318

July 03, 17:00-19:00, Hall A

Chair - **Ivan Alexandrov**

1. \*Orientation of a Mobile Robot in Space by Means of Machine Vision Systems  
**Varvara Yaitskaya, Nadezhda Sedelnikova**  
Municipal Autonomous Educational Institution "Second Novosibirsk  
Gymnasium"  
Novosibirsk, Russia
2. \*Test Generator for Dual-Channel IGBT and MOSFET Drivers  
**Alexander Vanyushkin**  
Municipal Autonomous Educational Institution  
"Second Novosibirsk Gymnasium"  
Novosibirsk, Russia
3. \*Using Differential Calculus to Solve Electrical Engineering Problems  
**Artem Kuznetsov**  
Municipal Autonomous Educational Institution  
"Second Novosibirsk Gymnasium"  
Novosibirsk, Russia
4. \*A New Approach to the Production of Printed Circuit Boards in Small-Scale  
Production  
**Sofya Silina**  
Municipal Autonomous Educational Institution  
"Second Novosibirsk Gymnasium"  
Novosibirsk, Russia