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- online report

*time of the report on the website:
https://edm.ieeesiberia.org/schedule/
Plenary Session
June 30, 9:30-12:30, Hall B

1. **Conference Opening Ceremony – 9:30**
   Sergey Kharitonov
   Conference Chair
   Head of the Power Electronics Institute, NSTU
   Artur Otto
   Vice-Rector for Research, NSTU

2. **Synchrotron Radiation is a Tool for Interdisciplinary Research – 10:00**
   Konstantin Zolotarev
   Budker Institute of Nuclear Physics

3. **New Realities of Measurements and Tests – 10:30**
   Bronislav Chislov
   LLC "Scientific devices and systems"

   Sergey Khalyutin
   Moscow State Technical University of Civil Aviation (MSTU CA)

5. **OOO NPF "Energiya" – 11:10**
   Vladimir Fomichev
   OOO NPF "Energiya"

6. **Heterostructures Based on III-Nitrides for Microwave and Power Transistors – 11:20**
   Denis Milakhin
   Rzhanov Institute of Semiconductor Physics of the Siberian Branch of Russian Academy of Sciences
Section: Semiconductor Physics and Technology
July 1, 9:30-19:00, Hall A
Section Chair: Nataliya L. Shwartz, Denis S. Milakhin, Dmitriy I. Ostertak

INVITED REPORT:
Theory and modeling of MHD processes in metallurgy
Vladimir Aliev
Rzhanov Institute of Semiconductor Physics SB RAS

1. Temperature Influence on the Si(111) Surface Relief Evolution during Au Deposition
Snezhana Mantsurova
Novosibirsk State Technical University

2. Using Genetic Algorithm and Simulated Annealing with Memory to Solve Layout Synthesis Problem for GaAs MMIC
Dmitry Bilevich
Tomsk State University of Control Systems and Radioelectronics

3. Analyzing the Capacitance Coupling of Electrodes with a Solder Layer on the Transistor Footprint
Anastasiya Drozdova
Tomsk State University of Control Systems and Radioelectronics

4. Synaptic VO2 Resistor on Glass Substrate for Neuromorphic Circuits
Dmitry Kalmykov
Novosibirsk State Technical University
5. Methodology for Calculation of Elastic Constants of Diamane by Molecular Dynamics
   Polina Polyakova
   Ufa State Petroleum Technological University

6. Graphene Network with Ni and Al Nanoparticles as the Composite Precursor: Atomistic Simulation
   Liliya Safina
   Institute for Metals Superplasticity Problems of the Russian Academy of Science

7. Influence on the Parameters of GaAs-based HG PCSS Switching in Lock-On Mode at Laser Radiation With a Wavelength of 355 nm and 1064 nm
   Valerii Barmin
   Institute of High Current Electronics of the Siberian Branch of the Russian Academy of Sciences

8. The Impact of Electromagnetic Interference Generated by Electrostatic Discharge on Microcontroller Performance under Temperature Exposure in a TEM Cell
   Valeriy Semenyuk
   Tomsk State University of Control Systems and Radioelectronics

9. Native Oxide of HgCdTe as a Passivation Layer
   Irina Krasnova
   Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences

10. Thermal ALD Synthesis of Vanadium Oxide Thin Films and Its Structural and Electrical Characterization
    Bogdan Voloshin
    Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences
11. Method for Estimating the Frequency Dependence of the Materials Permittivity with a Crystal Structure on SHF Band

George Malyutin
Tomsk State University of Control Systems and Radioelectronics

12. Nanostructure Formation from Polycrystalline Vanadium Dioxide Films Using an Atomic Force Microscope

Nikita Mantsurov
Novosibirsk State Technical University


Dmitrii Moskalev
Perm State University

14. Chemical Kinetics of the Nitridation Process of Silicon Si(111) Substrates at Different Ammonia Fluxes

Dmitriy Bashkatov
Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences

15. Composite Polymer Material Based on Hexaferrite with Selective Absorption in the EHF Range for 3D-printing Technology

Ivan Vertoprakhov
National Research Tomsk State University


Evgenii Bagochus
Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences
17. Multiresonant Chiral Metamaterial Based on Single-Turn Wavy Ribbon Metal Helices
   Alexey Gayduk
   Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences

18. Tuning of Nanostructures Growth after Laser Ablation of Zn in Water
   Victoria Pryakhina
   Ural Federal University named after the First President of Russia B. N. Yeltsin

19. Microelectromechanical Converter Performance under Random Multiple-Frequency Vibrations
   Ekaterina Kovalenko
   Novosibirsk State Technical University

20. Size Distribution of Straight Step Region on the Si(100) Surface
    Michael Yesin
    Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences

21. In Based TCB Bonding for MEMS Application
    Vasiliy Koshelev
    National Research University of Electronic Technology

22. Growth of the BaF2/CaF2/Al2O3 structures for the radiation-resistant photo-receiving devices of Infrared range
    Igor Rudenko
    Novosibirsk State Technical University
23. The Structural and Electrical Properties of High-k Hf-Sm-O Thin Films Prepared by Atomic Layer Deposition

Darya Petukhova
Nikolaev Institute of Inorganic Chemistry of the Siberian Branch of the Russian Academy of Science

24. Simulation of GaN Nanocluster Droplet Epitaxy on Si(111) Substrate

Maria Litvinenko
Novosibirsk State Technical University

25. Hall Effect in Strong Electric Fields in AlGaAs/InGaAs/GaAs Heterostructures with Donor-Acceptor Doping

Vadim Kuznetsov
Novosibirsk State Technical University

26. Advanced Logic Gates for FPGAs

Ivan Vasenin
Perm National Research Polytechnic University

27. Investigation of Stripline Modules at the Formation of Quasi-Chaotic Signals in the Transmitting-Receiving Path

Artush Arutyunyan
Tomsk State University of Control Systems and Radioelectronics

28. Optical Properties of Two-Dimensional Islands of Tungsten Disulfide (WS2)

Anna Krivonogova
Novosibirsk State Technical University

29. Investigation of the Effect of Stretching on the Properties of Ge2Sb2Te5 Thin Films

Andrei Stupin
National Research University of Electronic Technology
30. Investigation of the Thermoelectric and Electrophysical Characteristics of Bi2Te3 Thin Films

Andrei Stupin
National Research University of Electronic Technology

31. Bipolar Gunn Effect and Subnanosecond Switching of the High-Voltage GaAs Diodes Initiated by Microsecond Kilovolt Voltage Ramp

Mikhail Ivanov
Ioffe Physical-Technical Institute of the Russian Academy of Sciences
FIRST DAY.

1. The Novel Waveguide-Fed Log-Periodic Dipole Antenna with Multiple Notched Bands
   Kristina Tsikolenko
   Novosibirsk State Technical University

2. Synthesis of the Calibration Algorithm of the Microwave Signal Power Meter
   Denis Chernysh
   Novosibirsk State Technical University

3. Formation of the Electric Field Strength Maximum at a Given Point in Space by a Focused Linear Antenna Array
   Denis Iuzvik
   Novosibirsk State Technical University

4. Fast Bit-Flipping Decoding of Polar Codes with Additional Nodes
   Ilya Timokhin
   Higher School of Economics

5. Near Field – Far Field Transformation with Pre-Correction Probe Technique
   Alexandr Slobodyanenko
   Novosibirsk State Technical University
6. Propagation of Interferences in Asymmetric Strip Structures with Modal Decomposition

Salim Karri
Tomsk State University of Control Systems and Radioelectronics

7. Influence Analysis of Mismatch on Nonlinearity in Hybrid RC-DACs

Natalya Kvashina
Peter the Great St. Petersburg Polytechnic University

8. Reflections in a Meander Line Turn of Two Segments as a Resource for Suppressing UWB Excitations

Pavel Mikola
Tomsk State University of Control Systems and Radioelectronics

9. Determination of Location in the Wi-Fi Network Using the Taxometric Method of Decision-making

Ilya Doshchinsky
Siberian State University of Telecommunications and Information Sciences

10. Applying Decision Forest for Improving the Adaptation of the ML Algorithm for Beamsteering to Traffic Dynamics in V2I Systems

Ekaterina Lopukhova
Ufa State Aviation Technical University, Ufa University of Science and Technology

11. Printed Dual-Band Dipole Antenna

Vadim Sokolov
Novosibirsk State Technical University
12. Trajectory Filtering Algorithm in Multi-Position Passive Radars with Additional Flight Altitude Observation
   Alexander Chugunov
   National Research University "Moscow Power Engineering Institute"

   Viktoriya Gordeyeva
   Tomsk State University of Control Systems and Radioelectronics

14. 4-bit X-band Variable Gain Amplifier with Additional Steering Transistors Based on 90 nm CMOS
   Dias Khojikov
   Tomsk State University of Control Systems and Radioelectronics

15. Tunable Impedance Transformer based on J-Invertors
   Irina Filipyuk
   Saint Petersburg Electrotechnical University “LETI”

16. Prototype of a Pulse-Frequency Modem for Transmitting Information over Power Supply Networks
   Vasilii Egorov
   Moscow Aviation Institute (National Research University)

17. Ultrasound Assistant Device for the Blind
   Viktor Smirnov
   Novosibirsk State Technical University

18. The Experimental Research of DOA Estimation Based on Difference Co-array Method
   Andrey Kazarinov
   Saint Petersburg Electrotechnical University “LETI”
19. Application of Compensation Method for Layout Parasitic Elements Control in Precision DACs

Dmitry Koloskov
Novosibirsk State Technical University

20. Staggered SAR Range Ambiguity Suppression with Quasi-Orthogonal Signals

Sergey Kislyy
National Research University of Electronic Technology


Timur Tretiakov
Tomsk State University of Control Systems and Radioelectronics

22. Influence of Failures in Flexible Printed Cables with Single Modal Reservation on the Attenuation of an Ultra-Short Pulse

Maria Samoylichenko
Tomsk State University of Control Systems and Radioelectronics

23. Novel MoM-based Approaches for Generating Wire-grid Sparse Antenna Structures

Manh Tuan Nguyen
Tomsk State University of Control Systems and Radioelectronics

24. 5G NR UE Structure between PHY and RU for Real-Time Operation

Andrey Veyler
Siberian State University of Telecommunications and Information Sciences
25. Design and Examination of an Automatic Control System of Time Scale Generation

Svyatoslav Burtsev
The Federal State Unitary Enterprise «Russian metrological institute of technical physics and radioengineering»

SECOND DAY.


Nikita Petukhov
National Research University "Moscow Power Engineering Institute"

2. Resonators in Modal Filter as a Resource for Improving its Characteristics

Yuri Kalashnikov
Tomsk State University of Control Systems and Radioelectronics

3. Influence of Temperature on the Frequency Characteristics of a Modal Filter Based on a Microstrip Line with Two Side Grounded Conductors

Bakhtiyar Nurkhan
Tomsk State University of Control Systems and Radioelectronics

4. Representation of ICI as AWGN in PD-NOMA System Model

Andrey Brovkin
Tomsk State University of Control Systems and Radioelectronics
5. Improving Performance of GNSS Pseudorange Residual Error Mitigation Model

Vladislav Zhilinskiy
The Federal State Unitary Enterprise «Russian metrological institute of technical physics and radioengineering»

6. Investigation the UWB Local Navigation System Relative Positioning Error for UAV

Nikita Rukovishnikov
National Research University "Moscow Power Engineering Institute"


Artyom Maltsev
The Federal State Unitary Enterprise «Russian metrological institute of technical physics and radioengineering»
Section: New Approaches to Synchrotron Radiation Sources

June 30, 13:30-16:00, Hall D

Section Chair: Konstantin V. Zolotarev, Alexander B. Berkin

1. Investigation of Harmonic Generation in a High-Current Relativistic Gyrotron

   Alexander Leontyev
   Federal Research Center A.V. Gaponov-Grekhov Institute of Applied Physics of the Russian Academy of Sciences

2. Block of a Master Oscillator for the High-Frequency System of «Sibir-2» Accelerator-Storage Complex from Kurchatov Institute

   Maxim Kornievskiy
   Novosibirsk State Technical University

3. Influence of Clean Conditions on the Current-Voltage and Switching Characteristics of the Glow Discharge

   Gleb Shevchenko
   Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences

4. Microwave Frequency Comb Generation During Interaction of Monochromatic Wave with Electron Beam Acting as Reactive Nonlinear Medium

   Lev Yurovskiy
   Federal Research Center A.V. Gaponov-Grekhov Institute of Applied Physics of the Russian Academy of Sciences
5. Compression of the W-band Superradiant Pulse in the Process of Self-Induced Transparency Soliton Formation

Lev Yurovskiy
Federal Research Center A.V. Gaponov-Grekhov Institute of Applied Physics of the Russian Academy of Sciences

6. Quasioptical Model of Terahertz Undulator Superradiance from Picosecond Electron Bunches

Michael Vilkov
Federal Research Center A.V. Gaponov-Grekhov Institute of Applied Physics of the Russian Academy of Sciences

7. Development of One-Coordinate Detector for Diffraction Experiments at a Synchrotron Radiation Beam

Anastasiia Glushak
Budker Institute of Nuclear Physics of the Siberian Branch of the Russian Academy of Sciences

8. Synchronization Device of the Specialized Source of Synchrotron Radiation «Sibir-2» of the Kurchatov Institute

Timofey Abramets
Budker Institute of Nuclear Physics of the Siberian Branch of the Russian Academy of Sciences

9. Coaxial Load for Absorbing High-Power Voltage Pulses Modulated by Microwave Oscillations

Vladimir Konev
Institute of High Current Electronics of the Siberian Branch of the Russian Academy of Sciences
10. High Power Nanosecond RF Pulse Generation in Nonlinear Transmission Lines with Spatial Dispersion

Pavel Priputnev
Institute of High Current Electronics of the Siberian Branch of the Russian Academy of Sciences

11. Method of the Cable Communication Calibration for Electroacoustics Measuring the Parameters of Hydroacoustics Transducers

Roman Travin
Federal Research Center A.V. Gaponov-Grekhov Institute of Applied Physics of the Russian Academy of Sciences
Section: Cryogenic Electronics

June 30, 16:30-19:30, Hall D

Section Chair: Alexey G. Vostretsov

1. Investigation of the Magnetic Properties of Ferromagnets at Cryogenic Temperatures
   Pavel Troshin
   Moscow Aviation Institute (National Research University)

   Mikhail Ostapchuk
   Moscow Aviation Institute (National Research University)

3. Cryogenically-Cooled Stabilized Power Factor Correction Rectifier for Future Aircraft Electrical Systems
   Aleksey Alekseev
   Moscow Aviation Institute (National Research University)

4. Investigation of the Accuracy of Modelling the Current-Voltage Characteristics of DC Superconducting Quantum Interference Device
   Svetlana Filatova
   Novosibirsk State Technical University

5. Features of the Cryogenic Temperature Controller Development
   Alexander Samarin
   Prokhorov General Physics Institute of the Russian Academy of Sciences
6. **Cryogenic Low-Noise Amplifier 1-3GHz**

Dmitry Volkhin
Novosibirsk State Technical University

7. **Expanding Scanning Frequency Range of Josephson Parametric Amplifier Axion Haloscope Readout with Schottky Diode Bias Circuit**

Boris Ivanov
Center for Axion and Precision Physics Research of Institute for Basic Science
Section: Optoelectronic Devices and Systems: Physics, Electronics, Application

June 30, 14:30-19:00, Hall A

Section Chair: Eugene V. Sypin, Maxim V. Trigub

   Konstantin Semenov
   Zuev Institute of Atmospheric Optics of the Siberian Branch of the Russian Academy of Science

2. Semiconductor Excitation Power Supply for the Metal Halide Vapor Laser
   Pavel Gembukh
   Zuev Institute of Atmospheric Optics of the Siberian Branch of the Russian Academy of Science

3. Downconversion Circuit in Photonic Integrated Sensing System Based on an Optoelectronic Oscillator
   Vladislav Ivanov
   Ufa University of Science and Technology

4. Optimizing the Structural Parameters of the Mechanical Sensing Element of a Microoptoelectromechanical Micro-g Accelerometer
   Ayan Myrzakhmetov
   Tomsk State University of Control Systems and Radioelectronics
5. Numerical Simulation of Grating Input/Output Elements into Optical Waveguides Based on Si3N4/SiO2 Thin Films

Ayan Myrzakhmetov
Tomsk State University of Control Systems and Radioelectronics


Mikhail Kalinnikov
The Institute for Physics of Microstructures of the Russian Academy of Sciences


Alexander Tsymbalov
National Research Tomsk State University

8. Optimization of Noise Floor Level in an Optical Frequency Domain Reflectometer Based on a Self-Sweeping Fiber Laser

Nikita Poddubrovskii
Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences

9. AWG-Based Interrogator for FBG Sensors

Maxim Gaskov
Novosibirsk State University

10. Study of the Radiation Pattern of an Integrated-Fiber Optical Phased Steering System

Nikolai Laskavyi
Perm National Research Polytechnic University
11. Optical Frequency Domain Reflectometer for Spatial-Resolved Gas Sensing

Artem Budarnykh
Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences

12. Measurement of the Parameters of Lensed Fibers for Application in Integrated Photonics

Darya Sokolchik
Perm State University
FIRST DAY.

1. **Development of CMOS PWM Controller for Driving GaN-based Switching Mode Power Converters**

   Egor Polyntsev  
   National Research Tomsk State University

2. **Development of a NewGate Driver with Capacitive Isolation**

   Ivan Shishov  
   Moscow Aviation Institute (National Research University)

3. **Short-Circuit Turbine Generator Package: Functional and Operational Features**

   Vladimir Zhelezniak  
   Joint Stock Company "Power Machines"  
   Production Facility "Electrosila"

4. **Device for Transmitting Signals over a Common Wireless Information and Energy Communication Channel**

   Ilya Lukoshin  
   Moscow Aviation Institute (National Research University)
5. **Features of the High-Voltage Switches (Commutators) Used on IGBT Modules**
   Anastasiya Mandrueva
   West Siberian Branch of The Federal State Unitary Enterprise «Russian metrological institute of technical physics and radioengineering»

   Viktoriya Fyodorova
   Novosibirsk State Technical University

7. **Thermal Analysis of Induction Motor Rotor Winding During Direct On-Line Starting**
   Andrey Radnaev
   National Research Tomsk Polytechnic University

8. **Improving Methods for Synchronizing Generators**
   Viktor Kirichenko
   Novosibirsk State Technical University

9. **Spiral Capacitor Models that Consider the Capacitance and Inductance of Each Turn**
   Ilya Nikolayev
   Tomsk State University of Control Systems and Radioelectronics

10. **The Project of Universal Static Converter Prototype Module for Aircraft Power Converting Equipment**
    Nikita Ashurkov
    Novosibirsk State Technical University
11. An On-Line Uninterruptible Power Supply with High Input Power Factor
Anastasiia Naprienko
Novosibirsk State Technical University

12. The Efficiency of Conductor Placement in Circuits with Single Modal Redundancy in Differential and Common Modes
Alexandr Lakoza
Tomsk State University of Control Systems and Radioelectronics

Stanislav Ponomarev
Novosibirsk State Technical University

14. Research on Optimal Operation of Kuban HPP Cascade During the Flood Period
Elena Anosova
Novosibirsk State Technical University

15. Evaluation of the Effect of Essential Oil Blends on the Condition of Paper Insulation
Marina Lyutikova
Novosibirsk State Technical University

Ahmed Mohamed Abdelhakeem Elkholy
Tanta University

17. Identifying The Rating of the Unified Power Controller According to Unbalanced Distribution System Requirements
Ahmed Mohamed Abdelhakeem Elkholy
Tanta University
18. Evaluation of Zero and Negative Sequence Currents Influence of Asymmetric Load on the Power Losses and Quality in Distribution Networks

Ahmed Mohmed Abdelhakeem Elkholy
Tanta University, National Research University "Moscow Power Engineering Institute"

19. Improving Accuracy of Machine Learning Based Short-Term Load Forecasting Models with Correlation Analysis and Feature Engineering

Nikita Sergeev
Novosibirsk State Technical University


Sergey Evdokimov
National Research University of Electronic Technology

21. System for Centralized Collection and Storage of Data on Household Resource Consumption

Lev Kazakov
Novosibirsk State Technical University

22. Maintenance Optimization within the Lifecycle Management of the Gas Compressor’s Electric Motors

Alexandra Khalyasmaa
Ural Federal University named after the First President of Russia B. N. Yeltsin

23. Development HW/SW Controller for Power System Communication with Protocols Conversion to IEK-60870-5-104 and IEK-61850

Maksim Goltsov
National Research University "Moscow Power Engineering Institute"
24. Modified Finite Volume Method Study For Numerical Calculation Of Lithium Battery Temperature

Elena Punt
Moscow State Technical University of Civil Aviation

25. Research and Development of Semiconductor Regulators Automatic Control Software-Hardware Complex (SHC) to Voltage Regulation and Improve Reliability and Power Quality for Distribution Networks 10/0.4 kV

Egor Guryev
National Research University "Moscow Power Engineering Institute"

SECOND DAY.

1. Evaluation of the Steepness of the Transfer Characteristic by Current of the Cycloconverter

Regina Sarakhanova
Novosibirsk State Technical University

2. Options Analysis for the Use of Solar Generation Systems on the Territory of Hydropower Plants

Sergey Mitrofanov
Novosibirsk State Technical University

3. Analysis of the Natural Inflow Short-term Forecasting Models Efficiency to the HPP Site for the Day-ahead Based on Regression Methods and Machine Learning Methods.

Sergey Mitrofanov
Novosibirsk State Technical University

4. Attenuation of High-Frequency PWM-Ripples in a Two-Level Voltage Source Inverter

Oleg Vavilov
Novosibirsk State Technical University
5. Integral Transformers State Assessment Based on Entropy and the Method of Dissolved Gas Analysis

Alexander Zelenskikh
Novosibirsk State Technical University

6. Neural Network Observer of the Average Value of the Inductive Current of the Buck DC Converter

Egor Aksenov
Novosibirsk State Technical University
INVITED REPORT:
Topical issues related to evaluation parameters of living systems based on electrical measurements

Konstantin Brazovskii
National Research Tomsk Polytechnic University

1. Peculiarities of Cold Plasma Jet Generation in a Non-Contact Discharge Initiation Method

Elena Milakhina
Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences

2. Biosensors and Wearable Sensors Based on Graphene Composites for Lab-on-Skin

Dmitriy Poteryayev
Novosibirsk State Technical University

3. Design and Development of a Research Integrated Geoinformation System with a Fuzzy Expert System

Rustam Burnashev
Kazan Federal University
4. **The Relationships Between Characteristics of Wheezes and Spectral-temporal Parameters of Forced Expiratory Tracheal Noises**
   Dmitry Strobykin
   V.I.Il'ichev Pacific Oceanological Institute of the Far Eastern Branch of the Russian Academy of Sciences

5. **Recurrent Neural Network for M/EEG Source Localization**
   Rodion Vakhitov
   National Research University "Moscow Power Engineering Institute"

6. **Develop an EMBLE Electronic Stethoscope for Disease Diagnosis of Internal Animal Organs Using a Neural Network**
   Ruslan Kumarbaev
   Novosibirsk State Technical University

7. **Numerical Simulation of 8-Channel Array for Human Brain Imaging Using C-Shaped Dipole Antennas with Improved Coverage**
   Kristina Popova
   Saint Petersburg National Research University of Information Technologies, Mechanics and Optics

8. **Development of a Hardware Platform to Design a Digital Health Assessment System**
   Andrew Shcherbachev
   Bauman Moscow State Technical University

9. **Application of Thermodilution for the Development of Hydrodynamic Stands Simulating Cardiac Activity**
   Andrew Shcherbachev
   Bauman Moscow State Technical University
10. Electric Field Distribution in SOI-Nanoribbon Biosensors with Dielectrophoretic Control
   Vladislav Kostyuchenko
   Novosibirsk State Technical University

11. The Method for Increasing the Detail of Voltammetric Measurements of Small Changes in Concentrations
   Maria Zolotenkova
   Moscow Aviation Institute (National Research University)

12. Prototype of the Forearm Muscle EIT Generator with Automatically Switchable Sensors for the Prosthesis Control System
   Oleg Sazonov
   Moscow Aviation Institute (National Research University)

13. Real-time Mapping of Blood Perfusion during Neurosurgical Interventions
   Dmitry Stavtsev
   I.M. Sechenov First Moscow State Medical University

   Lidiya Dmitrieva
   West Siberian Branch of The Federal State Unitary Enterprise «Russian metrological institute of technical physics and radioengineering»

15. Spectrometric Investigations of Chromophores in Biologically Active Zones Areas
   Anna Shevtsova
   Novosibirsk State Technical University
16. Issues of Interference-Resistant Processing For Electrocardiodynamics
   Andrey Bodin
   National Research University "Moscow Power Engineering Institute"

17. Using the Machine Learning Method in Portable ECG monitoring System to Identify Diagnostically Complex Heart Diseases
   Aidana Yerkebay
   Satbayev University

18. Development of a Blood Typing Device
   Daniil Serpenev
   National Research Tomsk Polytechnic University

19. Analysis of ECG Signals of Patients with Type 1 Diabetes Mellitus
   Zhansila Orynbay
   Satbayev University

20. Simulation of Excitation Wave Spreading in Myocardial Fibrosis
   Ruslan Rakhmatullov
   Penza State University

21. Automation of EEG Data Processing with HPC Community Cloud
   Maxim Gorodnichev
   Scientific-Research Institute of Neurosciences and Medicine

   Andrey Demidov
   Penza State University
23. Problems in the Implementation of Electrical Impedance Tomography
   Alexis Levin
   Penza State University

24. Low-cost Web-Based Stabilometry Biofeedback Trainings
   Ksenija ladonovskaya
   Federal Research Center for Fundamental and Translational Medicine

25. Computational Approach for Respiratory Pressure Parameters in Neonatal Ventilation
   Daria Lipchak
   Joint Stock Company “Production Association “Urals Optical & Mechanical Plant” named after Mr. E. S. Yalamov”

26. Methods of Air dust Microparticles Measuring and Recognizing for Social and Hygienic Monitoring
   Andrey Kokoulin
   Perm National Research Polytechnic University

27. Methods of Electrocardiosignal Analysis for Diagnosis of Myocardial Infarction
   Natalia Kruchinina
   Penza State Technological University

28. P300 Habituation within the Visual Stimulation Paradigm Based on Synchronous EEG and Eye Tracker Recordings: Pilot Study
   Liza Boeva
   Bauman Moscow State Technical University
Section: Robotics, Mechatronics, and Automation

July 1, 9:00-13:00, Hall D
Section Chair: Oleg V. Nos,

1. **UAV Flight Control Along the Railway Using Technical Vision**
   Artem Lebedev
   Novosibirsk Division of Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences “Technological Design Institute of Applied Microelectronics”

2. **Decreasing Number of Geometric Feasibility Checks in Automatic Assembly Planning: A Review**
   Viktor Livantsov
   Bauman Moscow State Technical University

3. **Transient Analysis of Modified Resonant Regulators with Time Delay Compensation for PMSM Torque Ripple Reduction**
   Vyacheslav Rakhvalov
   Novosibirsk State Technical University

4. **Development of an Educational Intellectual System for the Analysis of Polymer Materials in Additive Manufacturing**
   Rustam Farahov
   Kazan Federal University

5. **Development a Prototype of an Intelligent System for Analyzing Meteorological Data Using IoT Technologies**
   Rustam Farahov
   Kazan Federal University
6. **Parametric Identification under Incomplete a Priori Information**  
   Anna Mizyukanova  
   Novosibirsk State Technical University

7. **Vibration Analysis Based on the Method of Mathematical Prototyping of Energy Processes**  
   Alexey Druzhunin  
   Moscow State Technical University of Civil Aviation

8. **Automation of Thin Film Flaw Detection Processes as a Stage in the Development of Laser Resistor Trimming Technology in Microelectronics**  
   Vladimir Kondrashov  
   Public Joint-Stock Company "Scientific and Production Association "Strela"

9. **Resonant PI Controller Design for the Electrohydraulic Drive of a Stabilized Platform System**  
   Tam Bui  
   Novosibirsk State Technical University

    **INVITED REPORT**  
    Galina Demidova  
    Saint Petersburg National Research University of Information Technologies, Mechanics and Optics

11. **LMI-Based Approach for Non-Rigid System Control**  
    Sergey Romadov  
    Tula State University

12. **Fast Fourier Transformation Algorithm**  
    Semyon Burmanov  
    Novosibirsk State Technical University
13. Model Designing of the Weft Thread Projectile Accelerator for Weaving Loom with Crank Mechanism

Semyon Burmanov
Novosibirsk State Technical University

14. Unmanned Aerial Vehicles with a Hybrid Propulsion System, as an Analogue of Unmanned Aerial Vehicles with Internal Combustion Engines

Andrey Nagorny
Novosibirsk State Technical University

15. Estimation of the Mathematical Model Parameters for a Multi-channel Electro-hydraulic Strength Test Bench

Maksim Trubin
Novosibirsk State Technical University

16. An Algorithm for Developing a Digital Twin Model of an Industrial Facility Segment

Dmitry Karabanov
Novosibirsk State Technical University

17. Creation of Corrosion-Resistant Coatings Based on Zinc in an Electromagnetic Field on Steel Punching Rivets

Nazar Maslennikov
Saint Petersburg Electrotechnical University “LETI”

18. Four Quadrant AC-DC Converter Control System Prototype for AC Locomotive Traction Drive

Nikolai Poliakov
Saint Petersburg National Research University of Information Technologies, Mechanics and Optics

19. Minimizing the Traction Factor of a Multi-Motor Belt Conveyor

Stepan Sukhinin
Novosibirsk State Technical University
Section: Software Engineering and Cyber-Physical Systems

July 1, 11:00-16:30, Hall C
Section Chair: Vladimir E. Zyubin

1. Approach to Research Feature Interactions
   Nikita Radeev
   Novosibirsk State University

2. Development of Verification Condition Generator for Process-Oriented Programs in PoST Language
   Ivan Chernenko
   Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences

3. Videoverification Module for Bank Customer
   Polina Davydchenko
   Tomsk State University of Control Systems and Radioelectronics

4. The Combined Approach to Identifying Argumentation Structures in Short Scientific Papers
   Alexander Zasypkin
   Novosibirsk State University

5. Formalization of Process-oriented Programs in poST Using Isabelle/HOL
   Artyom Ishchenko
   Novosibirsk State University
6. **Parallel Matching for Graph Partitioning on Shared Memory**
   
   Kirill Trusov
   
   Siberian State University of Telecommunications and Information Sciences

7. **Towards Process-Oriented Programming Distributed Control Systems**
   
   Dmitry Ivanishkin
   
   Novosibirsk State University

8. **Using Mixed Reality for Development of Instruction for Industrial Unit Maintenance**
   
   Maxim Denisov
   
   Novosibirsk State Technical University

9. **Towards Controlled Natural Language for Event-Driven Temporal Requirements**
   
   Anna Gnezdilova
   
   Novosibirsk State University

10. **Curve Fitting for Exponential Polynomials from Interval Data**
    
    Maxim Zvyagin
    
    Novosibirsk State University

11. **On Parallel Sparse LU Factorization: Supernodal Left-Looking Multi-Stage Algorithm**
    
    Ivan Karasenko
    
    Siberian State University of Telecommunications and Information Sciences

12. **Parallel Solve Phase of a Direct Sparse Solver**
    
    Roman Gumalevskii
    
    Siberian State University of Telecommunications and Information Sciences
13. Rule-based Syntactic Analysis for Uzbek Language: An Alternative Approach to Overcome Data Scarcity and Enhance Interpretability

Davlatyor Mengliev
Novosibirsk State University

14. Generating a Formalized REST API Definition Language for a Dynamic Framework without Annotations Using Static Analysis Tools

Daria Usova
Novosibirsk State University

15. Comparison of Numerical Methods for Stiff Problems in SimInTech

Konstantin Timofeev
Novosibirsk State Technical University

16. Using PCA Machine Learning Approach Based on Psychological Questionnaires and Spectral Characteristics of the EEG to Separate the Healthy Participants and Participants with Major Depressive Disorder

Ekaterina Merkulova
State-Research Institute of Neurosciences and Medicine

17. Design as a Way to Involve the End User in Information Security Issues

Daria Archakova
Southern Federal University

18. Identification of Suspicious Patterns and Prevention of Telephone Fraud Incidents Using a Neural Network

Konstantin Medentsev
Tomsk State University of Control Systems and Radioelectronics

Dmitry Permiashkin
Institute of Automation and Electrometry of the Siberian Branch of the Russian Academy of Sciences


Andrey Laputenko
National Research Tomsk State University

21. Computerized Cognitive Training for Individuals Differenced by Mental Speed and Executive Functions

Olga Razumnikova
Novosibirsk State Technical University
Section: History and Prospects for the Informatics and Electronics Development in the Context of Humanitarian Problems of Society Solving

July 1, 14:00-19:30, Hall B

Section Chair: Alexander N. Savostyanov, Grigoriy R. Khazankin

INVITED REPORT:
Neurolinguistics as an example of interdisciplinary direction on the boundary between humanitarian, biological and computer sciences.

Alexander Savostyanov
Scientific-Research Institute of Neurosciences and Medicine, Institute of Cytology and Genetics SB RAS, Novosibirsk State University
Novosibirsk, Russia

1. NSTU Dispace Education and Learning Management System as a Resource for English Learners in the Students’ Perspective

Maxim Schegolev
Novosibirsk State Technical University

2. The Use of Information and Communication Technologies in Psychological Counseling and Psychotherapy: History, Problems and Prospects

Natalya Panova
Novosibirsk State Technical University
3. Developing Emotional Intelligence: Approbation of a Coaching Program with Meditation Using Information and Communication Technologies

  Natalya Panova
  Novosibirsk State Technical University

4. Development of Learning Associative Rules in the Context of Solving the Problems of Society

  Ekaterina Kolodezeva
  Novosibirsk State Technical University

5. Prospect of the Use of Digital Resources in Learning and Teaching ESL

  Elizaveta Dmitrienko
  Novosibirsk State Technical University

6. Video Identification as a Tool to Prevent Social Engineering Attacks in Finance

  Roman Muromcev
  Tomsk State University of Control Systems and Radioelectronics

7. Implementation of Individual Educational Trajectories in the Master’s Programs

  Anna Busygina
  Tomsk State University of Control Systems and Radioelectronics


  Shanglong Huang
  Novosibirsk State University

9. Students Self-Skills Development

  Timur Gazizov
  Tomsk State Pedagogical University
10. Horizons of Development of Physics Education of Young People through the Prism of the Big University of Tomsk

Timur Gazizov
Tomsk State Pedagogical University

11. Mobile Application as a Tool of Teaching Chinese Characters

Daria Kormich
Novosibirsk State Technical University

12. Software Application for Learning Esperanto as an Example of Education Gamification

Ilya Doshchinsky
Siberian State University of Telecommunications and Information Sciences

13. Prospects for Artificial Intelligence Technologies, Neural Networks and Computer Systems within the Development of Linguistics

Irina Matveeva
Novosibirsk State Technical University


Marina Matyushina
Novosibirsk State Technical University

15. The Phenomenon of Clip Thinking and Its Role in Electronic Educational Environment

Stanislav Stoliarov
Novosibirsk State Technical University

16. The Use of Web-Portfolio Technology for Professional Foreign Language Training of Students in Electronic Educational Environment of Higher Education Institutions

Olga Kiryakova
Novosibirsk State Technical University
17. Information Resilience: Operationalisation of the Concept and Results of Pilot Empirical Researches
   Valeria Kapustina
   Novosibirsk State Technical University

18. Psychological Aspects of Digital Technologies in Education
   Sofya Efremova
   Novosibirsk State Technical University

19. ICT and Mental Health of Professionals Working from Home
   Anna Osintseva
   Novosibirsk State Technical University

20. The Use of Artificial Intelligence in Education: Opportunities, Limitations, Risks
   Arina Mindigulova
   Novosibirsk State Technical University

21. The Use of Information Technologies in the Process of Implementing Inclusive Educational Practice
   Elena Beketova
   Novosibirsk State Technical University

22. Problem-based Approach to Teaching Linguistics Students to Pre-edit Texts for Machine Translation
   Sofiya Stenina
   Novosibirsk State Technical University

23. Research of Electronic Platforms for Psychological Services
   Evgenia Bykova
   Novosibirsk State Technical University
Young Professionals Involvement Competition

July 1, 16:30-19:30, Hall C
Section Chair: Anna S. Kazmina

1. Methodology for Calculation of Elastic Constants of Diamane by Molecular Dynamics
   Polina Polyakova
   Ufa State Petroleum Technological University

2. Formation of the Electric Field Strength Maximum at a Given Point in Space by a Focused Linear Antenna Array
   Denis Iuzvik
   Novosibirsk State Technical University

3. Applying Decision Forest for Improving the Adaptation of the ML Algorithm for Beamsteering to Traffic Dynamics in V2I Systems
   Ekaterina Lopukhova
   Ufa State Aviation Technical University, Ufa University of Science and Technology

4. Influence of Clean Conditions on the Current-Voltage and Switching Characteristics of the Glow Discharge
   Gleb Shevchenko
   Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences

5. Development of One-Coordinate Detector for Diffraction Experiments at a Synchrotron Radiation Beam
   Anastasiia Glushak
   Budker Institute of Nuclear Physics of the Siberian Branch of the Russian Academy of Sciences
6. Synchronization Device of the Specialized Source of Synchrotron Radiation «Sibir-2» of the Kurchatov Institute
   Timofey Abramets
   Budker Institute of Nuclear Physics of the Siberian Branch of the Russian Academy of Sciences

7. Cryogenically-Cooled Stabilized Power Factor Correction Rectifier for Future Aircraft Electrical Systems
   Aleksey Alekseev
   Moscow Aviation Institute (National Research University)

   Stanislav Ponomarev
   Novosibirsk State Technical University

9. Peculiarities of Cold Plasma Jet Generation in a Non-Contact Discharge Initiation Method
   Elena Milakhina
   Rzhanov Institute of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences

10. Numerical Simulation of 8-Channel Array for Human Brain Imaging Using C-Shaped Dipole Antennas with Improved Coverage
    Kristina Popova
    Saint Petersburg National Research University of Information Technologies, Mechanics and Optics

11. Towards Controlled Natural Language for Event-Driven Temporal Requirements
    Anna Gnezdilova
    Novosibirsk State University