



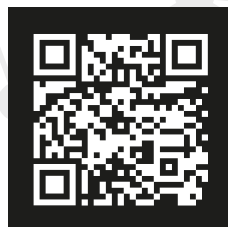
PIERE

24 PROBLEMS OF INFORMATICS,
ELECTRONICS AND RADIO
ENGINEERING



conference program

15-17
NOVEMBER
2024



3RD INTERNATIONAL CONFERENCE
«PROBLEMS OF INFORMATICS,
ELECTRONICS AND RADIO
ENGINEERING (PIERE)»

PIERE 24

Address: Prospekt Karla
Marksa, 20 k8a,
Novosibirsk

2024 PIERE schedule

First Day – 15/11/2024					
9:00	Participants' Registration				
10:00	THE PIERE-2024 CONFERENCE OPENING, Hall 419				
10:30	Plenary session, Hall 419				
13:00	Lunch				
14:00	Sections Work:				
	Section «Automation and information systems», Hall 419	Section «Mathematical modeling and machine learning», Hall 406	Section, «Electronic devices in industry, medicine, metrology», Hall 417	Section «Antennas and radio frequency devices», Hall 409	Section «Digital energy management», Hall 208
15:30	Break coffee				
16:00	Sections Work:				
	Section «Automation and information systems», Hall 419	Section «Mathematical modeling and machine learning», Hall 406	Section, «Electronic devices in industry, medicine, metrology», Hall 417	Section «Antennas and radio frequency devices», Hall 409	

Second Day – 16/11/2024					
9:00	Participants' Registration				
9:30	Sections Work:	Section «Mathematical modeling and machine learning», Hall 406	Sections Work:		International Symposium on Electrical Power Drive Systems, Hall 208
10:00			Section «Digital signal processing and radio system modeling», Hall 417	Section «Electrical engineering and circuitry», Hall 409	
11:00	Section «Automation and information systems», Hall 419				
12:30	Lunch				
13:30	Sections Work:				
	Section «Automation and information systems», Hall 419	Section «Mathematical modeling and machine learning», Hall 406	Section «Digital signal processing and radio system modeling», Hall 417	Section «Electrical engineering and circuitry», Hall 409	International Symposium on Electrical Power Drive Systems, Hall 208
15:00	AWARD CEREMONY, Hall 419				
16:00	Gala Dinner				

Third day – 17/11/2024	
11:00	Excursion around the center of Novosibirsk, The Novosibirsk Opera and Ballet Theatre

***UTC +7**

Novosibirsk Time (NOVT)

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- online report

Plenary Session

November 15th, 10:00-13:00, Hall 419

Conference Opening Ceremony

Vadim Vasiliev	Minister of Science and Innovation Policy of the Novosibirsk Region
Anatoly Bataev	Rector of Novosibirsk State Technical University
Artur Otto	Vice-Chair of PIERE 2024, Vice-Rector for Research and Innovation of Novosibirsk State Technical University
Grigoriy Khazankin	IEEE Russia (Siberia) Section
Alexey Vostretsov	Chair of PIERE 2024

Conference Plenary Session

Alexey Chernikov	General Director of LLC "Enterprise "ELTEX" – 10:30
Jian Wang	Vice President at Novosibirsk Research Center Co Ltd – 11:00
Tatyana Sladkova	Director of Management at Sberbank of Russia OJSC – 11:30
Oleg Nos	Doctor of Technical Sciences, Associate Professor, Professor of Department of Engineering of Technological Machines – 12:00

Section: Digital signal processing and radio system modeling

November 16th, 10:00-15:00, Hall 417

Section Chairs: Maksim A. Stepanov, Andrei V. Nikulin

1. Evaluation of Root Mean Square of Global Navigation Satellite Systems Receiver Carrier Phase Measurement Error

Artyom Maltsev

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

Artyom S. Maltsev, Svyatoslav Yu. Burtsev, Dmitry S. Pecheritsa

2. Estimation of Water Objects Boundaries Using Bistatic GNSS Receiver

Dmitrii Artiushchev

Federal State Unitary Enterprose "All-Russian Research Institute of Physical Technical and Radio Technical Measurements"

Dmitrii A. Artiushchev, Vladislav P. Lopatin

3. Reception of OFDM Signals in Narrow Subbands by a Neural Network-Based Receiver with Batch Reshape

Alexander Sergienko

Saint Petersburg Electrotechnical University "LETI"

Alexander B. Sergienko, Polina V. Apalina, Anastasia D. Lebedinskaya

4. Search for Optimal Low-Frequency Dynamic Heads

Maxim Shushnov

Siberian State University of Telecommunication and Information Science

Maxim S. Shushnov, Tatiana V. Shushnova, Anna M. Onoprienko

5. Secure Key Generation and Distribution at Physical Layer by Using Ultra-Long Fiber Laser

Boris Nyushkov

Novosibirsk State Technical University

Boris Nyushkov, Igor Korel

6. Experimental Implementation of OFDM Synchronization Algorithms For Low Cost SDR Platform

Aleksander Kalachikov

Siberian State University of Telecommunications
and Information Sciences

Alexander Kalachikov, Ivan Popovich, Vladimir Pushnitca

7. Assessment of the Influence of the Color Temperature of Radiation Sources on the Quality of Digital Images Obtained in Mines



Ekaterina Zaytseva

Saint Petersburg Mining University

*Ekaterina V. Zaytseva, Alina A. Kochneva, Evgeny V. Katuntsov, Maria R. Kiba,
Oksana M. Romakina*

8. Methodology of Adaptive Regulation of Data Transmission Rate in Wireless Networks



Sergey Zhilin

Southern Federal University

Sergey V. Zhilin, Vladimir V. Arkhipenko, Elena S. Basan, Eugene S. Abramov

9. Application of LDPC Codes in Digital Communication Systems for Robotic Systems



Karen Grigoryan

South Federal University

Karen Grigoryan, Elena S. Basan, Ivan Polovko

10. Development and Testing of an Optical Flow-Based Navigation System for Unmanned Vehicles



Dmitriy Vakhrushev

Southern Federal University

Gennady E. Veselov, Dmitry E. Vakhrushev, Sergey A. Sklyarov, Dmitry M. Elkin

11. Development of a Sigma-T Analog-to-Digital Converter in NI Multisim and Research of Dielectric Absorption of the Integrating Capacitor



Aleksey Korotkov

JSC Research Institute of Electromechanical
Devices

Vasily N. Ashanin, Aleksey A. Korotkov

Section: Antennas and radio frequency devices

November 15th, 14:00-19:30, Hall 409

Section Chairs: Vladimir P. Razinkin, Dmitry I. Volkhin

1. Adaptive Arrays for GNSS Receivers



Djigan Victor

National Research Center “Kurchatov Institute”

Victor I. Djigan

2. Simulation Approach to the Probe Correction Methods in the Near-Field Antenna Measurements

Vitaliy Kulik

Tomsk State University of Control Systems and
Radioelectronics

Valeriy B. Romodin, Lyubov V. Shebalkova, Alexandr A. Slobodyanenko, Vitaliy S. Kulik

3. The Novel Band-Pass Re-entrant Filters to Eliminate the Scan Blindness in Phased Array Antennas on a Base of the Center-End-Fed Dipole-Like Radiators

Anatoly Gorbachev

Novosibirsk State Technical University

Sergey A. Alekseytsev, Anatoly P. Gorbachev, Yury N. Parshin

4. Parameters Optimization of Structures with Multiple Modal Reservation with Taking into Account Extreme Temperatures



Evgeniya Chernikova

Tomsk State University of Control Systems and
Radioelectronics

Evgeniya B. Chernikova, Valeriy P. Kosteletskii

5. Influence of Cross-Section Geometrical Parameters on the Structures Characteristics Protecting in Differential and Common Modes



Alexandr Lakoza
Tomsk State University of Control Systems and
Radioelectronics

Alexandr M. Lakoza, Valerii P. Kosteletskii, Evgeniya B. Chernikova

6. Low-Profile Wide-Scan-Angle VICTS-Like Antenna for Ku-Band SatCom

Elena Strigova

Siberian federal university

Elena A. Strigova, Stanislav V. Polenga, Andrey V. Stankovsky, Anastasia D. Poligina, Boris N. Gladkih

7. Study Of Metrological Characteristics Of Antenna-Feeder Devices, Their Dependence On The Ambient Temperature And Validation Of Results With IGS Data

Elizabetta Uyutnova

The Federal State Unitary Enterprise "Russian
Metrological Institute of Technical Physics and
Radio Engineering"

Elizabetta G. Uyutnova, Svyatoslav Yu. Burtsev, Aleksey S. Zavgorodnii, Artem S. Maltsev

8. Analyzing Signal Integrity in a Structure with Double Modal Redundancy Before and After Failures



Andrey Chub
Tomsk State University of Control System and
Radioelectronics

Ksenia N. Abramova, Andrey V. Chub, Yevgeniy S. Zhechev

9. Experimental Study of Ultra-Wideband Interference Attenuation in a Flexible Printed Circuit Board Cable



Maria Samoylichenko
Tomsk State University of Control Systems and
Radioelectronics

Maria A. Samoylichenko, Evgeniy S. Zhechev, Alexander M. Zabolotsky

10. Experimental Study of the Structure with Double Modal Reservation and External Dielectric



Sergey Morozov
Tomsk State University of Control Systems and
Radioelectronics

Sergey R. Morozov, Maria A. Samoliychenko

11. Maximum Directivity of Spheroidal Dielectric Antennas

Roman Gaponenko
ITMO University

Roman V. Gaponenko, Alexey A. Shcherbakov

12. Investigating the Effect of Ground Distance on the Characteristics of a Coupled Meander Microstrip Line



Mikhail Murmansky
Tomsk State University of Control Systems and
Radioelectronics

Mikhail S. Murmansky, Nikita O. Kuzmin, Viacheslav E. Mikhailenko

13. Comparative Analysis of Sparse Structures Characteristics of S-band Reflector Antenna at Different Frequencies



Manh Tuan Nguyen
Tomsk State University of Control Systems and
Radioelectronics

Manh Tuan Nguyen, Adnan F. Alhaj Hasan, Talgat R. Gazizov

14. Surface Mount Resistors at Cryogenic Temperatures: Performance below 1 GHz

Dmitry Volkhin
Novosibirsk State Technical University
Ilya L. Novikov, Dmitry I. Volkhin, Aleksey G. Vostretsov

15. Results of Analysis the Calibration of GNSS Receiver with BeiDou Signals

Vyacheslav Lebedev

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

*Vyacheslav D. Lebedev, Svyatoslav Yu. Burtsev, Dmitry S. Pecheritsa, Vladimir M.
Pukhov*

16. The Influence of Thermal Coefficients on the Time Response of Microstrip Line with Two Side Conductors Grounded at Both Ends

Bakhtiyar Nurkhan



Federal State Autonomous Educational Institution
of Higher Education – Tomsk State University of
Control Systems and Radioelectronics

Indira Y. Sagiyeva, Bakhtiyar E. Nurkhan, Talgat R. Gazizov

17. The Influence of Electromagnetic Absorber Thickness on the Characteristics of the Filter based on Coupled Transmission Line



Vyacheslav Trubcheninov

Tomsk State University of Control Systems and
Radioelectronics

Vyacheslav A. Trubcheninov, Sergey V. Vlasov, Yevgeniy S. Zhechev

18. Comparative Analysis of Three Stub Shapes for Far- End



Mikhail Murmansky

Tomsk State University of Control Systems and
Radioelectronics

Mikhail S. Murmansky, Nikita O. Kuzmin, Yevgeniy S. Zhechev

19. Aperture Efficiency Improvement Methods Analysis for High-Gain Wideband/Ultrawideband Stacked Microstrip Antennas



Mikhail Shishkin
Moscow Technical University of Communication
and Informatics (MTUCI)

Mikhail S. Shishkin

Section: Electrical engineering and circuitry

November 16th, 10:00-15:00, Hall 409

Section Chairs: Sergey V. Brovanov, Alexei V. Udovichenko

- 1. Russian instrument engineering on the issue development of electronic components and application of compact SPICE models**

Vladislav Bodrov

Novosibirsk State Technical University

Vladislav V. Bodrov, Ivan L. Reva

- 2. Circuitry of Operational Amplifiers with CMOS and JFET Input Differential Stages without Classical Reference Current Sources**

Marsel Sergeenko

Don State Technical University

Vladislav E. Chumakov, Marsel A. Sergeenko, Nikolay N. Prokopenko

- 3. Research on Arsenide-Gallium Differential Stages and Operational Amplifiers for High-Temperature Applications**

Marsel Sergeenko

Don State Technical University

Vladislav E. Chumakov, Marsel A. Sergeenko, Ilya V. Frolov

- 4. Synchronization Methods of Belt Conveyor Drive Drums**

Stepan Sukhinin

Novosibirsk State Technical University

Denis A. Kotin, Stepan E. Sukhinin, Ilya A. Ivanov

5. Calculation of the Electric Field of an Induction-resistive Heating System With Graded Electrical Insulation

Alexandra Vasilenko

National Research University «Moscow Power Engineering Institute»

Maksim A. Fedin, Alexandra I. Vasilenko, Denis A. Zhgutov, Vitaly V. Krylov

6. Two-cycle DC-DC Converter for Spacecraft Power Conversion Equipment

Artem Matvienko

Novosibirsk State Technical University

Artem R. Matvienko, Sergey S. Klassen, Dmitry A. Shtein

7. Features of the Hybrid Generation Regime Control during Its Integration into the Electric Network of the Centralized Electric Power System

Inna Murashkina, Andrey Marchenko

Novosibirsk State Technical University

Andrey Marchenko, Denis Armeev, Inna Murashkina

8. The Bennet Doubler Circuit with a Transistor Voltage Divider for Kinetic Energy Harvesters

Maksim Kuznetsov

Novosibirsk State Technical University

Dmitriy I. Ostertak, Ekaterina Y. Kovalenko, Valery P. Dragunov, Dmitry M. Kazymov, Maksim A. Kuznetsov

9. Internal Heating of the Lithium-Ion Batteries Based on Alternating Pulse Current And Methods of Its Implementation

Vladimir Gertel

Novosibirsk State Technical University, Aksis LLC

Vladimir S. Gertel, Sergey A. Kharitonov, Aleksey V. Udovichenko

10. The Second Order Low Pass Filters on the Switched Capacitors with Signal Adder Based on Differential Difference Amplifier



Nikolay Butyrlagin

Don State Technical University

Darya Yu. Denisenko, Ilya V. Pakhomov, Yury I. Ivanov, Dmitry V. Kuznetsov, Nikolay V. Butyrlagin

11. Evaluation of Circuit Reliability of Microelectronic Discrete-Analog Filters with Pole Frequency Adjustment



Nikolay Butyrlagin

Don State Technical University

Leonty K. Samoilov, Nikolay V. Butyrlagin, Darya Yu. Denisenko, Yury I. Ivanov

12. Development of a Device for Measuring Electric Current Based on Optically Detectable Magnetic Resonance of NV-centers in Diamonds



Igor Podojlov

Northern (Arctic) Federal University named after M. V. Lomonosov

Igor O. Podojlov, Anastasia A. Kharlamova

13. High-Speed CBJT Operational Amplifier with Dual-Input-Stage Subclass Input Stage



Dmitry Kuznetsov

Don State Technical University

Dmitry V. Kuznetsov, Alexey E. Titov, Marsel A. Sergeenko, Nikolay N. Prokopenko

14. High-Speed Operational Amplifier Based On Complementary “Folded” Cascodes



Dmitry Kuznetsov

Don State Technical University

Dmitry V. Kuznetsov, Dmitriy V. Kleimenkin, Nikolay N. Prokopenko, Alexey E. Titov

15. Methods for Reducing the Number of Matching Operations in the Content-Addressable Memory of the Parallel Dataflow Computing System "Buran"



Nikolay Levchenko

National Research Centre "Kurchatov Institute"

Nikolay N. Levchenko, Dmitry N. Zmejev, Arkadiy V. Klimov

16. Symbolic Analysis of Closed Control Systems with Dynamic Links and Park Transform



Sergey Evdokimov

National Research University of Electronic
Technology

*Sergey Evdokimov, Anatoliy Shchagin, Alexey Leontiev, Timur Zhoraev, Alexey
Potapov*

17. Input Current Ripple Reduction for Interleaved boost converter



Nikolai Rodkin

Moscow Power Engineering Institute

Nikolai S. Rodkin, Konstantin V. Kryukov, Mikhail G. Kiselev, Nikolai N. Baranov

Section: Electronic devices in industry, medicine, metrology

November 15th, 14:00-18:00, Hall 417

Section Chairs: Yury V. Morozov, Anna S. Kazmina

1. CT Scanning of an Object Moving Along a Cyclic Trajectory Using a Pulsed X-ray Source

Alexander Komarskiy

The Institute of Electrophysics of the Ural Branch
of the Russian Academy of Sciences

*Alexander A. Komarskiy, Vladislav V. Krinitzin, Nikolay S. Korzhenevskiy,
Alexander S. Chepusov, Valentina A. Bessonova, Maxim V. Panin*

2. Vibration Monitoring of Electric Machine Housings

Andrei Mostovshchikov

Tomsk State University of Architecture and Civil
Engineering

Vladimir A. Nurzai, Andrei V. Mostovshchikov, Fedor A. Gubarev

3. Mathematical Modeling of In Vivo Axonal Transport of Mn3O4 Nanoparticles



Elizaveta Silvanovich

Institute of Cytology and Genetics, Siberian
Branch of Russian Academy of Sciences

*Elizaveta K. Silvanovich, Daniil S. Zuev, Marina B. Sharapova, Vladimir A. Kim,
Alyona O. Godunova, Alexandr V. Romashchenko*

4. Lens Calibration in Systems for Increasing Resolution by Subpixel Shifts in Optical Microscopy



Ekaterina Andryushchenko

Novosibirsk State Technical University

Ekaterina V. Andryushchenko, Vladimir I. Guzhov, Dmitry S. Khaidukov

5. Study of the Application of Catalytic Nanostructures on the Surface of Proton-Exchange Membrane



Maksim Novichkov

Penza State University

Maksim D. Novichkov, Sergey A. Gurin, Sergey A. Nesterov, Dmitry A. Shelakhaev, Ekaterina A. Pecherskaya, Anastasia A. Shepeleva

6. Development of a Photodetector Device Based on an Avalanche Photodiode with a Thermal Compensation System

Ilya Pisarev

Saint Petersburg Electrotechnical University

Ilya S. Pisarev, Andrey A. Uhov

7. PIC-Based Continuous Frequency Tuning of the Optoelectronic Oscillator

Ivan Stepanov

Ufa University of Science and Technology

Vladislav V. Ivanov, Ivan V. Stepanov, Yana V. Aleksakina, Arina R. Shaygardanova, Adelya D. Khairtdinova, Grigory S. Voronkov

8. Real-Time Signal Processing for Muscle Contraction Detection based on Electrical Impedance Measurements



Mariya Yakim

Bauman Moscow State Technical University

Mariya Y. Yakim, Alexander V. Kobelev, Sergey I. Shchukin

9. Development of a Lower Leg Mock-up for Thermographic Diagnosis of Varicose Veins



Darya Boyko

Bauman Moscow State Technical University

Daria S. Boyko, Larisa V. Zhorina

10. Basic Concept of the Modern Microsystem

Aleksandr Gridchin

Novosibirsk State Technical University

Aleksandr V. Gridchin

11. Analysis of Russian Patents for Inventions and Utility Models Related to Electronic Devices for High-Frequency Destruction of Biological Tissues

Alexey Chekhovskikh

Federal Institute of Industrial Property,
Novosibirsk State Technical University

*Alexey Yu. Chekhovskikh, Lilia I. Lisitsyna, Vladimir P. Razinkin, Ilya V. Vershenya,
Svetlana G. Filatova, Igor V. Buzuk*

12. Development of a Device for non-Invasive Measurement of Blood Glucose Levels Based on a Laser-Induced non-Enzymatic Graphene Sensor

Aleksandr Kashtanov

Novosibirsk State Technical University

Aleksandr A. Kashtanov, Ivan L. Reva, Alexander G. Bannov, Elena V. Kashtanova

Section: Automation and information systems

November 15th, 14:00-17:30, Hall 419

November 16th, 11:00-15:00, Hall 419

Section Chairs: Galina A. Frantsuzova, Viktor A. Trushin

THE FIRST DAY

1. Evaluation of the Effectiveness of Data Preparation in Phenotyping Wheat Seedlings of Various Varieties

Andrew Goonko

Novosibirsk State Technical University

Andrew V. Goonko, Gennady V. Seroklinov

2. Field Seismic Information Representation Location Technology



Evgeniy Rabinovich

Novosibirsk State Technical University.

Evgeniy V. Rabinovich

3. Information System for Seismic Monitoring of Industrial Explosions at Mining Enterprises

Elena Goshko

Novosibirsk State Technical University

Elena Yu. Goshko, Alexey S. Kharlamov

4. Development of Software for Automated Marking of Seismic P- and S-waves

Kirill Kovbasiuk

Novosibirsk State Technical University

Kirill V. Kovbasiuk, Aleksandr A. Yakimenko

5. Discount Eye-Tracking for Usability Testing with Webcam, CNN, and the Selected Training Data

Ivan Kolidov

Novosibirsk State Technical University

Ivan A. Kolidov, Maxim Bakaev

6. Design of a Control System for Stabilizing the Angular Position of Platforms on aMovable Base

Valery Yurkevich

Novosibirsk State Technical University

Bui Van Tam, Valery D. Yurkevich

7. Experimental Research of Iterative Learning Control with FourierTransform Filter for Electro-hydraulic StrengthTest Bench

Maksim Trubin

Novosibirsk State Technical University

Maksim V. Trubin, Valery D. Yurkevich

8. Increasing the Efficiency of Constructing 3D Models of Objects by Using a High-speed Digital Filter

Andrey Kamenskiy

Federal State Autonomous Educational Institution
of Higher Education – Tomsk State University of
Control Systems and Radioelectronics

Darya A. Grebenshchikova, Andrey V. Kamenskiy

9. Designing Web Application Client Program Modules for Asynchronous Event Handling

Vadim Mokrushin

Novosibirsk State Technical University

Vadim O. Mokrushin, Sergey P. Ilinykh

10. Analysis of Key Components in the Propagation of Artificial Neural Networks



Ilmira Kurbanova

Tashkent State Transport University

Muzaffar A. Sobirov, Qulmat A. Shakarov, Zebuniso O. Sabirova, Ilmira Sh. Kurbanova

THE SECOND DAY

1. Development of a Software System Based on Microservice Architecture for Flaw Detection of Industrial Products

Alexander Peshkov

Novosibirsk State Technical University

Alexander V. Peshkov

2. Geographic Information System of Recording and Analyzing Geographic Data on Traffic Control Facilities

Elena Skvortsova

Novosibirsk State Technical University

Alexei N. Poletaikin, Tatiana I. Monastyrskaya, Elena B. Skvortsova, Irina P. Englezi

3. Phase-Shift Algorithm for Two Nonorthogonal Interferograms

Sergey Ilinykh

Novosibirsk State Technical University

Vladimir I. Guzhov, Sergey P. Ilinykh, Dmitry S. Khaidukov

4. Novel 3D-Trajectory Analysis Method in Phase Shifting Interferometry

Fedor Skorokhodov

Novosibirsk State Technical University

Fedor A. Skorokhodov, Sergey P. Ilinykh

5. Possibilities of Using Neural Networks to Assess Speech Intelligibility

Rail Bahrachev

Novosibirsk State Technical University

Victor A. Trushin, Ivan L. Reva, Rail R. Bakhrachyov

6. The Method to Inspect Ball-Type Wire Bonding in a Non-Destructive Testing System for Integrated Circuits

Alexandr Golitsyn

Rzhanov Institute of Semiconductor Physics

Alexander A. Golitsyn, Natalia A. Seyfi, Sergey A. Golitsyn

7. Signal Processing Units for BPMs of VEPP-2000 and VEPP-4M Colliders

Matthew Grebnev

Novosibirsk State Technical University

Matthew Grebnev, Gennadiy Karpov

8. White Rabbit Technology Evaluation for the SPD Experiment

Daniil Kozyrev

Laboratory of Industrial Systems for Streaming
Data Processing, Peter the Great St.Petersburg
Polytechnic University

Daniil V. Kozyrev, Kirill A. Kotov, Dmitry S. Ryabikov, Alexey V. Boykov, Olga V. Mamoutova, Marina V. Bolsunovskaya

9. Control of a Custom URDF Robotic Arm in Ros



Peter Awad

National Research Tomsk Polytechnic University

Peter A. Wakem, Tatyana E. Mamonova

Section: Mathematical modeling and machine learning

November 15th, 14:00-19:30, Hall 406

November 16th, 9:30-15:00, Hall 406

Section Chairs: Vladimir S. Timofeev, Ekaterina A. Khailenko

THE FIRST DAY

1. Evaluation of Applicability of GNSS Pseudorange Residual Error Mitigation Model

Vladislav Zhilinskiy

Federal State Unitary Enterprise "National
Research Institute of Physicotechnical and Radio
Engineering Measurements"

Vladislav O. Zhilinskiy

2. Assessment of the Performance of a Technical Object Based on Identification of the Model of the Controlled Parameter



Sergei Klevtsov

Southern Federal University

Sergei I. Klevtsov

3. Estimation of the Rate of Change of a Parameter Based on the Analysis of Its Time Series



Sergei Klevtsov

Southern Federal University

Sergei I. Klevtsov

4. Intelligent Algorithms for Gaming AI: Research Into Decision-Making Methods and Agent Behavior



Gleb Bondarenko
Petersburg National Research University of
Information Technologies, Mechanics and Optics
(ITMO University)

*Anastasia R. Popova, Gleb Oh. Bondarenko, Alyona S. Syryh, Vladislav S. Pavluk,
Evgenii I. Geichenko, Viacheslav D. Burlaka*

5. Analysis of Reviews of Tourist Objects Based on Large Language Models

Ivan Poddubnyq
Siberian Branch of the Russian Academy of
Sciences Matrosov Institute for System
Dynamics and Control Theory

Olga A. Nikolaychuk, Ivan A. Poddubniy

6. When a Pandemic Comes to Town: Combating Propagation of Novel Viruses in Russian Cities Using Statistical and Mathematical Modeling



Vasiliy Leonenko
Research Institute of Influenza, ITMO University

Vasiliy N. Leonenko

7. Assessing the Effect of Influenza Vaccination Strategies Using Multi-agent Modeling



Vasiliy Leonenko
Research Institute of Influenza, ITMO University

Andrey I. Korzin, Timofey I. Kaparulin, Vasiliy N. Leonenko

8. Enhancing Results with ANFIS and XAI for Soil Contamination Monitoring and Public Health Risk Assessment



Yuri Trofimov
Dubna State Universite
Yuri Trofimov, Alexey Averkin

9. Multiscale Numerical Simulation for Assessing Effective Electrical Conductivity Estimations of Geological Medium

Shtanko Ekaterina

Trofimuk Institute of Petroleum Geology and
Geophysics of Siberian Branch Russian
Academy of Sciences (IPGG SB RAS)

Anastasiia Yu. Kutishcheva, Sergey I. Markov, Ekaterina I. Shtanko

10. A Set-Based Theoretical Model of IP-Cores for IC Design on Reconfigurable SoC



Daniil Zhelezchnikov

National Research Centre "Kurchatov Institute"

Sergey V. Gavrilov, Daniil A. Zhelezchnikov, Maria A. Zapletina, Vasilii M. Khvatov

11. A Fast FPGA Routing Algorithm with Partial Rip-up of Routing Trees



Alexander Chistiakov

RRC "Kurchatov Institute"

Alexander Y. Chistiakov, Maria A. Zapletina

12. Simulated Annealing Based Placement in FPGAs with a Modified Permutation Operator and Congestion Optimization



Vladislav Zhuravlev

NRC "Kurchatov Institute"

Rustam Zh. Chochaev, Vladislav A. Zhuravlev, Daniil A. Zhelezchnikov

13. A Fast Algorithm for the Decomposition of Functions Into Series of Zernike Polynomials

Nikita Zelenchuk

Novosibirsk State Technical University

Nikita A. Zelenchuk, Andrew V. Terekhov

14. Numerical Simulation of the Boundary Problem of Filtration in Two-Layer Porous Media with Changing Porosity Coefficient Depending on Pressure



Shikhnazar Ismailov

Tashkent University of Information Technologies
Named after Muhammad Al-Khwarizmi

Abdugani.Nematov, Shikhnazar.R. Ismailov, Gulstan K. Artikbaeva

15. Study on Water Hammer in Fluid Transportation Pipeline Systems



Sipeng Ruan

National Research Tomsk Polytechnic University,
Tomsk Polytechnic University, TPU.

Tatiana E. Mamonova, Sipeng Ruan, Sergey V. Leonov

16. Study on Water Hammer in Fluid Transportation Pipeline Systems



Zaslavskii Iliia

Kuzbass State Technical University

Iliya S. Zaslavskiy, Fedor S. Nepsha, Vyacheslav A. Voronin

17. On the Relationship between Porosity Variation and Electrical Conductivity for Synthetic and Realistic Core Samples

Daria Dobroliubova

Trofimuk Institute of Petroleum Geology and
Geophysics of Siberian Branch Russian
Academy of Sciences (IPGG SB RAS)

Daria V. Dobrolyubova

18. Observation of the State of the Near-surface Lithosphere Layer based on the Analysis of the Dynamics of the Geoacoustic Emission Signal Characteristics

Senkevich Yury



Institute of Cosmophysical Research and Radio
Wave Propagation, Far Eastern Branch of the
Russian Academy of Sciences

Yury Senkevich, Mikhail Mishchenko, Aleksandra Solodchuk

19. Development of a Neural Network for a Digital Twin of Three-Winding Transformer



Maksim Mikhailovich

Tomsk Polytechnic University

Maxim Mikhailovich, Sergey Leonov, Liudmila Khudonogova, Tatyana Mamonova

20. Behavior-Based Detection of GPU Cryptojacking



Tanana Dmitry

Ural Federal University

Dmitry D. Tanana

21. Comparison of the Model of Ultra-short Laser Pulse Scattering on Diamond with Experiment



Anastasya Kharlamova

Northern (Arctic) Federal University (NArFU)

Anastasia A. Kharlamova

22. Average Connection Establishment Time in Random Access Channel with Limited Resources



Artem Batygin

National Research University Higher School of
Economics

Artem. A. Batygin, Artem A. Burkov, Andrey M. Turlikov

THE SECOND DAY

1. Uniqueness Control of Student Reports Based on MinHash Algorithm and Metrics for Picking Source Documents

Roman Shevlyakov

Novosibirsk State Technical University

Roman V. Shevlyakov, Aleksandr A. Maliavko

2. Automation of Anti-Corruption Expertise of Quality Management of Regulatory Legal Acts Using Artificial Intelligence



Dmitry Kosov

Novosibirsk State Technical University.

Dmitry L. Kosov, Viktor M. Belov

3. Monte Carlo Model of Heteroepitaxial Growth of Ge on Si and its Parallel Realization



Artem Revun

Rzhanov Institute of Semiconductor Physics,
Siberian State University of Telecommunications
and Informatics

Artem L. Revun, Sergei A. Rudin, Kiril V. Pavsky

4. Automated Recognition of Named Entities and Dialect Standardization in Uzbek Legal Texts

Davlatyor Mengliev

Urgench branch of Tashkent University of
Information Technologies named after
Muhammad al-Khwarizmi

Davlatyor B. Mengliev, Nilufar Z. Abdurakhmonova, Hasanboy Rahimov, Nikolai Yu. Zolotykh, Alisher A. Ubaydullayev, Bahodir B. Ibragimov

5. Enhancing the Optimization Efficiency of Modal Filters Based on Microstrip Lines Using Regression Machine Learning Models



Viktoriya Gordeyeva

Tomsk State University of Control Systems and
Radioelectronics

Georgiy Yu. Kim, Anton O. Belousov, Viktoriya O. Gordeyeva

6. Machine Learning in Local Positioning Systems



Doshchinskij Ilya

Siberian State University of Telecommunication
and Information Science

Elena V. Kokoreva, Yuliya S. Lizneva, Ksenia I. Shurygina, Ilya V. Doshchinsky

7. Effect of Digital Video Camera Heating on The Zero-Point Stability of a High-Precision Computer-Vision Based Video Inclinator

Artem Mareev

Siberian State University of Geosystems and
Technologies

*Sergey V. Dolin, Alexander P. Karpik, Daniil S. Mamaev, Artem V. Mareev, Maxim
M. Popkov, Valentin P. Yangalishev*

8. Numerical Modelling of Wave Process in Media with Initial Stresses



Anastasiia Kutishcheva

Trofimuk Institute of Petroleum Geology and
Geophysics of Siberian Branch Russian Academy
of Sciences

Anastasiia Yu. Kutishcheva, Mikhail I. Epov

9. Bayesian Model for Assessing Risks of Emergency Situations at Cellular Network Base Stations



Konstantin Grigorev

Kuban State University

Valery S. Kanev, Konstantin E. Grigoriev, Aleksei N. Poletaikin

10. Numerical Experiment to Determine the Visibility of GNSS Spacecraft from a Low-orbit Geodetic Satellite in the Problem of Measuring the Parameters of the Earth's Gravity Field Using GNSS signals

Vladislav Lopatin

Russian metrological institute of technical physics
and radioengineering

Vyacheslav F. Fateev, Ekaterina A. Karaush, Vladislav.P. Lopatin, Ruslan A. Davlatov

11. Features of Grid-Based Maps Creation of Physical and Mechanical Properties Changes

Arina Smirnova



Shandong University of Science and Technology,
T.F. Gorbachev Kuzbass State Technical
University

Arina D. Smirnova, Shaojie Chen, Tatiana V. Mikhaylova

12. Computer Modeling of Optimization in Seismoacoustic Tomographic Diagnostics of Velocity Inhomogeneities



Nikolai Gervas

Novosibirsk State Technical University

Nikolai V. Gervas, Daria V. Gervas, Sergey M. Zerkal

13. Who Is to Err? A Limited Effect of Data Labeling in Prediction of Users' Subjective Impressions of Web Designs

Maxim Bakaev

Novosibirsk State Technical University

Anna V. Bortnikova, Maxim A. Bakaev

14. Developing a Hyperkinetic Dysarthria Speech Classification System Using Residual Learning



Antor Mahamudul Hashan

Ural Federal University

Mahamudul Hashan Antor, Nikolai Alexandrovich Khlebnikov, Boris Andreevich Bredikhin

15. Usage of Markov Metric in Decoding of Convolutional Codes in Two-State Channels



Alina Veresova
Saint-Petersburg State University of Aerospace
Instrumentation

Alina M. Veresova, Andrei A. Ovchinnikov

16. Transitions of a Quantum Harmonic Oscillator as a Result of Interaction with an Ultrashort Pulse Field



Mikhail Arkhipov
Northern (Arctic) Federal University named after
M.V. Lomonosov

Dmitry N. Makarov, Mikhail Y. Arkhipov, Polina A. Stremilova

17. Sign Language Translation System Using Machine Vision

Mikhail Khnyunin
Novosibirsk State Technical University

Mikhail V. Khnyunin, Mikhail G. Grif

18. A Numerical Method for Solving the Problem of Gas Filtration in an Interconnected Three Layer Porous Medium Based on an Opaque Finite Difference Scheme



Mokhiniso Makhmudova
Tashkent University of Information Technologies
named after Muhammad al-Khwarizmi

Abdugani Nematov, Mohiniso Mahmudova

19. Enhanced Forecasting of PV Power Output Using LSTM Integrated with LASSO-RFR Hybrid Models in Extreme Weather Conditions



David Akpuluma
Tomsk Polytechnic University
David Akpuluma, Alexey V. Yurchenko, Neda Firoz, Ibibia Abam, Nkemjika Iheji, Boris D. Belan

20. Computer vision and explainable approaches for chest tuberculosis screenings

Margarita Benedichuk

National Research State University

Margarita Benedichuk, Polina Bashkova, Bair Tuchinov

Section: Digital energy management

November 15th, 14:00-16:00, Hall 208

Section Chairs: Anastasia G. Rusina, Pavel V. Matrenin

1. Application of Large Language Models in Decision-Making systems of Power Engineering Tasks

Iliia Pribylskii

Novosibirsk State Technical University

Iliia V. Pribylskii, Denis V. Armeev

2. Enhancing the Process for Connecting EV Charging Stations to the Power Grid



Vyacheslav Voronin

T. F. Gorbachev Federal State Budgetary
Educational Institution of Higher Education

Vyacheslav A. Voronin, Fedor S. Nepsha

3. Development of a Physical Model of Power Distribution Network for Evaluating the Performance of Power Line Communication Systems



Anastasia Kosolapova

Moscow Aviation Institute (National Research
University)

Anastasia O. Kosolapova, Maria K. Zolotenkova, Vasily V. Egorov

4. Energy Management Algorithm for a Behind-the-Meter Solar-Plus-Storage System



Andrey Liven

Kuzbass State Technical University

Andrey S. Liven, Fedor S. Nepsha, Vyacheslav A. Voronin

5. The Study of a Model of a Section of an Electric Network in Order to Identify the Characteristics of a Transient Process at the Time of its Occurrence



Sergey Averianov

Novosibirsk State Technical University

Sergey S. Averyanov, Andrey S. Trofimov

Section: International Symposium on Electrical Power Drive Systems

November 16th, 9:30-14:00, Hall 208

Symposium Chairs: Oleg V. Nos, Denis A. Kotin

INVITED TALK:

Highly Efficient Adjustable Electric Drive with Direct Control of Output Coordinates

Alexander Korovin

"Almaz – Antey" Air and Space Defence Corporation" JSC

Comparative Analysis of Electric Traction Motors

Vladimir Prakht

Ural Federal University

1. Design Features of an Induction Motor Based Traction Electric Drive with Field-Oriented Control

Igor Zhurov

Engineering center "Ruselprom" llc.

Igor Zhurov, Sergey Bayda, Stanislav Florentsev, Pavel Rozkariaka

2. Analysis of the Effect of Modular Stator Design on the Performance of a Low-speed Permanent Magnet Synchronous Motor

Oleg Zhilin

Novosibirsk State Technical University

Oleg A. Zhilin, Alexander G. Pristup

3. Application Fractional Slot Concentrated Winding to Asynchronous Machines

Aleksey Radzhapov

Novosibirsk State Technical University

Aleksey Radzhapov, Dmitriy Toporkov, Tatiana Chestyunina, Sergey Vnukov

4. Development of an Optimization Model for an Asynchronous Motor of a Special Electric Drive Using the Geometric Programming Method

Vladimir Karandey

Kuban State Technological University

Viktor L. Afanasiev, Vladimir Y. Karandey, Boris K. Popov

5. Application of Direct Control Technique for Electric Power Steering System Assisted by Brushless DC Electric Motor



Dmitry Ulyanov

Tomsk Polytechnic University

Alexander G. Garganeev, Ahmed Ibrahim, Dmitry I. Ulyanov

6. Synchronous Reluctance Machine Control under the Voltage Limitation for Flywheel Energy Storage Systems

Mikhail Glazyrin

Novosibirsk State Technical University

Mikhail V. Glazyrin, Valery D. Yurkevich

7. Electromechanical Frequency Converter with Three-level Exciters and Cascade Starting Devices

Gleb Rozbitskiy

JSC "Power Machines", Saint-Petersburg ITMO University

Aleksey G. Vorontsov, Mikhail V. Pronin, Gleb G. Rozbitsky, Andrey P. Soloviev

8. Platform for EtherCAT Fieldbus Drive Control Systems

Dmitriy Osipov

MPEI

Dmitriy A. Osipov, Lev N. Rassudov

9. Application Patterns of Synchronous and Asynchronized Machines in Hydroelectric Power Plants and Pumped Storage Power Plants

Gleb Rozbitskiy
JSC "Power Machines" , Saint-Petersburg ITMO
University

Gleb G. Rozbitskiy, Vasilii V. Glushakov, Mikhail V. Pronin

10. Feed Drive Control System with Compensation for Friction, Backlash, and Resonance Effects



Aleksandr Alekseev
Ivanovo State Power Engineering University

Alexander A. Alekseev, Vladimir V. Tyutikov

11. Controlling the State of Electric Drive Systems in the Absence of an Elastic Torque Sensor in the Mechanical Section



Vladimir Apolonskiy
Ivanovo State Power Engineering University

Vladimir V. Apolonskiy, Sergey V. Tararykin

12. Comparative Analysis of Control Systems for Propulsion in Remote-Controlled Unmanned Underwater Vehicles



Aleksandr Patrashevskii
ITMO University

Aleksandr Patrashevskii, Aleksandr Mamatov, Dmitry Lukichev, Nikolai Poliakov, Galina Demidova

13. Extended Features and Import Substitution in Traction Electrical Equipment of Mining Dump Trucks



Kirill Ermakov
Electrical Drive Research and Technical
Center“Vector”

Anatoly B. Vinogradov, Andrey N. Sibirtsev, Valery L. Chistoserdov, Nikolay E. Gnezdov, Alexandr A. Korotkov, Kirill K. Ermakov

14. Neural Network Approaches for Magnetization Surface Prediction in Switched Reluctance Motors: Classical, Radial Basis Function, and Physics-Informed Models



Galina Demidova

ITMO University

Galina Demidova, Andrey Bogdanov, Andrei Iaremenko, Zhu Xirong, Hao Chen, Alecksey Anuchin

XIX всероссийская конференция по автоматизированному электроприводу (АЭП 2024)

16 ноября, 14:00-15:00, Зал 208

Председатель: Алексей Сергеевич Анучин

1. Особенности применения активных шуплярников в электротехнических системах регулирования натяжения

Александр Петрович Микитинский

ФГБОУ ВО «Южно-Российский
государственный политехнический университет
(НПИ) имени М.И.Платова кафедра
«Электроснабжение и электропривод»

*А.П. Микитинский, Б.Н. Лобов, Л.Л. Алтунян, К.А. Микитинский, О.А.
Кравченко*

2. Примеры системного проектирования электромеханических трансмиссий строительнородожных машин



Станислав Николаевич Флоренцев

ООО «ИЦ «Русэлпром»

С.Н. Флоренцев, С.В. Байда, И.О. Журов, А.С. Кобелев

3. Промышленные маневровые тепловозы технологического транспорта



Станислав Николаевич Флоренцев

ООО «ИЦ «Русэлпром»

*С.Н. Флоренцев, А.С. Кобелев, С.В. Байда, В.Н. Орлов, А.А. Уваров, И.О.
Журов, В.С. Полухович*

4. Регулирование тока с прогнозированием в 3-х уровневом инверторе напряжения



Иван Иванович Иванчин

ООО "ЗИТ"

И. И. Иванчин, В. В. Павлов, Е. И. Иванчина

PIERE 24

conference
program