

**Monday, July 21**

**Registration**

*Small Hall Foyer*

16:00-20:00

**Welcome Party**

*Golden Valley Hotel Restaurant*

19:00-22:00

**Tuesday, July 22**

Morning Sessions: 9:00–13:10

### **Plenary Session**

*Small Hall*

- 09:00 Opening and Greetings
- 09:20 Current Trends and Convergent Technologies of Electric/Hybrid Vehicles and More Electric Aircraft Systems,  
*Kaushik Rajashekara, Rolls-Royce Corp.*

### **Energy conversion, renewable energy and industrial applications**

*Room 223*

- 10:30 Implementation of New Computer Technology for UHVDC Power of Transmission, *Q. Y. Yuan*
- 10:50 An Anti-Resonance Active Method for a Power Factor Correction Capacitive System, *V. Fernão Pires, Dulce Costa, Gil Marques and J. Fernando Silva*
- 11:10 **Coffee-break**
- 11:30 Dynamic Voltage Restorer Using a New Compensation Voltage Control and Converter Based Input-Output Linearization, *V. Fernão Pires, Gil Marques, J. F. Martins and J. Fernando Silva*
- 11:50 Inherent Pitch Control for Wind Power through Composite Material Properties and Design, *Peter Zaucher, Rudolf Woerndle and Helmut Weiss*
- 12:10 Implicit Enumeration Based 0-1 Integer Programming for Generation Maintenance Scheduling, *Nima M. Tabari, Mahdi Pirmoradian and Seiedeh B. Hassanpour*
- 12:30 Revenue Based Maintenance Scheduling of A GENCO in Restructured Power Systems, *Nima Mohammadi Tabari, Mahdi Pirmoradian and Seiedeh Bahareh Hassanpour*

## Information theory

Room 217

- 10:30 Two Schemes for Block-Based Transmission of Variable-Length Codes, *Boris Assanovich*
- 10:50 Testing Statistical Hypotheses About Ergodic Processes, *Daniil Ryabko*
- 11:10 **Coffee-break**
- 11:30 Bias Reduction of the Nearest Neighbor Entropy Estimator, *Alexei Kaltchenko, En-hui Yang and Nina Timofeeva*
- 11:50 Information Complexity Hypothesis: a Conceptual Framework for Reasoning on Pragmatics Issues, *Vladimir E. Zyubin*
- 12:10 Experimental Investigation of the Genetic Text Memory Using Markov Chain Models, *Boris Ryabko and Natalya Usotskaya*

## Interdisciplinary applications

Room 220

- 10:30 Morphological Approach To Electronic Shopping, *Mark Sh. Levin*
- 10:50 Win32 Based Sensor for Email Auditing, *Konstantin I. Budnikov, Alexander V. Kurochkin and Sergey A. Lylov*
- 11:10 **Coffee-break**

## Microwave theory and techniques

Room 220

- 11:30 Effect of Electron Density in RF-Discharge on Etching Rate in Plasma-Chemical Reactor, *Yurii Grigoryev and Aleksey Gorobchuk*
- 11:50 Dielectric Resonator Filters Using Improved Spurious Performance Resonant Sections, *Anatoly Bunin, Vladimir Gevorkyan, Yury Kazantsev, Sergey Mikhailin, Valery Polukarov and Sergey Vishnyakov*
- 12:10 Tuning of Coupled Resonator LC Filter Aided by SPICE Sensitivity Analysis, *Jacek Izydorczyk and Jan Chojcan*
- 12:30 Ab Initio Calculation of Four-Vector Potential and Electromagnetic Field for a Charge Moving Arbitrarily in a Cylindrical Drift Tube, *Kostyantyn Ilyenko, Grigorii M. Gorbyk and Tetyana Yu. Yatsenko*
- 12:50 Use of Differential-Taylor Transformation in Problems of Characterization of the Nonlinear Amplifier, *Oleg V. Stukach*

13:10–14:20      **Lunch**

**Tuesday, July 22**

Afternoon Sessions: 14:20–17:20

**Energy conversion, renewable energy and industrial applications**

*Room 223*

- 14:20 New Structure of Autonomous Power System,  
*Sergey A. Kharitonov and Maxim V. Riabchitsky*
- 14:40 Comparison of Active Damping Systems for the Doubly-Fed  
Induction Generator, *Gil D. Marques*
- 15:00 Space Vector PWM Technique for Three-Level Neutral Point  
Clamped Converters with Taking into Account DC-Voltage  
Unbalance, *S. Brovanov and M. Pacas*
- 15:20 Study of the Air Gap Magnetic Field Distribution of a Nuclear  
Magnetic Resonance Iron-Core Magnet,  
*Duarte M. Sousa and G. D. Marques*
- 15:40 **Coffee-break**
- 16:00 Use of Simulation for Development of Process Control System,  
*Victor Okol'nishnikov and Alexander Zenzin*
- 16:20 Implementation of Genetic Algorithm for Optimal Network  
Reconfiguration in Distribution Systems for Load balancing,  
*P. Ravi Babu, K. Venkatesh and C. Sudheer Kumar*
- 16:40 Application of DSM Techniques and Renewable Energy Devises  
For Peak Load Management, *P. Ravibabu, K. Venkatesh and T. Swetha*
- 17:00 Application of ANN and DSM Techniques for Peak Load  
Management: a Case Study,  
*P. Ravi Babu, K. Venkatesh and V. P. Sree Divya*

## Education and e-learning

Room 217

- 14:20 Distance Learning Technologies for Engineering Education,  
*Boris I. Krouk, Sergey G. Sitnikov, Olga B. Zhuravleva  
and Natalia A. Chupakhina*
- 14:40 Remote Access Laboratory for Electronic Course,  
*A. V. Borisov, B.I. Krouk, N.V. Popov and A.A. Shauerman*
- 15:00 International SibSUTIS Partnership in Accordance with the  
Bologna Declaration, *Boris I. Krouk, Sergei N. Novikov,  
Natalia A. Chupakhina and Tatyana Chernykh*
- 15:20 A Framework to Bring Engineering Students' Work-based  
Experiences into Their Education,  
*Tugrul Esendal and Simon Rogerson*
- 15:40 **Coffee-break**
- 16:00 A Document Retrieval Framework for Scientific Publications,  
*Denis Vazhenin, Satoru Ishikawa, Satoru Satake and Vitaly Klyuev*
- 16:20 WEB-Based Task Management Tools in E-Learning  
Environment, *Toshiaki Oka, Dmitry Vazhenin and Alexander Vazhenin*
- 16:40 E-learning and Elder People: Barriers and Benefits,  
*Maxim Bakaev, Vladimir Ponomarev and Larisa Prokhorova*

## Microwave theory and techniques

Room 220

- 14:20 Electromagnetic Wave Scattering from an Infinity Array of  
Rectangular Cavities in an Impedance Screen,  
*Yu. A. Baranchugov, P. M. Zatsepin and S. A. Komarov*
- 14:40 Electromagnetic Pulse Scattering by Impedance Cylinder,  
*P. M. Zatsepin and A. Y. Rykshin*
- 15:00 Tunable Quasipolynomial Bandstop Filters of the Third Order on  
the Distributed Elements with a Series Resonance,  
*Nikolay E. Ounrou and Evgeny V. Grigorjev*
- 15:20 About Method for numerical Modeling of the Electron Beams  
Dynamics, *G. S. Sadovoi, O. V. Suslova*
- 15:40 **Coffee-break**

## **Optical communications**

*Room 220*

- 16:00 Simulation by BPM and FDTD of New Thin Heterogeneous Optical Waveguides on SOI for Reconfigurable Optical Add/Drop Multiplexers, *A. V. Tsarev*
- 16:20 Simulation by FEM of Thermo-Optical Tuning of Wide Heterogeneous SOI Waveguides, *A. V. Tsarev, V. M. N. Passaro and F. De Leonardis*
- 16:40 Rigorous Treatment of Fiber-Environmental Interactions in Fiber Gyroscopes, *Friedemann Mohr and Frank Schadt*
- 17:00 Influence of Non-cooperative Target on Interferometrical Signal, *Petr Kucera and Friedemann Mohr*
- 17:20 Polarization-Mode Dispersion in Optical Fiber with Wavelength Division Multiplexing During the Lightning Stroke, *S. A. Sokolov*

## Wednesday, July 23

Morning Sessions: 9:00–12:50

### Plenary Session

*Small Hall*

09:00 Applications of Data Compression to Statistical Analysis of Time Series, *Boris Ryabko, Siberian State University of Telecommunications and Information Sciences*

### Cryptography and data security

*Room 217*

10:10 Fast WG Stream Cipher, *Evgeny Krenzel*

10:30  $k$ -Bent Functions: from Coding Theory to Cryptology, *Natalia N. Tokareva*

10:50 Embedding Bits in Compressed Data for Selective Encryption and Watermarking, *Boris Assanovich*

11:10 **Coffee-break**

11:30 Differential Cryptanalysis of 24-Round CAST-256, *Andrey Pestunov*

11:50 Distinguishing the Language of Ciphred Texts, *Boris Ryabko, Andrey Gruzin and Viktor Monarev*

12:10 On Error-Correcting Codes for a Steganography Channel, *A. D'yachkov, D. Harnett and V. Rykov*

## Telecommunications and networks

Room 223

- 10:10 QoS-oriented Multifunctional Wireless MAC for Remote, Rural, and Difficult for Access Areas,  
*Alexander Markhasin and Vera Drozdova*
- 10:30 HAPS systems performance evaluation by simulation techniques at Ka band,  
*Jose A. Delgado-Penín*
- 10:50 Utilization of Lattice Reduction Approach in MIMO Decoding,  
*Andrey Rog and Sergey Goreinov*
- 11:10 **Coffee-break**
- 11:30 Initialization Strategies for Prewhitened Blind Equalization,  
*Grzegorz Dziwoki and Marcin Kucharczyk*
- 11:50 Performance Analysis of Sleeping Attack in Wireless Sensor Networks,  
*Vladimir Shakhov and Vladimir Popkov*
- 12:10 Application of Kalman Filters as a Tool for Phase and Frequency Demodulation of IQ Signals,  
*Frank Schadt, Friedemann Mohr and Markus Holzer*
- 12:30 A New Space-Time Block Code for High-Data-Rate and Full-Diversity MIMO Systems,  
*Chen Liu, Shengnan Liu and Hua-An Zhao*
- 12:50 Communication Problems in Global Monitoring Systems,  
*Dmitry V. Fedosov, Dmitry A. Korneev and Vitaly L. Hazan*

## Engineering in medicine and biology

Room 220

- 10:10 Implementation of Adaptive Filters for ECG Data Processing,  
*Olga Shultseva and Johann Hauer*
- 10:30 Numerical B-Spline Solution of Emission and Vector  
2D-Tomography Problems for Media with Absorbtion and  
Refraction, *E. Yu. Derevtsov, I. E. Svetov, Yu. S. Volkov and  
T. Schuster*
- 10:50 Iterative Gerchberg-Papoulis Algorithm for Fan-Beam  
Tomography, *Valery Pickalov and Daniel Kazantsev*
- 11:10 **Coffee-break**
- 11:30 The New Respiratory BFB Method Based on Pneumogram,  
*Oleg V. Grishin, Victor G. Grishin and Margarita I. Zinchenko*
- 11:50 Influence of Terahertz Electromagnetic Waves on Neurons  
Systems, *J. S. Olshevskaya, A. S. Ratushnyak, A. K. Petrov,  
A. S. Kozlov and T. A. Zapara*
- 12:10 Production of Nanocrystalline Hydroxyapatite on Collagen  
Template During In Vivo Tooth and Bone Regeneration with Use  
of Collagen-Ca-Phosphate Preparations,  
*S. D. Litvinov and S. P. Gabuda*
- 12:30 Parametrical Modeling of Objects with Complex Structure and  
Compression Data of the Basis of Generative Models,  
*Gantsetseg Baljirsuren, Anna Kuznetsova and Vladimir Frolovsky*
- 13:10-14:20 **Lunch**

**Wednesday, July 23**

Afternoon Sessions: 14:20–15:20

**Plenary Session**

*Small Hall*

14:20–15:20      **On Coding Theory for DNA Sequences,**  
*Arkadii D'yachkov, Moscow State University*

16:00–19:00      **Trip to the City and Walk Excursion**  
*the Center of Novosibirsk*

19:00–23:00      **Gala Dinner,**  
*Paradise Banquet Hall*

**Thursday, July 24**

Morning Sessions: 9:00–12:50

**Plenary Session**

*Small Hall*

09:00 Consumer Communications and Networking: Riding the Wave of Disrupting Technologies, Presentation on Standards,  
*Alexander D. Gelman, NETovations Group*

**Education and e-learning**

*Small Hall*

10:10 Laboratory Test Benches Development for Engineer's Education,  
*Efim Baran, Andrew Kukhto, Ilya Marchenko and Sergey Cherkashin*

10:30 Web-Based E-Learning System in Electrical and Electronic Apparatus, *R. Grinberg, A. Kalashnikova, M. Riabchitsky, A. Godjello and Y. Rozanov*

10:50 Teaching Computer Science Using Visualization of the Evaluation Process, *Oleg V. Stukach*

11:10 **Coffee-break**

**Energy conversion, renewable energy and industrial applications**

*Small Hall*

11:30–12:50 Technologies for Distributed Power Generation and implementation issues, *Kaushik Rajashekara*

## Coding theory

Room 217

- 10:10 Code Construction Algorithm for Architecture Aware LDPC Codes with Low-Error-Floor, *Dariusz Kania and Wojciech Sulek*
- 10:30 Regenerator for Varshamov-Tenengolts-like Synchronization Error Correcting Codes, *Jacques A. Pienaar*
- 10:50 Linear Binary Completely Regular Codes with Distance 2, *Anastasia Vasil'eva*
- 11:10 **Coffee-break**
- 11:30 On New Quaternary Reed-Muller Codes, *Jaume Pujol, Josep Rifá, and Faina I. Solov'eva*
- 11:50 Design of Structured Irregular LDPC Codes, *Peter Trifonov*

## Interdisciplinary applications

Room 220

- 10:10 Composite Combinatorial Scheme of Test Planning (Example for Microprocessors), *Mark Sh. Levin and Alexey O. Merzlyakov*
- 10:30 Voice Verification Based on Nonlinear Ho-Kashyap Classifier, *Adam Dustor*
- 10:50 CAD Tools for Analysis of Process Variability Effects in Deep Submicron CMOS Circuits, *W. Kuzmicz, E. Piwowarska, A. Pfitzner and D. Kasprowicz*
- 11:10 **Coffee-break**
- 11:30 Results of Numerical Modeling of Seismic Wave Propagation in Nonlinearly Elastic Fractured Media, *G. M. Woskoboynikova*
- 11:50 The Interaction of Elastic Oscillations of Different Physical Nature, *M. S. Khairtdinov and G. F. Seduhina*
- 12:10 Stream-Handling Seismic Waves Detection and Recognition System, *Sergey Avrorov and Marat Khairtdinov*
- 12:30 Exceptional Bulk Acoustic Waves in Alpha-Quartz Single Crystal, *Rinat M. Taziev*

## Telecommunications and networks

Room 223

- 10:10 The Synchronization Problem in High Velocity Mobile Systems with Multipath Fading,  
*Alexei G. Vostretsov and Alexander S. Pavlov*
- 10:30 Statistical Analysis of Packet Delay in Ad-Hoc Networks of Mobile Robots, *Malgorzata Gadomska-Kudelska, Michal Kudelski and Andrzej Pacut*
- 10:50 Performance of Coded DMT System with Account for Temporal Dynamics of Impulsive Noise, *Alexander B. Sergienko, Maxim S. Sidorov and Eugene S. Kozhevnikov*
- 11:10 **Coffee-break**
- 11:30 Comparison of Time domain and Frequency Domain Equalizers for Indoor Ultra-Wideband Systems,  
*Umair bin Waheed, Waqas Abdullah and Adeel Razi*
- 11:50 Surface Acoustic Wave Properties in Ca<sub>3</sub>NbGa<sub>3</sub>Si<sub>2</sub>O<sub>14</sub> Single Crystal, *Rinat M. Taziev*
- 12:10 A Best Group Selection Algorithm to Maximize Capacity of MIMO Gaussian Broadcast Channels,  
*Amir Rastegarnia and Ali Aghagolzadeh*

12:50-14:20 **Lunch**

**Friday, July 25**

Morning Sessions: 9:00–12:50

09:00–12:50     **Visits to SB RAS Institutes and Museums**

13:10–14:20     **Lunch**

**Departure of Participants**