

The IV International Conference on Information Technology and Nanotechnology (ITNT-2018) takes place in Samara (Russia) from April 24th to 27th, 2018. The Conference intend to provide a forum for leading scientists from all over the world to discuss the latest advances in the basic and applied research in the field of Information Technology and Nanotechnology, attract young people to advanced scientific research, and share the latest trends in training and research programs for future ITNT specialists. The Conference is held with the financial support of the Russian Foundation for Basic Research.

Organizers



САМАРСКИЙ УНИВЕРСИТЕТ
SAMARA UNIVERSITY

Samara National Research University



Image Processing Systems Institute of RAS - branch of FSRC "Crystallography and Photonics" RAS

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Journal Information and Space



Journal Photonics

Conference Venue

The ITNT-2018 is held in the 1st building of the Samara National Research University.

Address: 151, Molodogvardeyskaya st., Samara, Russia

Conference topics

Section 1 - Computer Optics and Nanophotonics

- Diffraction Optics
- Planar Optical Structures
- Optical Imaging Systems
- Hyperspectral Imaging Systems
- Nanophotonics
- Fiber Optics

Section 2 - Image Processing and Earth Remote Sensing

- Digital Image Processing
- Visual Recognition and Retrieval
- Motion Analysis
- Scene Reconstruction
- Remote Sensing Image Processing and Analysis
- Multimedia Protection and Information Hiding
- Geoinformatics

Section 3 - Mathematical Modeling of Physico-Technical Processes and Systems

- Mathematical Modeling of Information Processes;
- Mathematical Modeling of Physical Processes and Phenomena;
- Mathematical Modeling of Technical Systems.

Section 4 - Data Science

- Data Mining
- Machine Learning
- Security, Cryptography
- High-Performance Computing

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Potaturkin O.I. – Prof., Institute of Automation and Electrometry, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia;
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Sobolev V.A. – Prof., Samara University, Samara, Russia;
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Yakunenкова D.M. – Image Processing Systems Institute of RAS – Branch of the FSRC “Crystallography and Photonics” RAS, Samara, Russia.

Conference Schedule

№	Sessions	April 24	April 25	April 26	April 27
1	Registration	9:00-17:00 Hall, 2 floor	9:00-14:00 Hall, 2 floor	9:00-14:00 Hall, 2 floor	
2	Plenary Session	9:30-13:30 room 212-1	9:30-13:30 room 212-1		9:30-11:20 room 212-1
3	Section 1 "Computer Optics and Nanophotonics"	16:30-18:00 room 209-1	14:30-16:00 room 209-1	14:30-18:00 room 209-1	11:40-12:55 room 209-1
4	Section 2 "Image Processing and Earth Remote Sensing"	16:30-18:00 room 204-1	14:30-16:00 room 204-1	14:30-18:00 room 204-1	11:40-12:55 room 204-1
5	Section 3 "Mathematical Modeling of Physico-Technical Processes and Systems"	16:30-18:00 room 121-1	14:30-16:00 room 121-1	14:30-18:00 room 121-1	11:40-12:55 room 121-1
6	Section 4 "Data Science"	16:30-18:00 room 220-1	14:30-16:00 room 220-1	14:30-18:00 room 220-1	11:40-12:55 room 220-1
6	Poster Session 1&3		16:00-18:00 Hall, 2 floor		
7	Poster Session 2&4				13:00-15:00 Hall, 2 floor
8	Youth School			9:30-13:30 room 212-1	
9	Closing Ceremony. Best Paper Award.				15:00-16:00 room 212-1

**Program of IV International Conference on Information Technology and
Nanotechnology (ITNT-2018)**

24 April (Tuesday)

9:00-17:00	Registration <i>Samara University, building 1, Hall, 2nd floor</i>
9:30	Opening of the Conference <i>room 212, building 1</i>
	Plenary Session (<i>room 212, building 1</i>)
9:40	Prof. Dieter Bimberg (Institute of Solid State Physics, Technical University Berlin, Germany) <i>Nanostructures for Flying q-bits and Green Photonics</i>
10:25	Prof. Saikh Safiul Islam (Jamia Millia Islamia, India) <i>Reduced graphene oxide: An wonderful material for Sensor Applications</i>
11:10	Dr. Sergey Archipov (Special Systems. Photonics, Russia) <i>Technological and measuring equipment for fiber optics and integrated photonics</i>
11:40	Coffee break
12:00	Prof. Michael Sobolewski (Polish Japanese Academy of IT, Poland) <i>Emergent Multifidelity Service Systems</i>
12:45	Dr. Elena Achimova (Institute of Applied Physics, Moldova) <i>Polarization holography for direct surface grating patterning on chalcogenide nanomultilayers</i>
13:30	Break
16:00	Coffee break
16:30 - 18:00	Oral Sessions

**Program of IV International Conference on Information Technology and
Nanotechnology (ITNT-2018)**

25 April (Wednesday)

9:00-14:00	Registration <i>Samara University, building 1, Hall, 2nd floor</i>
	Plenary Session (room 212, building 1)
9:30	Prof. Mukesh Singh Boori (Samara National Research University, Russia) <i>Space earth observation and it's applications</i>
10:10	Prof. Sergey Sazhin (University of Brighton, United Kingdom) <i>Modelling of sprays: recent results and future challenges</i>
10:55	Dr. David Asatryan (Russian - Armenian University, Armenia) <i>Gradient-Based Technique for Image Structural Analysis and Applications</i>
11:40	Coffee break
12:00	Dr. Eckart Michaelsen (Fraunhofer IOSB (Research Institute for Optronics, Systems and Image Processing), Germany) <i>Automation of Gestalt Perception on Remotely Sensed Data</i>
12:45	Dr. Sergey Yankin (COMSOL LLC, Russia) <i>Modern optical systems design using COMSOL Multiphysics®</i>
13:30	Break
14:30	Oral Sessions
16:00	Coffee break
16:00 - 18:00	Poster Session 1&3

**Program of IV International Conference on Information Technology and
Nanotechnology (ITNT-2018)**

26 April (Thursday)

9:00-14:00	Registration <i>Samara University, building 1, Hall, 2nd floor</i>
	Youth School (room 212, building 1)
9:30	Andrey Glaschenko (Haulmont, Russia) <i>Developing a commercially successful open source product</i>
10:10	Dr. Sergey Yankin (COMSOL LLC, Russia) <i>Best practices of optical modelling in COMSOL Multiphysics®</i>
11:40	Coffee break
12:00	Darya Korepova , Igor Lopatin (Intel, Russia) <i>Autonomous Driving and Artificial Intelligence powered by Intel</i>
13:30	Break
14:30	Oral Sessions
16:00	Coffee break
16:30 - 18:00	Oral Sessions

**Program of IV International Conference On Information Technology and
Nanotechnology (ITNT-2018)**

27 April (Friday)

	<i>Plenary Session (room 212, building 1)</i>
9:30	Dr. Artem Nikonorov (Samara National Research University, Russia) <i>Deep learning: typical application and unusual use cases</i>
10:05	Yann Donon (Samara National Research University, Russia) <i>Hybrid face recognition solution for security access</i>
10:35	Dr. Lijun Zhang (Zhejiang Sci-Tech University, China) <i>Solitary wave solutions of the perturbed mKdV equation</i>
11:20	Coffee break
11:40	Oral Sessions
13:00	Coffee break
13:00	Poster Session 2&4
15:00 - 16:00	Closing Ceremony. Best Paper Award

Section 1 - Computer Optics and Nanophotonics

Co-Chairs Roman Skidanov and Elena Achimova

Section secretary: Sofiya Ganchevskaya

24 April (Tuesday)

16:30	Veronika Blank, Roman Skidanov <i>Hyperspectrometer based on a harmonic lens with diffraction grating</i>
16:45	Elena Kozlova, Viktor Kotlyar and Dmitry Kozlov <i>Analysis of dielectric circular cylinder light spot narrowing by whispering gallery modes and influence of material absorption</i>
17:00	Safaa Hussein, Sergey Kharitonov and Vladimir Pavelyev <i>Calculation of the band structure of a nonchiral semiconductor and metallic carbon nanotubes</i>
17:15	Elena Kadomina, Evgeni Bezus and Leonid Doskolovich <i>Low-scattering Bragg gratings for surface plasmon polaritons</i>
17:30	Anna Skidanenko, Leon Avakyan, Maximilian Heinz and Lusegen Bugaev <i>The method of structural study of aggregates of plasmonic gold nanoparticles by Uv/visible spectroscopy</i>
17:45	Ekaterina Aldebeneva, Sergey Kharitonov, Vladimir Pavelyev, Nikolay Kazanskiy and Vadim Davydenko <i>Simulation of the carbon nanotubes band structure on a supercomputer based with ab initio methods</i>

25 April (Wednesday)

14:30	Artem Turov, Nikolay Balbekin, Maksim Kulya and Nikolay Petrov <i>Method for increasing the view field of THz holograms</i>
14:45	Vladimir Podlipnov, Roman Skidanov and Veronika Blank <i>Experimental study and calibration of the imaging hyperspectrometer based on the Offner scheme</i>
15:00	Mariya Shishova, Dmitriy Lushnikov, Alexander Zherdev and Nikita Stsepuro <i>Diffraction gratings applied in interferometric linear displacement encoders</i>
15:15	Andrey Rastorguev, Sergey Kharitonov and Nikolay Kazanskiy <i>Modeling and estimation of permissible technological errors in the arrangement of optical elements for the hyperspectrometer according to the Offner's scheme</i>
15:30	Fedor Sidorov, Mark Bruk, Eugene Zhikharev and Alexander Rogozhin <i>Fabrication of microlens arrays and planar photonic crystals using thermal amplification of resist</i>
15:45	

26 April (Thursday)

14:30	Sofiya Ganchevskaya and Roman Skidanov <i>Modified method of direct laser writing radially symmetric structures.</i>
14:45	Michael Kovalev, Paul Ruchka and Nikita Stsepuro <i>Discrete representation of holograms of halftone objects</i>
15:00	Peter Zavyalov, Elena Zhimuleva, Leonid Finogenov, Maxim Kravchenko, Mark Savchenko, Vladimir Karlin and Alexey Beloborodov <i>Using diffractive optical elements to inspection the geometric parameters of industrial products</i>
15:15	Yulia Khristoforova, Ivan Bratchenko, Dmitry Artemyev, Oleg Myakinin, Alexandr Moryatov, Oleg Kaganov, Sergey Kozlov and Valery Zakharov <i>Multivariate analysis of skin neoplasms AF and Raman spectroscopy features</i>
15:30	Vladimir Burdin, Anton Bourdine, Oleg Morozov, Artem Kuznetsov and Anton Yudakov <i>In-fiber device for modes division</i>
15:45	Denis Kudryashov Formation, development and features of the promotion of the English-language special issues of the journal "Computer Optics"
16:00	Coffee break
16:30	Pavel Khanevich, Sergey Odinkov, Sergey Donchenko and Sergey Semishko <i>Development and results of an experimental study to the angle guidance algorithm for optical reading device system for holographic memory</i>
16:45	Igor Glukhov and Sergey Moiseev <i>Optical generation in an amplifying photonic crystal with metal nanoparticles</i>
17:00	George Krasin, Michael Kovalev, Sergey Odinkov, Artem Solomashenko and Yury Fedotov <i>Optical wave fields measurement by digital holography methods</i>
17:15	Sergey Stafeev, Anton Nalimov, Maria Kotlyar, Liam O'Faolain and Victor Kotlyar <i>Binary subwavelength gratings for polarization control</i>
17:30	Vladimir Sokolov <i>For the Jubilee of Professor Nikolay L. Kazanskiy</i>
17:45	Vladimir Sokolov <i>The anniversary of 25 years of the of the Image processing systems institute of the Russian academy of sciences</i>

27 April (Friday)

11:40	Vladimir Khomutov and Ruslan Shimansky <i>Error correction of the angular coordinate of circular laser writing systems in the diffraction structures manufacture with arbitrary topology</i>
11:55	Maxim Galkin, Pavel Nosov, Mikhail Kovalev and Nina Verenikina <i>Calculation and analysis of the laser beam field distribution formed by a real optical system</i>
12:10	Anastassiya Kireeva and Rudenok Igor <i>Special wave solutions in the theory of waves of a mixed spectrum in planar gradient bianisotropic nanocrystalline structures</i>
12:25	Baryshev Stepan, Alexey Kuznetsov and George Krasin <i>Magnetic information sensing based on magneto optic plasmonic nanostructure</i>
12:40	Vladislava Bulgakova, Vasily Gerasimov, Boris Goldenberg and Aleksei Lemzyakov <i>Terahertz localized surface plasmons on subwave metal structures</i>

Section 2 - Image Processing and Earth Remote Sensing

Co-Chairs Vladislav Myasnikov and Valeriy Labunets

Section secretary: Victor Fedoseev

24 April (Tuesday)

16:30	Valeriy Labunets, Victor Chasovskikh and Ekaterina Osthaier <i>Multiparameter Golay m-complementary sequences and transforms</i>
16:45	Valeriy Labunets, Victor Chasovskikh and Ekaterina Osthaier <i>Multiparameter Golay 2-complementary sequences and transforms</i>
17:00	Pavel Chochia <i>Image Objects Detection with Local Topological Characteristics, Forming by Two-Dimensional Variations</i>
17:15	Evgeny Myasnikov <i>Nonlinear dimensionality reduction of hyperspectral images based on spectral angles and exploiting the spatial context</i>
17:30	Anna Smagina, Denis Shepelev, Egor Ershov and Anton Grigoryev <i>Obstacle Detection Quality as Problem-Oriented Approach to Stereo Vision Algorithms Estimation in Road Situation Analysis</i>
17:45	Konstantin Kiy <i>An Image Understanding System Based on Geometrized Histograms Method: Finding the Sky in Road Scenes</i>

25 April (Wednesday)

14:30	Mikhail Lange and Sergey Ganebnykh <i>Group Decision Schemes for Classification with Reject in Ensemble of Image Sources</i>
14:45	Alexander Karkishchenko and Valeriy Mnukhin <i>On eigenvectors of the discrete Fourier transform over finite Gaussian fields</i>
15:00	Sergey Rylov and Igor Pestunov <i>Fast hierarchical clustering of multispectral images and its implementation on NVIDIA GPU</i>
15:15	Anatolii Leukhin <i>Detection of moving targets in SAR</i>
15:30	Michael Khachay and Maxim Pasynkov <i>Fingerprint image segmentation using neural networks</i>
15:45	Dmitry Murashov and Fedor Murashov <i>Method for Localizing Informative Regions in Images of Paintings</i>

26 April (Thursday)

14:30	Andrey Kuznetsov and Vladislav Myasnikov <i>New scheme for fast copy-move detection</i>
14:45	Andrey Gaidel <i>Methods of polynomial feature matching for textual images</i>
15:00	Ivan Konovalenko <i>Error values analysis for inaccurate projective transformation of a quadrangle</i>
15:15	Vladimir Mokshin, Ildar Saifudinov, Pavel Tutubalin and Leonid Sharnin <i>Analysis of the model for highlighting notable structures in the solving problem of object detection in an image</i>
15:30	Natalya Vorobiova and Andrei Chernov <i>Comparing Bayesian classifier and a method based on algorithm for calculating estimates for crop identification by time-series Terra/MODIS 250 m</i>
15:45	Mukesh Boori, Rustam Paringer, Komal Choudhary, Alexander Kupriyanov and Rukmini Banda <i>Comparison in hyperspectral and multi-spectral remote sensing data for land cover classification in Samara, Russia</i>
16:00	Coffee break
16:30	Ekaterina Serkova, Ivan Yakimchuk and Ilia Safonov <i>Image-based method for porosity analysis of proppant particles</i>
16:45	Pavel Pahomov, Alexander Borusyak, Dmitry Vasin and Vadim Turlapov <i>Context method of lossless compression of RGB- and multispectral images</i>
17:00	Pavel Pahomov, Alexander Borusyak and Vadim Turlapov <i>Investigation of noisy channels of the hyperspectral image by the method of empirical modes with the purpose of its compression</i>
17:15	Nikita Andriyanov and Konstantin Vasiliev <i>Use autoregressions with multiple roots of the characteristic equations to image representation and filtering</i>
17:30	Konstantin Vasiliev, Vitaly Dementiev and Nikita Andriyanov <i>Analysis of the efficiency of satellite image sequences filtering</i>
17:45	Fedor Kornilov, Denis Perevalov, Victor Kostousov and Andrei Popel <i>Digital surface model generation from satellite stereo imagery</i>

27 April (Friday)

11:40	Alexander Tashlinskii and Galina Safina <i>Optimization of recurrent algorithms for parameters estimation of image interframe geometrical deformations by the convergence rate of parameter estimates</i>
11:55	Anna Denisova, Andrey Kuznetsov and Nikolay Glumov <i>The technology of agricultural fields remote sensing images segmentation using morphological profiles</i>
12:10	Artyom Makovetskii, Sergei Voronin and Vitaly Kober <i>A fast total variation regularization algorithm for 2D piecewise constant radially symmetric functions</i>
12:25	Rukmini Banda and Mukesh Boori <i>Hyperspectral imaging in remote sensing satellites modeling of hyperspectral imaging system and compensation of data for atmospheric effects</i>
12:40	Radik Magdeev and Aleksandr Tashlinskiy <i>Objects identification accuracy for binary images</i>

**Section 3 - Mathematical Modeling of Physico-Technical Processes
and Systems**

Co-Chairs Sergei Sazhin and Vladimir Sobolev

Section secretary: Aleksei Archibasov

24 April (Tuesday)

16:30	Oleg Strashko, Ilja Kuznecov, Victor Dorofeev, Dmitriy Gocev <i>The mathematical model of characteristics of the convective unstable atmosphere taking into account microphysical processes in clouds</i>
16:45	Katerina Makoviy, Dmitriy Proskurin, Yuliya Khitskova, Yaroslav Metelkin <i>A comparison of linear programming and the genetic algorithm approaches to the problem of optimizing the server hardware resources for hosting virtual desktops</i>
17:00	Mikhail Stepanov, Andrew Stepanov <i>Mathematical modelling of intelligent self-organizing systems: implementation of the mechanism of action planning</i>
17:15	Andrey Solovyov, Mikhail Semenov, Peter Meleshenko <i>Stabilization of inverted pendula system in presence of elastic bonds</i>
17:30	Svetlana Korabelshchikova, Boris Melnikov, Svetlana Pivneva, Larisa Zyablitseva <i>Linear error correcting codes and their application in DNA analysis</i>
17:45	Grigory Voronkov, Igor Kuznetsov, Pavel Filatov, Albert Sultanov, Anna Voronkova, Irina Vinogradova <i>Signals and messages differential transformation research for increasing multichannel systems efficiency</i>
18:00	Vladimir Nozhkin, Mikhail Semenov, Igor Ulshin <i>A stochastic model of the moisture motion in the atmosphere</i>

25 April (Wednesday)

14:30	Dmitry Myasnikov, Konstantin Semenikhin <i>Control of a queuing system with hidden Markov state</i>
14:45	Mikhail Stepanov, Andrew Stepanov, Almira Salikhova <i>The means of the GAMMA-3 system for the synthesis and mathematical modelling of the UAV trajectory control systems in the Earth remote sensing problems</i>
15:00	Leniza Enikeeva, Irek Gubaydullin and Sergey Khursan <i>Numerical modeling of intramolecular transformations of orto-substituted aromatic nitroxides</i>
15:15	Irina Timina, Eugene Egov, Anton Romanov <i>Application of the anomaly pattern in forecasting time series of project activity metrics</i>
15:30	Alexander Kuznetsov <i>Probabilistic properties of quasi-optimal trajectories of an agent moving over a lattice</i>
15:45	Garnik Karapetyan, Heghine Petrosyan <i>About the solvability of regular hypoelliptic equations in \mathbb{R}^n</i>

26 April (Thursday)

14:30	Zhe Dong, Yuriy Zabolotnov, Changqing Wang <i>Mathematical modeling and analysis of motion of low-orbital space tether system</i>
14:45	Konstantin Khramov, Vladimir Romashov <i>Mathematical modeling of operational modes of high-speed DACs</i>
15:00	Innokentiy Semushin, Julia Tsyganova <i>Off-the-beaten-path Solutions for Decomposition-based Zero-forcing Precoding in xDSL Multi-user Downlinks</i>
15:15	Kamila Koledina, Sergey Koledin, Irek Gubaydullin <i>Interrelation between single-cycled catalytic reaction objective functions optimization and multi-cycled production on a basis of a kinetic model</i>
15:30	Alexey Magazev, Valeria Tsyrunnik <i>Optimizing the selection of information security remedies in terms of one Markov security model</i>
15:45	Yuri Kropotov, Aleksander Proskuryakov, Aleksey Belov <i>Wavelet processing of time series to improve the accuracy of information representation</i>
16:00	Coffee break
16:30	Mikhail Tsaryov, Dmitrii Kraus <i>Reduction of the computational complexity of pseudogradient estimation of image parameters algorithms for a priori optimization of the local samples volume</i>
16:45	Vladimir Nozhkin, Mikhail Semenov, Igor Ulshin <i>A stochastic model of the moisture motion in the atmosphere (Moved to Oral Session at 24 April)</i>
17:00	Mikhail Matveev, Alexey Kopytin, Ekaterina Sirota <i>Combined method for identifying the parameters of a distributed dynamic model</i>
17:15	Vitaly Chernik <i>Mathematical methods for holographic mask with layered structure synthesis</i>
17:30	Peter Meleshenko, Olga Reshetova, Akim Tolkachev <i>Sine-Gordon system with hysteretic nonlinearity</i>
17:45	Joseph Knapik, Roman Gallyamov, Valeriy Ovchinnikov, Kseniya Volkova, Evgeniy Avdeev <i>F1 Car - Front Wing CFD Analysis and Optimization</i>

27 April (Friday)

11:40	Ilfat Bainazarov, Ilnur Akhmetov, Yuliya Lavrentieva <i>Mathematical model of process of production of phenol and acetone from cumene hydroperoxide</i>
11:55	Vjacheslav Zakharov, Sergei Shalagin, Bulat Eminov <i>Representation of Markovs functions on the minimal polynomials over a finite field</i>
12:10	Victor Zhidchenko, Alexander Kovartsev, Heikki Handroos, Iuliia Malysheva <i>Digital twin for faster than real-time simulation of mobile crane operations</i>
12:25	Yuriy Kropotov, Nataliya Holkina, Aleksander Proskuryakov, Dmitriy Beilekchi <i>Identification and estimation parameters of acoustic signals in telecommunication systems of audio exchange</i>
12:40	Alexey Golubkov, Andrey Tsyganov, Julia Tsyganova <i>Adaptive estimation of an object motion parameters based on the hybrid stochastic model</i>

Section 4 - Data Science

Co-Chairs *Vladimir Fursov and Michael Sobolewski*

Section secretary: *Yegor Goshin*

24 April (Tuesday)

16:30	Igor Bychkov, Alexander Feoktistov, Ivan Sidorov, Alexei Edelev, Sergey Gorsky and Roman Kostromin <i>Agent learning based on the parameter adjustment of their algorithms for distributed computing management</i>
16:45	Alexandr Zhukov, Olga Krasotkina, Valentina Sulimova, Vadim Mottl and Anatoly Markov <i>Featureless rail flaw recognition using ultrasonic testing</i>
17:00	Dmitry Samoilov, Valentina Semenova and Sergei Smirnov <i>Fractality of the object's properties existence constraints in machine learning</i>
17:15	Irina Khaimovich and Vladimir Ramzaev <i>Development of data model for production active elements functioning on the basis of information interaction</i>
17:30	Labunets Valeriy and Osthaimer Ekaterina <i>Cryptosystems based on RS and BCH codes over finite noncommutative algebras</i>
17:45	Oleg Shipitko and Anton Grigoryev <i>Gaussian filtering for FPGA based image processing with High-Level Synthesis tools</i>

25 April (Wednesday)

14:30	Ekaterina Orlova <i>Fuzzy model for support investment decisions under risk</i>
14:45	Olga Sushkova, Alexei Morozov and Alexandra Gabova <i>An investigation of specificity of features of early stages of Parkinson's disease obtained using the method of cortex electrical activity analysis based on wave trains</i>
15:00	Stanislav Kalyulin and Vladimir Modorskii <i>Computational and experimental modeling of icing processes by means of PNRPU high-performance computational complex</i>
15:15	Yury Obukhov and Renata Tolmacheva <i>An Innovative Approach for EEG Phase Coherency Evaluation During Cognitive Tests</i>
15:30	Ilnur Akhmetov and Irek Gubaydullin <i>Information-analytical system for modeling chemical-technological processes using parallel computations</i>
15:45	Vladimir Mokshin, Ildar Saifudinov, Leonid Sharnin, Mikhail Trusfus and Pavel Tutubalin <i>A parallel genetic algorithm of feature selection for analysis of complex systems</i>

26 April (Thursday)

14:30	Oksana Mandrikova, Nadezhda Fetisova and Yury Polozov <i>Method for the analysis of ionospheric parameter and the detection of ionospheric anomalies in the tasks of online data processing</i>
14:45	Aleksey Filippov, Vadim Moshkin, Anton Zarubin and Albina Koval <i>The applying of syntagmatic patterns for the development of question-answer systems</i>
15:00	Marat Enikeev, Marina Maleeva and Leniza Enikeeva <i>Machine learning in the problem of recognition of pitting corrosion on aluminum surfaces</i>
15:15	Boris Melnikov, Elena Melnikova, Svetlana Pivneva, Nadezhda Churikova, Vladislav Dudnikov and Mikhail Prus <i>Multi-heuristic and game approaches in search problems of the graph theory</i>
15:30	Konstantin Barkalov and Victor Gergel <i>High performance computing for global optimization problems</i>
15:45	Igor Isaev, Sergey Burikov, Tatiana Dolenko, Kirill Laptinskiy and Sergey Dolenko <i>Improving the resilience of neural network solution of inverse problems in Raman spectroscopy of multi-component solutions of inorganic compounds to the distortions caused by frequency shift of the spectral channels</i>
16:00	Coffee break
16:30	Svetlana Korabelchshikova, Igor Vasilishin, Dzamal Sultanov and Michail Pugin <i>Using component-wise functions in cryptographical transformation algorithm from Russian National Standard GOST R 34.12-2015</i>
16:45	Vladimir Rozaliev, Yulia Orlova, Nikita Nikitin and Aleksey Alekseev <i>Sound generation based on image color spectrum with using the recurrent neural network</i>
17:00	Olga Vasilchuk, Aleksandr Nechitaylo, Dmitrii Savenkov and Kseniia Vasilchuk <i>The Creation of Scalable Tools for Solving Big Data Analysis Problems Based on the MongoDB Database</i>
17:15	Iлона Kulikovskikh and Sergej Prokhorov <i>A method of implicit regularization based on the phenomena of retrieval-induced forgetting (RIF)</i>
17:30	Alexander Shirokanev, Nataly Ilyasova and Rustam Paringer <i>A smart feature selection technique for segmentation of fundus images</i>
17:45	Denis Zherdev and Vladimir Procudin <i>HPC implementation of radar images modelling method using CUDA</i>

27 April (Friday)

11:40	Mikhail Osipov and Vladislav Andreev <i>The problem of monitoring of movement in the task of navigation in enclosed spaces</i>
11:55	Mikhail Geras'kin <i>Analysis of the influence of citizens' altruism on the effectiveness of the socially optimal actions stimulation system</i>
12:10	Maria Sapozhnikova, Maya Gayanova, Alexey Vulfin, Andrey Nikonov and Artem Chuykov <i>Processing of big data in the transaction monitoring systems</i>
12:25	Ruslan Isaev and Aleksandr Podvesovskii <i>Application of time series analysis for structural and parametric identification of fuzzy cognitive models</i>
12:40	Aleksandr Anatolievich Kolpakov and Yuriy Kropotov <i>Development of a model for predicting the performance of a heterogeneous computer system in telecommunications</i>

Poster Session 1
25 April (Wednesday)
16:00-18:00, Hall, 2nd floor

Section 1 - Computer Optics and Nanophotonics

- S1.1 **Vladimir Abramov, Dmitriy Klyuev, Dmitry Mishin and Oleg Osipov**
The optical waves propagation in planar periodic inhomogeneous chiral structures
- S1.2 **Eugene Bashkirov and Maria Guslyannikova**
Entanglement between artificial atoms and photons of lossless cavities
- S1.3 **Eugene Bashkirov, Anatoly Vorobiev and Alexander Gorokhov**
Calculation of the information transfer from one node to another one in the theory of quantum networks on the basis of generalized Tavis-Cummings models
- S1.4 **Veronika Blank, Roman Skidanov and Vladimir Podlipnov**
A dual-range diffraction grating for imaging hyperspectrometr based on the Offner scheme
- S1.5 **Lidiia Bolbasova**
Calculations of efficiency of adaptive optical system for atmospheric turbulence compensation
- S1.6 **Anton Bourdine, Dmitry Artemyev, Ivan Bratchenko, Alexander Evtushenko, Vadim Kazakov, Ivan Karptsov, Michaile Kartashov, Anastasia Lykina, Julia Litvinova and Valery Zakharov**
Development of alternative fiber optic Raman probes based on optical fibers with written precision micro-structure defects
- S1.7 **Ali Butt and Sergey Degtyarev**
Asymmetric double high mesa slot waveguide to enhance the light confinement in a 90° sharp bend
- S1.8 **Sergey Degtyarev and Svetlana Khonina**
Forming and focusing of fractional-order cylindrical beams with subwavelength gratings
- S1.9 **Alexey Dzyuba**
Wavefront recognition by the image of intensity in the focal plane based on the convolutional neural networks
- S1.10 **Sergey Fomchenkov**
Modeling and manufacture of an interference filter with a defective layer for narrow spectral selection
- S1.11 **Maxim Gaponov, Vitold Pozhar, Aleksandr Machikhin and Sergey Shirokov**
Preliminary testing of acousto-optical hyperspectrometer for UAV
- S1.12 **Anna Glazkova and Maria Zablovskaya**
Astigmatic transformation of the Bessel beam and the Gauss–Laguerre beam

- S1.13 **Nikita Golovastikov, Dmitry Bykov, Evgeni Bezus and Leonid Doskolovich**
Three-layer diffraction structure for spatiotemporal differentiation of optical signals
- S1.14 **Arseny Golovin and Anatoly Demin**
Optical-digital complex for remote mine detection and mapping of minefields
- S1.15 **Alina Gornostay**
Mathematical models of image formation from the eye with diffractive intraocular lens
- S1.16 **Alexander Gorokhov and Andrey Kryukov**
Symmetry and quantum control of Rydberg atoms dynamics
- S1.17 **Vladimir Saleev and Alexandra Shipilova**
Modeling of photoelastic properties of Lithium Niobate crystal in the density functional theory
- S1.18 **Roman Sergeev and Michael Osipov**
Processing of images of speckle interferograms for determining the temperature coefficient of linear expansion
- S1.19 **Artem Kapustin**
DOEs for white light based on Bragg gratings with defect layer
- S1.20 **Sergei Karpeev, Martin Rojas and Vyacheslav Pararin**
Tunable generator of radially and azimuthally polarized Bessel beams based on the interference polarizer
- S1.21 **Vladimir Kazakevich, Pavel Kazakevich, Pavel Yaresko and Daria Kamynina**
The synthesis of metallic nanoparticles by laser ablation in heavy water method
- S1.22 **Sergey Kharitonov, Svetlana Khonina, Nikolay Kazanskiy and Yury Strelkov**
Simulation of radiation propagation in curvilinear optical lightguides using the method of variables separation
- S1.23 **Pavel Khorin**
Modeling of photoelastic properties of Lithium Niobate crystal in the density functional theory
- S1.24 **Mikhail Kirilenko and Sergey Volotovskiy**
Calculation of the axially symmetric eigenfunctions of the finite propagation operator in the near-field diffraction
- S1.25 **Victor Kotlyar and Anton Nalimov**
Engineering a sector-variant high-numerical-aperture micrometalens
- S1.26 **Victor Kotlyar, Alexey Kovalev and Alexey Porfirev**
Controlling the orbital angular momentum of Gaussian vortices by shifting the point of phase singularity
- S1.27 **Svetlana Kotova, Aleksandra Mayorova, Evgeny Pozhidaev and Sergey Samagin**
Simulation of spatial phase light modulators based on the ferroelectric liquid-crystals

- S1.28 **Elena Kozlova, Victor Kotlyar and Alexandra Savelyeva**
Laser light focusing by microcylinder with two metallic shells
- S1.29 **Stanislav Krasnov and Sergey Kharitonov**
Research of the passage of mode pulses in a waveguide with a one-dimensional diffraction grating
- S1.30 **Anton Krents and Nonna Molevich**
Transverse patterns in broad-area lasers with anisotropy
- S1.31 **Natalya Latukhina, Daria Lizunkova, Vyacheslav Paranin and Galina Rogozhina**
The influence of technological parameters on the optical properties of photosensitive structures based on porous silicon
- S1.32 **Michael Limov, Michael Osipov, Natalia Znamenshchikova, Dmitry Gnutov and Alexey Linkov**
Processing the output signal from the speckle interferometer on a single speckle under the impact of noise
- S1.33 **Anastasia Lykina, Dmitry Artemyev, Vladimir Kukushki, Ivan Bratchenko, Nikolay Aleksandrov and Valery Zakharov**
Raman spectroscopy for kidney tissue and its neoplasms research
- S1.34 **Andrei Mezhenin, Yuliya Kurenkova and Anastasiya Rymzhina**
Diagnostic stand for quality control of diffractive optical element manufacturing
- S1.35 **Natalya Moiseeva and Anton Moiseev**
Matrix WKB solution for electromagnetic waves in an inhomogeneous gyrotropic medium
- S1.36 **Evgeny Monin and Sergey Volotovskiy**
Modelling of distribution of circular beams of light in parabolic fiber
- S1.37 **Serguei Murzin, Maxim Blokhin and Sergei Afanasiev**
Pulse-periodic laser action to create an ordered heterogeneous structure based on copper and zinc oxides
- S1.38 **Serguei Murzin, Gerhard Liedl, Robert Pospichal and Alexey Melnikov**
Study of the action of a femtosecond laser beam on samples of a Cu-Zn alloy
- S1.39 **Liudmila Naiden, Ivan Tsyganov, Sergey Odinokov and Vasily Kolyuchkin**
Investigation of the method of forming multicolored images reconstructed from protective holograms
- S1.40 **Vladimir Pavelyev, Andrei Mezhenin, Nishant Tripathi, Yuliya Kurenkova and Prabhash Mishra**
Sensitive element of CNT-based IR-sensor
- S1.41 **Vladimir Podlipnov and Vsevolod Kolpakov**
Investigation of the annealing of CdTe films in an off-electrode plasma for photovoltaics

- S1.42 **Dmitry Savelyev**
Transformation of a Gaussian vector beam by an axicon with a subwave period
- S1.43 **Vladimir Saleev, Aleksandra Shipilova and Arthur Ernst**
Ab-initio modeling of structure stability and optical properties of perovskite CsPbI(3-x)Clx depending on chlorine doping level
- S1.44 **Ekaterina Seledkina, Anatoly Demin and Anton Ekimenko**
Development of a hologram optical element for a lidar
- S1.45 **Lyudmila Shamina, Ivan Bratchenko, Dmitry Artemyev, Yuliya Khristoforova, Vladimir Grishanov, Dmitry Kornilin and Valeriy Zakharov**
Analysis of correlation between Raman and autofluorescence human skin response in visible and NIR region
- S1.46 **Artur Shilov, Sergei Miheev, Alexandr Sotsky, Maxim Nazarov, Luidmila Sotskaya, Kazbek Bzheumikhov and Zaur Margushev**
Photonic crystal fibers formed by air channels with a corrugated boundary
- S1.47 **Yaroslav Skidanov and Svetlana Khonina**
Research of the possibilities of increasing the resolution of optical systems in the presence of aberrations based on amplitude apodization
- S1.48 **Larisa Stepanova and Vadim Dolgikh**
Interference-optical methods (digital photoelasticity method) for multi-parameter crack tip description: experimental determination of coefficients of the Williams asymptotic expansion
- S1.49 **Yury Strelkov and Ali Butt**
Modeling of a Fabry-Perot filter based on TiO₂ and air gap by using a E and H polarization wavefront decomposition method
- S1.50 **Mohammad Talib and Prabhash Mishra**
A high performance optical detector using TiS₃ nanoribbons
- S1.51 **Andrey Ustinov**
Analytical features of the extended Airy beams
- S1.52 **Vadim Vasilev**
Calculation and modeling of harmonic lenses with variable height microrelief
- S1.53 **Vadim Vasilev and Vladimir Podlipnov**
Investigation of the possibility of using birefringent crystals for the formation of inhomogeneously polarized laser beams
- S1.54 **Tatiana Yakovleva**
Nonlinear filtration of rician data as a tool for the phase measurements: the aspects of theory
- S1.55 **Elizaveta Yarunova, Anton Krents and Nonna Molevich**
Impact of time-delayed feedback on optical field dynamics in cavity with nonlinear metamaterial

- S1.147 **Ruslan Kutluyarov, Vladimir Lyubopytov, Valeriy Bagmanov and Albert Sultanov**
Influence of the modulation format on the nonlinear impairments in space division multiplexed systems
- S1.148 **Maria Dorofeeva**
Vector algorithm of FDTD method
- S1.149 **Dmitry Kuzmin, Alexander Betin and Sergey Odinokov**
Investigation of the exposure characteristics of Photo-Thermo- Refractive glasses to the recording of holographic and diffraction gratings was studied
- S1.150 **Maxim Novopashin, Ekaterina Zimina and Alexander Shmid**
Cloud technologies in the problems of mathematical analysis of cardiological information

Section 3 - Mathematical Modeling of Physico-Technical Processes and Systems

- S1.56 **Stanislav Abulhanov, Nikolay Kazanskiy, Dmitriy Goryainov, Yury Strelkov**
The effect of roughness and deformation of the reflecting surfaces of the LED spotlight on its lighting performance
- S1.57 **Ayna Agataeva**
Analysis of the threshold phenomena in a dynamic model of a fuel spray ignition
- S1.58 **Igor Anikin, Khaled Alnajjar**
Increasing the quality of pseudorandom number generator based on fuzzy logic
- S1.59 **Igor Anikin, Khaled Alnajjar**
Studying the relationship between linguistic variables and the degrees of primitive polynomials used in pseudo-random number generator based on fuzzy logic
- S1.60 **Gennady Anshakov, Vadim Salmin, Konstantin Peresyarkin, Alexey Chetverikov, Ivan Tkachenko and Zhang Tongtong**
Optimization of the diffraction lenses design parameters for the prospective project of the observation spacecraft
- S1.61 **Gennady Anshakov, Vadim Salmin and Vladimir Volotsuev**
Mathematical models for maintaining a low orbit of a spacecraft through the electrically reactive engines with allowance for power limitations
- S1.62 **Aleksei Archibasov, Andrei Korobeinikov**
Models of viral dynamics with random mutation
- S1.63 **Valery Bagmanov, Elizaveta Grakhova, Guzel Abdrakhmanova**
Ultra wideband vortex antenna array design for high capacity radio links
- S1.64 **Mikhail Balabaev**
Flow curvature method applied to the burning problem
- S1.65 **Eugene Bashkirov, Anatoly Vorobiev**
Entanglement between two dipole-coupled qubits interacting with a detuned thermal field

- S1.66 **Eugene Bashkirov**
Entanglement between two Rydber atoms successively interacting with a detuned cavity field
- S1.67 **Oksana Belova, Larisa Stepanova**
Estimation of crack propagation direction angle under Mixed-mode loading (Mode I and Mode II): generalized fracture mechanics criteria and atomistic modeling (molecular dynamics method)
- S1.68 **Valery Berdnikov, Jakob Mostovoi**
Analytical and numerical modeling of clusters of objects in a random environment
- S1.69 **Valery Berdnikov, Jakob Mostovoi**
Statistical modeling of a large network of nanosatellites
- S1.70 **Alexander Biryukov, Yana Degtyareva, Mark Shleenkov**
The modeling of multiphoton ionization by path integral approach
- S1.71 **Alexander Biryukov, Mark Shleenkov**
Entangled state lifetime of qubits in external fields calculation by path integral approach
- S1.72 **Igor Blatov, Elena Kitaeva**
Convergence of algorithms for adapting computational grids for elliptic singularly perturbed boundary value problems
- S1.73 **Igor Blatov, Boris Lihtsinder**
On the estimation of queue lengths when processing stationary series in queueing systems with arbitrary correlation
- S1.74 **Yuliya Bobreneva, Ainur Mazitov, Irek Gubaydullin**
Mathematical modeling of fluid flow processes in the fracture-porous reservoir
- S1.75 **Valery Bogdanovich, Mikhail Giorbelidze**
Development of the disperse powder material motion mathematical model in the boundary layer of plasma flow during plasma spraying
- S1.76 **Valery Bogdanovich, Mikhail Giorbelidze**
Development of the powder melting mathematical model in the technology of selective laser melting
- S1.77 **Michael Bolotov, Vadim Pechenin, Nikolay Ruzanov**
Prediction of the geometric parameters of products assemblies using neural network models
- S1.78 **Nikolay Bystrov, Irina Zhukova**
Estimation of signal-to-clutter-plus-noise ratio in presence of clutter clipping
- S1.79 **Alexander Chekashov, Olga Starinova, Bakhyt Alipova, Irina Gorbunova**
Modeling of solar sail surface oscillations during interplanetary flight
- S1.80 **Andrey Danilov, Nikita Andriyanov, Pavel Azanov**
Ensuring the effectiveness of the taxi order service by mathematical modeling of its work
- S1.81 **Elena Demyanenko, Alexandr Epifanov, Igor Popov**
Simulation of plastic forming process by variation of geometric parameters

- S1.82 **Pavel Dyshlovenko, Anastasia Batanova**
Energy and elastic constants of a charge-stabilized colloidal crystal with body-centered cubic lattice
- S1.83 **Alexandr Epifanov, Elena Demyanenko, Igor Popov**
Simulation of the deformation process taking into account the elastic comeback effect
- S1.84 **Julia Ermoshkina**
The investigation of stability in a model of the spread of viruses
- S1.85 **Maksim Fain, Olga Starinova**
Mathematical modeling of the space tug transfers between the Lagrange points of the Earth-Moon system
- S1.86 **Azamat Faskhutdinov, Ilnur Akhmetov, Alena Musina**
Increase resource efficiency of the catalytic isomerization process by mathematical modeling
- S1.87 **Natalia Firstova**
Effect of random perturbations on critical phenomena in a dynamic model of an electrochemical reaction
- S1.88 **Julia Gerasimova**
Parallel algorithm of spline-based wavelet transform
- S1.89 **Dmitriy Gocev, Gennadii Zibrov, Vadim Zakusilov, Ilja Kuznetcov**
The mathematical model of stability of lining a vertical mine shaft to ensure environmental safety of production
- S1.90 **Sofia Gogoleva**
Preconditioning based on LU-decomposition in iterative methods for solving systems of linear algebraic equations with sparse matrices
- S1.91 **Oleg Golovnin, Tatyana Mikheeva**
Attribute-driven Network-centric Urban Transport Process Control System Modeling
- S1.92 **Yury Gorelov, Lyubov Kurganskaya, Vitaly Yurin**
Optimal scanning for curvilinear routes and geometrically complex area of sensing using optoelectronic observation equipment
- S1.93 **Yury Gorelov**
To the problem of optimum allocation of a physical control resource for a separate dynamic systems
- S1.94 **Boris Gorlach, Alena Mukhametzyanova**
Mathematical Modeling of Metal Forming Processes
- S1.95 **Igor Grigoryev, Svetlana Mustafina**
Simulation of the polymerization process of butadiene per neodymium catalytic system
- S1.96 **Dmitriy Ivanov, Ilya Sandler, Natalia Chertykovtseva**
Identification of dynamic errors-in-variables bilinear systems of fractional order
- S1.97 **Igor Kartashevskiy**
The model of the kernel of the Lindley integral equation based on selective functions

- S1.98 **Roman Khabibullin, Olga Starinova**
Mathematical modelling of the solar sail spacecraft three-dimensional motion in heliocentric coordinate system
- S1.99 **Maxim Khomenko, Fikret Mirzade**
Numerical investigation of capillary and thermocapillary phenomena at laser cladding
- S1.100 **Galina Klimashova, Alexandr Kovarcev**
Rules for the formation of initial approximations of the conformations of the atoms of Morse clusters on the basis of a geometrically grounded method
- S1.101 **Joseph Knapik, Roman Gallyamov, Valeriy Ovchinnikov, Kseniya Volkova, Evgeniy Avdeev**
LMP1 Hybrid car - analysis and optimization
- S1.102 **Alexander Kobrin, Vladimir Sobolev**
Decomposition of non-holonomic mechanics models
- S1.103 **Sergey Koledin, Kamila Koledina, Irek Gubaydullin**
Heterogeneous catalytic reactions conditions optimization
- S1.104 **Darya Kuznetsova**
Reduction of virus evolution model
- S1.105 **Olga Kuznetsova, Natalia Dodonova**
Theoretical and game model for the limited resource distribution in the public procurement market
- S1.106 **Vladislav Lyubimov**
Modeling of the Induced Resonant Torques during the Motion of an Asymmetric Spacecraft in the Atmosphere
- S1.107 **Natalja Moiseeva, Anton Moiseev, Igor Rudenok**
The WKB 4x4 method for an inhomogeneous chiral layer
- S1.108 **Olga Mossoulina**
Modeling of the random texture surface based on self-similar structures
- S1.109 **Oleg Naumov**
Modeling the process of deployment of the space tether system using parallel algorithms
- S1.110 **Vladimir Nesterov**
The concept of vector multicomponent physical quantities and its application
- S1.111 **Oleg Nikitin, Petr Polushin**
The oppression of intersymbol interference by logical predistortion of transmitted signals
- S1.112 **Elizaveta Nikolaeva, Olga Starinova**
Simulation of a system protect Earth from asteroid hazard by kinetic interceptor
- S1.113 **Sergey Novikov, Mariya Fedina**
Equiangular tight frames in sparse signal processing
- S1.114 **Liana Nurislamova**
Numerical simulation of gas flow dynamics of propane pyrolysis

- S1.115 **Oleg Pavlov**
Dynamic models of production activity planning in projects for the development of new products
- S1.116 **Vadim Pechenin, Nikolay Rusanov, Michail Bolotov**
Model and software module for predicting uncertainties in coordinate measurements in the NX OPEN API
- S1.117 **Mikhail Piganov, Vladimir Maklashov**
Simulation of ultrawideband embedded multilayer RF filters embedded in a printed circuit board
- S1.118 **Mikhail Piganov, Dmitriy Novomeyskiy**
Process modeling of adjustment of thick film resistors by method of flare discharge
- S1.119 **Ruslan Pikalov, Vladimir Aslanov**
Rendezvous of two spacecraft in LEO with use tether
- S1.120 **Igor Rastorguev, Dmitriy Surkov**
Modeling of atmospheric convection using remote sensing data
- S1.121 **Darya Rogach**
Stability of measurable vectors for phaseless reconstruction
- S1.122 **Nikolay Ruzanov, Michael Bolotov, Vadim Pechenin**
Model for estimating the error in measuring geometric parameters of complex surfaces
- S1.123 **Sergey Safronov, Ivan Tkachenko, Sergey Volgin**
Solution of the problem of remote sensing small spacecraft onboard equipment integration through mathematical and simulation modeling of its operation
- S1.124 **Kristina Saigak**
Modeling and analysis of electrodynamic rope system motion in near-earth orbit
- S1.125 **Vadim Salmin, Ksenia Petrukhina and Alexander Kvetkin**
Modeling of control processes of spacecraft orbits with low-thrust engines
- S1.126 **Vitalii Semin, Andrei Pavelev**
Simulation of non-Markovian dynamics of dipole-dipole interacting atoms
- S1.127 **Elena Shchepakina, Vladimir Sobolev**
Cheap control for quadrupler
- S1.128 **Elena Shchepakina**
Invariant surface with the change of stability in a neuron activity model
- S1.129 **Ekaterina Shchetinina**
Stability loss delay in a system with self-excited oscillations
- S1.130 **Darya Sigaeva, Ravil Uzyanbaev, Ilnur Akhmetov**
Mathematical modeling of highly stable oils with high viscosity index
- S1.131 **Iliia Stepanenko, Vadim Pechenin, Nikolay Ruzanov, Alexander Khainovich**
Technique of increasing the accuracy of GTE parts manufactured by selective laser melting
- S1.132 **Larisa Stepanova**
Asymptotic methods and their applications in nonlinear fracture mechanics

- S1.133 **Elena Tropkina**
Effective order reduction method based on parametrization of slow invariant manifolds
- S1.134 **Aleksandr Tsarev, Alexander Privalov**
Investigation of the effect of the mobility characteristics of DTN network nodes with the hybrid mobility model
- S1.135 **Vera Turkova, Larisa Stepanova**
Finite element analysis of the biaxial cyclic tensile loading of the elasto-plastic plate with the central hole: asymptotic states
- S1.136 **Pavel Tutubalin, Natalya Arutyunova, Elena Komissarova**
Model of analysis of sustainable management of information security of a distributed information system
- S1.137 **Pavel Tutubalin, Vladimir Mokshin, Elena Komissarova, Natalya Arutyunova**
The approach to concealing data in a distributed system
- S1.138 **Andrey Tyugashev**
On use of Satisfiability modulo theories approach for evaluation of Real-Time spacecraft control logic
- S1.139 **Inessa Useinova**
Stability of equilibria of cancer treatment by chemotherapy model
- S1.140 **Natalya Voropaeva, Olga Vidilina**
The optimal control problem for magnetolectric actuator
- S1.141 **Mikhail Vovdenko, Salikh Gabitov, Kamila Koledina, Emil Ahmerov, Alexander Sannikov**
Mathematical modeling of isopropylbenzene oxidation reaction and oxidation reactor
- S1.142 **Changqing Wang, Yuriy Zabolotnov**
Modeling and analysis of the process of forming a vertical tether group of nano-satellites
- S1.143 **Valery Zakharov**
Mathematical modeling of Fiber optic electric field sensor with FBG-based electret
- S1.144 **Valeriy Zasov, Evgeniy Nikonorov**
Stabilization of the solution of the inverse problem of separation of signals on the basis of parameters of the stability path of the solution
- S1.145 **Vladimir Zelenskiy, Artyom Shchodro**
Simulation of oil-gaz separator operation
- S1.146 **Ramil Zhabbarov**
Quasilinearization method for the solution to the problem of plate with central circular hole under creep regime

Poster Session 2

27 April (Friday)

13:00-15:00, Hall, 2nd floor

Section 2 - Image Processing and Earth Remote Sensing

- S2.1 **Anton Agafonov and Vladislav Myasnikov**
Autonomous vehicles routing in time-dependent transportation networks
- S2.2 **Anton Agafonov**
An algorithm for public transport departure time estimation on the basis of operation strategies
- S2.3 **Nikita Andriyanov and Vitaly Dementiev**
Application of mixed models of random fields for the segmentation of satellite images
- S2.4 **Sergej Belov**
Detection of changes of characteristics of the scattering Ability of superficial and subsurface structures of the earth in the short-wave range of radio waves.
- S2.5 **Aleksandr Borodinov and Vladislav Myasnikov**
Target recognition on SAR images based on a convolutional neural network
- S2.6 **Ruslan Brezhnev, Yuriy Maglinets, Ksenia Raevich and Gennady Tsibulskii**
Modelling of spatial objects of agricultural purpose with an inhomogeneous dynamically changing spatial structure
- S2.7 **Komal Choudhary, Mukesh Boori and Alexander Kupriyanov**
Remote sensing investigation of inundation, elevation and land use assessment in Moscow state, Russia
- S2.8 **Sergey Denisov and Mikhail Gashnikov**
Comparative study of hierarchical and differential methods of image compression
- S2.9 **Anna Denisova, Andrey Kuznetsov and Nikolay Glumov**
The technology of agricultural fields remote sensing images segmentation using morphological profiles (Moved to Oral Session)
- S2.10 **Alexandra Dunaeva and Fedor Kornilov**
Building detection from satellite multispectral images using a digital surface model
- S2.11 **Nadezhda Evdokimova and Vladislav Myasnikov**
Detecting forgery of image time series based on the anomalies detection
- S2.12 **Anastasia Evstiforova and Anna Denisova**
The research of soil characteristics influence on the results of regression modeling of winter wheat yield using NDVI vegetation index
- S2.13 **Victor Fedoseev**
Hyperspectral satellite image classification using small training data from its own territory
- S2.14 **Mikhail Gashnikov and Aleksey Maksimov**
Parameterization of the nonlinear predictor invariant to four directions contours for digital image compression
- S2.15 **Mikhail Gashnikov**
Interpolation based on NEDI for image compression based on HGI

- S2.16 **Mikhail Gashnikov**
Use of ACF models for interpolation of images for compression on the basis of HGI
- S2.17 **Elizaveta Goncharova and Andrey Gaidel**
Greedy algorithms of feature selection for multiclass image classification
- S2.18 **Oleg Goriachkin and Alex Borisenkov**
Imaging in bistatic sar P and VHF bands with high spatial resolution
- S2.19 **Vladimir Gridin, Maxim Truphanov and Vladimir Solodovnikov**
Hippocampus detection and calculation of its characteristics in magnetic resonance imaging of the brain
- S2.20 **D.V. Karasev, Anatolii Leukhin, V.I. Bezrodny, A.A. Voronin, K.V. Andreev, A.N. Ivanov**
Polarization SAR system
- S2.21 **Ludmila Kavelenova, Evgeny Korchikov, Nataly Prokhorova, Anna Denisova, Darya Terentyeva and Victor Fedoseev**
Concerning the detection and ecological state evaluation of protective forest belts basing on complex ground survey and remote sensing data processing
- S2.22 **Angelina Kharchevnikova and Andrey Savchenko**
Convolutional Neural Networks in age/gender video-based recognition
- S2.23 **Yuri Kovalev, Kirill Kuptsov, Sergey Ereemeev and Dmitriy Andrianov**
Algorithm for encoding nD spatial objects into GIS
- S2.24 **Victor Krasheninnikov, Larisa Trubnikova, Olga Malenova, Anna Yashina, Marina Albutova and Olga Marinova**
Algorithm for detecting block-like cracks in facies of human biological fluids
- S2.25 **Dmitrii Kraus, Roman Kovalenko and Alexander Tashlinskiy**
Prediction of probability of estimations improvement on iterations of pseudo-gradient estimation of image parameters
- S2.26 **Igor Kudinov, Oleg Pavlov, Ivan Kholopov and Mikhail Khramov**
Real-time multispectral video panorama construction
- S2.27 **Maria Kudrina and Vadim Mishenev**
Wave skeletonization algorithm of raster images
- S2.28 **Yaroslav Kulkov and Sultan Sadykov**
Recognition of the imposed flat objects on dimensionless marks of their contours
- S2.29 **Ekaterina Kurbatova**
Edge detection of objects on the satellite images
- S2.30 **Anatolii Leukhin, A.A. Rozentsov, Vladimir Bezrodnyy, A.A. Voronin, D.Yu. Karasev, N.A. Kokovichina**
3D synthetic aperture radar image
- S2.31 **Artem Lukoyanov, Dmitriy Nikolaev and Ivan Konovalenko**
Modification of YAPE keypoint detection algorithm for wide local contrast range images
- S2.32 **Stella Lyasheva, Mikhail Medvedev, Mikhail Shleyovich and Vladimir Mokshin**
The analysis of image characteristics on the base of energy features of the wavelet transform

- S2.33 **Artyom Makovetskii, Sergei Voronin, Vitaly Kober, Aleksei Voronin and Dmitrii Tihonkih**
Approximation of the exact solution of point clouds registration based on point-to-plane approach for orthogonal transformations
- S2.34 **Kseniya Medvedeva**
Comparison of the low-frequency Butterworth filter with radial-symmetric SE-filter
- S2.35 **Oleg Melsitov, Violetta Sherendak, Semyon Konovalov and Oleg Myakinin**
Automatic Malignant Melanoma recognition using a Dermatoscopy Imaging Tool
- S2.36 **Alexei Morozov and Olga Sushkova**
A Virtual Machine for Low-Level Video Processing in Actor Prolog
- S2.37 **Alexei Morozov and Olga Sushkova**
On the Development of Methods and Algorithms Based on Object-Oriented Logic Programming for Video Monitoring of Laboratory Rats
- S2.38 **Sergey Mosin, Evgeny Dremov and Sergey Miroshnichenko**
Aircrafts' Localization and Classification on Remote Sensing Data with Convolution Neural Networks
- S2.39 **Alexander Naumov, Alexander Machikhin and Alexey Gorevoy**
Three-dimensional imaging of hard-to-reach objects by means of stereoscopic endoscopic probes
- S2.40 **Anatoly Novikov, Aleksey Efimov and Dmitry Kolchaev**
3D images superimposition in aviation vision systems
- S2.41 **Varvara Petrova**
Adaptation of face recognition systems to operating conditions using Simulink
- S2.42 **Yuliya Podgornova and Sultan Sadykov**
Detection of malignant breast tumors on the background of fibrocystic breast disease
- S2.43 **Stepan Potapov, Alexander Kupriyanov and Rustam Paringer**
Investigation of the segmentation of remote sensing images using the Kruskal method and the search for the same segments using perceptive hashing technology
- S2.44 **Denis Privezentsev, Arcady Zhiznyakov and Egor Pugin**
Development of fuzzy fractal representation of the image
- S2.45 **Vladimir Rozaliev, Yulia Orlova, Alexander Vybornyi and Aleksey Alekseev**
Program for controlling the correctness of physical exercises
- S2.46 **Alexey Ruchay, Konstantin Dorofeev and Vladimir Kolpakov**
Fusion of information from multiple Kinect sensors for 3D object reconstruction
- S2.47 **Alexey Ruchay, Konstantin Dorofeev and Anastasia Kober**
Accurate reconstruction of the 3D indoor environment map with a RGB-D camera based on multiple ICP
- S2.48 **Alexey Ruchay, Konstantin Dorofeev and Anastasia Kober**
Accuracy analysis of 3D object reconstruction using RGB-D sensor
- S2.49 **Mikhail Semyonov and Evgeny Myasnikov**
A comparison of iris image segmentation techniques
- S2.50 **Vladislav Sergejev and Aleksey Maksimov**
Comparison of optimum reconstruction filters for discrete and continuous-discrete linear observation models

- S2.51 **Ekaterina Serkova, Iliia Safonov, Ivan Yakimchuk and Victoria Evstefeeva**
Unsupervised segmentation of ceramic proppant particles in 3D microCT images
- S2.52 **Ruslan Sharapov**
Using spatial-temporal maps for visualization of the karst development dynamics
- S2.53 **Lubov Shiripova, Olga Strukova and Evgeny Myasnikov**
Gait analysis for person recognition using principal component analysis and support vector machines
- S2.54 **Anastasiia Sokolova and Andrey Savchenko**
Data organisation in video surveillance systems using deep learning technologies
- S2.55 **Natalia Sorokina and Victor Fedoseev**
Spatio-Temporal Image Slices for Frame Cut Detection in Video
- S2.56 **Marina Turkova and Andrey Gaidel**
Correlative features for the classification of textural images
- S2.57 **Anna Varlamova and Andrey Kuznetsov**
Image splicing localization based on CFA artifacts analysis
- S2.58 **Pavel Volkhin, Violetta Sherendak and Oleg Myakinin**
A moving compensation algorithm for hyperspectral imaging
- S2.59 **Natalya Vorobiova and Andrei Chernov**
Comparing Bayesian classifier and a method based on algorithm for calculating estimates for crop identification by time-series Terra/MODIS 250 m (Moved to Oral Session)
- S2.60 **Sergey Voronov, Ilya Voronov and Roman Kovalenko**
Comparative analysis of stochastic optimization algorithms for image registration
- S2.61 **Yuliya Vybornova**
Application of spatial interpolation methods for restoration of partially defined images

Section 4 - Data Science

- S2.62 **Igor Anikin**
Information Security Risks Assessment and Management Framework
- S2.63 **Lev Antonov, Alexey Orlov and Astafiev Alexander**
Algorithm for detecting the latent mastitis state of animals in a dairy farms on the based of data fusion from different types sensors
- S2.64 **Andrey Armer, Vadim Moshkin and Natalia Krasheninnikova**
The phonetic composition of the recognized speech recovery using lexical ontology
- S2.65 **Nikolay Artamonov and Pavel Yakimov**
Applying of the NVIDIA Jetson mobile platform in the classification of traffic signs in a continuous video stream using the YOLO CNN
- S2.66 **Alexandr Astafiev, Alexey Orlov and Timofey Shardin**
Development of methods and algorithms for multicode labeling data mining for the prediction and prevention of emergency situations during transportation in the movement control systems of industrial products
- S2.67 **Alexandr Astafiev, Alexey Orlov, Dmitry Popov and Maxim Pshenichkin**
Methods of RFID data processing in intelligent systems for the identification and movement control of industrial products

- S2.68 **Samal Bezenova and Tatiana Avdeenko**
The research of fuzzy decision trees building based on entropy and the theory of fuzzy sets
- S2.69 **Anna Belyakova, Denis Privezenecv and Sultan Sadykov**
Algorithms for individual assessment of future changes in heart condition
- S2.70 **Alexander Bukatov, Danil Polukarov, Nicolay Zaitsev and Andrei Sukhov**
Searching for ways to improve the quality of VoIP connections
- S2.71 **Liliia Butymova and Vladimir Modorskii**
Dependence analysis of 2FSI subsystem parameters on the centrifugal compressor labyrinth seal diameter in the gas transmittal unit
- S2.72 **Pavel Chursin and Danil Polukarov**
The analysis of interconnection in ad-hoc networks
- S2.73 **Nikita Davydov and Alexander Khramov**
Myocardial infarction detection using wavelet analysis of ECG signal
- S2.74 **Maria Dorofeeva**
Vector algorithm of FDTD method (Moved to Poster Session 1)
- S2.75 **Elvira Fatkhutdinova and Vladimir Fursov**
The technology of correction of dynamic distortions on mobile devices
- S2.76 **Vladimir Fursov, Andrey Gavrilov, Yegor Goshin and Kirill Pugachev**
The technology of image matching by the criterion of conformity of image fragments samples
- S2.77 **Evgenia Gambarova, Vladislav Bakaev, Nina Olinder, Aleksandr Blagov and Maksim Naumov**
Analysis of the personal information from social networks to solve the problems of criminology
- S2.78 **Viktoria Giorgashvili and Maxim Bakaev**
Methods for Rebuilding Incomplete Data in Online Labor Market Monitoring
- S2.79 **Marina Golova, Michael Boyarkin, Konstantin Bychenkov and Artem Nikonorov**
Recognition an overlap of objects to increase an accuracy of ToF-tracking in augmented reality systems
- S2.80 **Yegor Goshin and Alexandra Kukleva**
Estimation of monocular camera motion parameters as the cosine distance minimization problem
- S2.81 **Katalina Grigorova, Elena Malysheva and Kaloyan Mironov**
Applying process mining techniques and neural networks to creating and assessment of business process models
- S2.82 **Olga Gubareva, Oleg Osipov, Vladimir Pugin and Andrey Pocheptsov**
The using of fractal measures to network state monitoring and probabilistic network attack type determination
- S2.83 **Valeriia Guryanova**
Ensemble of algorithms for coronary heart disease detection based on electrocardiogram
- S2.84 **Murat Guzairov, Arkadii Frid, Alexey Vulfin and Viktoriya Berkholts**
Simulation modeling of the system for transmitting telemetric information about the state of on-board airborne systems

- S2.85 **Anton Ivaschenko, Natalya Ilyasova, Anastasia Khorina, Vladislav Isayko, Daniil Krupin, Viktor Bolotsky and Pavel Sitnikov**
Integration Issues of Big Data Analysis on Social Networks
- S2.86 **Irina Khaimovich, Vadim Chumak and Vladimir Ramzaev**
Modeling data for the analysis of the correspondence of cities in the Volga region to the digital state format
- S2.87 **Vladislav Klyuev and Aleksandr Kupriyanov**
Implementation and comparison of algorithms for building decision trees for the tasks of object classification
- S2.88 **Anton Kotov and Vladimir Fursov**
Computing RPC using robust bucketing for automatic selection of GCPs
- S2.89 **Anton Kotov, Yegor Goshin and Alexandra Kukleva**
Implementation of quaternion-based method for intrinsic camera parameters estimation using NVIDIA Jetson platform
- S2.90 **Aleksander Kovartsev and Daria Popova-Kovartseva**
Parallel Algorithm of Morse clusters Global Optimization based on the Strongin method
- S2.91 **Sergei Kozlov and Sergey Malakhov**
The use of neural networks for geolocation in service car sharing
- S2.92 **Irina Kozlova and Dmitry Sheverev**
The development of a virtual laboratory based on Unreal Engine 4
- S2.93 **Natalia Kravtsova, Rustam Paringer and Alexander Kupriyanov**
Research of the informative features generation method for for various types of features
- S2.94 **Kirill Kuptsov, Yuri Kovalev and Sergey Ereemeev**
A research of classification algorithm of spatial information on the basis of methods of persistent homology and random forest
- S2.95 **Viktoriya Kutikova, Artem Nikonorov and Evgeniy Minaev**
Multiple object tracking based on convolutional neural network and fractal analysis
- S2.96 **Nataliia Limanova and Maksim Sedov**
Method, algorithm and software for fuzzy search in databases
- S2.97 **Konstantin Lovtsov, Evgeny Sagatov and Andrei Sukhov**
Secure Routing in the Russian Internet Segment
- S2.98 **Maksimilian Khotilin, Rustam Paringer, Igor Rytsarev and Natalia Kravtsova**
Development and analysis of methods for selecting objects in an image
- S2.99 **Oksana Mandrikova, Timur Zalyaev and Bogdana Mandrikova**
Analysis of the dynamics of cosmic rays on the basis of neural networks
- S2.100 **Boris Melnikov and Vladislav Dudnikov**
The problem of pseudo-optimal placement of a graph on a plane
- S2.101 **Boris Melnikov, Elena Melnikova and Svetlana Pivneva**
Some new heuristic algorithms in analysis of the similarity of DNA-sequences
- S2.102 **Rostislav Mikherskii, Dmitriy Polyanchuk and Maxim Isaev**
Software implementation of the encryption algorithm based on random numbers with non-uniform distribution

- S2.103 **Evgeniy Minaev**
Implementation of fractal image compression for mobile platforms
- S2.104 **Roman Mishanov**
The application of Kohonen Self-Organizing Maps for the classification of the electronic components and reliability improvement of onboard equipment
- S2.105 **Nikita Morunov**
Implementation of the finite-difference method for solving Maxwell's equations in MATLAB language on a GPU
- S2.106 **Marina Murtazina and Tatiana Avdeenko**
The Ontology-driven approach to Support the Requirements Engineering Process in Scrum Framework
- S2.107 **Natalya Ivakhno, Sergey Zikin and Sergey Antsibor**
Method for processing data from the respiratory system in determination of beginning of inspiration / expiration in the apparatus for treating sleep apnoe
- S2.108 **Andrey Nikonov, Maya Gayanova, Alexey Vulfin and Maria Sapozhnikova**
Development of the Structure of the Knowledge Base for Neuro-Fuzzy Diagnostic System
- S2.109 **Maxim Novopashin, Ekaterina Zimina and Alexander Shmid**
Cloud technologies in the problems of mathematical analysis of cardiological information (Moved to Poster Session I)
- S2.110 **Yury Obukhov, Konstantin Obukhov and Sergey Nikitov**
Metric Classification of Traumatic Brain Injury Epileptiform Activity from Electroencephalography Data
- S2.111 **Mikhail Osipov and Oleg Chekodaev**
Automation of 3D modeling of urban environment according to attributive information from a digital map
- S2.112 **Igor Piyakov, Dmitry Rodin, Marina Rodina and Alexey Telegin**
Numerical simulation of the ion focusing process in a dust impact time of flight mass spectrometer
- S2.113 **Alexey Piyakov, Dmitry Rodin, Marina Rodina, Alexey Telegin and Sergey Kondratiev**
Simulation of the control system of the electrodynamic accelerator of dust particles
- S2.114 **Vladislav Plakhov and Alexander Blagov**
Calculation and forecasting of the financial condition of the university on the basis of data analysis
- S2.115 **Alexander Popov**
Research of classical and distributed approaches to solve the problem of detecting vehicles
- S2.116 **Kirill Pronchuk and Pavel Yakimov**
Web service development for road signs recognition based on convolutional neural networks
- S2.117 **Anvar Ramazanov, Klara Tagirova, Alexey Vulfin and Andrey Nikonov**
Architecture of information storage of the intelligent oil well control system
- S2.118 **Igor Rytsarev, Alexander Blagov and Maximilian Khotilin**
Development and implementation of services to collect social networking data in order to improve the human environment

- S2.119 **Igor Rytsarev, Alexander Kupriyanov and Dmitriy Kirsh**
Clustering of images of social networks using BigData technology
- S2.120 **Olga Sarmanova, Sergey Burikov, Sergey Dolenko, Igor Isaev, Kirill Laptinskiy, Neeraj Prabhakar, Jessica Rosenholm and Tatiana Dolenko**
Monitoring of the excretion of theranostic fluorescent nanocomposites out of the body by artificial neural networks
- S2.121 **Serdyukov Konstantin and Tatiana Avdeenko**
Method of application the genetic algorithm for automatic generation of test data
- S2.122 **Ekaterina Sharapova and Ruslan Sharapov**
The problem of fuzzy duplicate detection of large texts
- S2.123 **Alexander Shevchenko**
Fingerprint-vector as a descriptor of the coordination figure
- S2.124 **Zaur Shibzukhov, Mukhamed Kazakov and Dmitriy Dimitrichenko**
Minimization of robust sum of loss functions
- S2.125 **Sofia Timofeeva, Dmitry Sarkisyan, Nataliya Alzinskaya and Andrei Sukhov**
Development of a network access system in the event of emergency situations of natural and technogenic nature using cluster analysis
- S2.126 **Anastasiiia Timofeeva, Tatiana Avdeenko, Ekaterina Makarova and Marina Murtazina**
Combined use of correlation measures in the task of selecting concepts in the construction of ontology
- S2.127 **Victor Tsvetov**
Dual ordered structures of binary relations
- S2.128 **Valeriy Labunets and Ekaterina Ostheimer**
Linear codes invariant with respect to generalized shift operators
- S2.129 **Sergei Vostokin and Irina Kazakova**
Implementation of stream processing using the actor formalism for simulation of distributed insertion sort
- S2.130 **Denis Yablokov**
Using universal data model in materials science for storing crystal-chemical information
- S2.131 **Liudmila Yablokova and Dimitriy Golovashkin**
Block algorithm for the joint difference solution of the d'Alembert and Maxwell equations
- S2.132 **Pavel Yakimov**
Development of augmented reality module for surgical planning system
- S2.133 **Anna Yankovskaya and Artem Yamshanov**
Usage of Parallel Computations for Irredundant Diagnostic Tests Construction Task
- S2.134 **Nadezhda Yarushkina, Vadim Moshkin and Aleksey Filippov**
Development of an fuzzy knowledge base based on context analysis of problem area
- S2.135 **Alexander Yumaganov and Vladislav Myasnikov**
Searching for similar code sequences in executable files based on the structural analysis of functions
- S2.136 **Denis Zherdev and Pavel Hripunov**
Personal data segmentation based on conjugation index usage