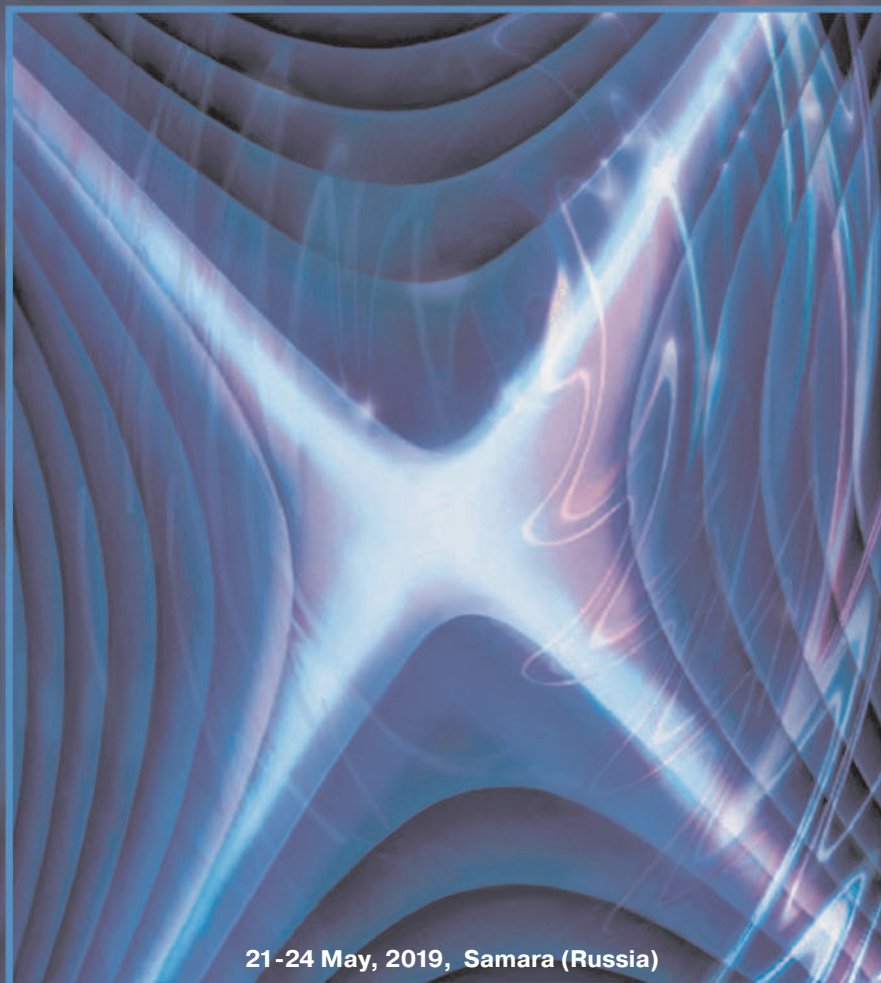


**V INTERNATIONAL CONFERENCE ON
INFORMATION TECHNOLOGY AND NANOTECHNOLOGY**



PROGRAM OF ITNT - 2019



21-24 May, 2019, Samara (Russia)

The V International Conference on Information Technology and Nanotechnology (ITNT-2019) takes place in Samara (Russia) from May 20th to 24th, 2019. The Conference intends 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.

Organizers



Samara National Research University named after S.P. Korolev (Samara University)



Image Processing Systems Institute – Branch of the Federal Scientific Research Centre “Crystallography and Photonics” of the Russian Academy of Sciences (IPSI RAS- branch of FSRC "Crystallography and Photonics" RAS)

Sponsors



AZIMUTH PHOTONICS

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LLC Locus



LLC Computer Technologies

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Journal Photonics

Conference Venue

The ITNT-2019 is held in the 1st building of the Samara University.

Address: Molodogvardeyskaya st. 151, 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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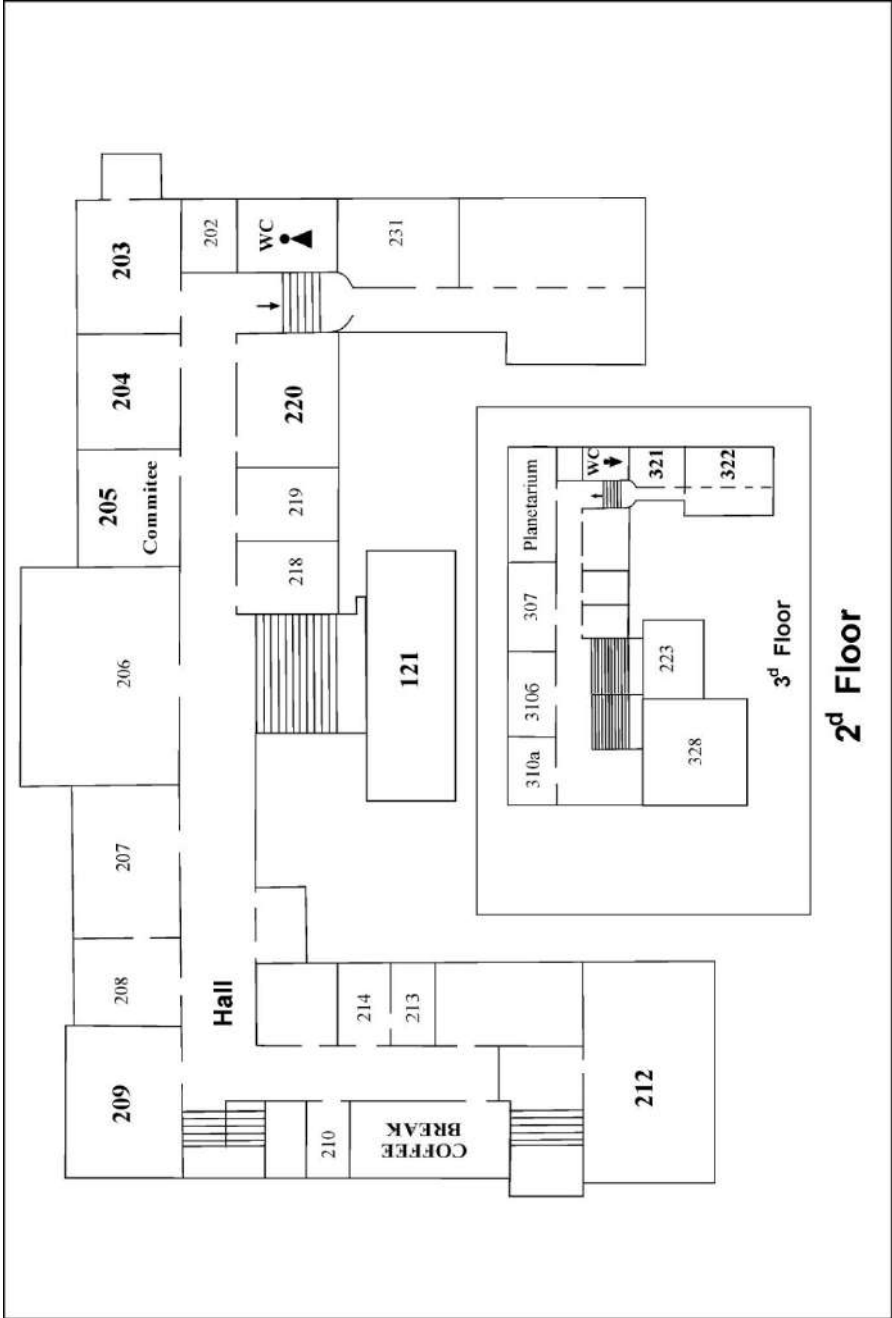
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D.M. Yakunenkova – IPSI RAS - branch of FSRC "Crystallography and Photonics" RAS, Samara, Russia.

Conference Schedule

Sessions	May 20	May 21	May 22	May 23	May 24
Registration	11:00-17:00 Hall, 1 floor	9:00-17:00 Hall, 1 floor	9:00-14:00 Hall, 1 floor	9:00-14:00 Hall, 1 floor	
Opening Ceremony		9:30-10:00 212			
Plenary Session		10:00-11:30 212, 209	9:15-11:30 212, 209	9:15-11:30 212, 209	9:15-11:30 212, 209
Section 1 "Computer Optics and Nanophotonics"	12:00-18:00 Excursions	12:00-17:00 Track 1: 209	12:00-16:30 Track 2: 209 Track 3: 321	12:00-14:00 Track 4: 209 Track 5: 321	12:00-17:00 Excursions
Section 2 "Image Processing and Earth Remote Sensing"	12:00-18:00 Excursions	12:00-18:00 Excursions	12:00-14:00 Track 1: 212 14:00-16:30 Track 2: 212	12:00-14:00 Track 3: 212	12:00-14:00 Track 4: 212
Section 3 "Mathematical Modeling of Physico-Technical Processes and Systems"	12:00-18:00 Excursions	12:00-17:00 Track 1: 121 Track 2: 321	12:00-17:00 Track 3: 121	12:00-20:00 Excursions	12:00-14:00 Track 1: 121 Track 2: 321
Section 4 "Data Science"	12:00-18:00 Excursions	12:00-17:00 Track 1: 212 12:00-14:00 Track 2: 220	12:00-18:00 Excursions	12:00-14:00 Track 2: 204 Track 3: 220	12:00-14:00 Track 4: 204 Track 5: 220
Poster Session 1&3			16:30-18:30 Hall, 2-3 floors		
Poster Session 2&4					15:00-17:00 Hall, 2-3 floors
Workshops		12:00-17:00 NVidia: 204 12:00-17:00 Intel: 322	12:00-17:00 Intel: 204 12:00-17:00 Tinkoff: 203		
Closing Ceremony. Best Paper Award.					17:00-18:00 212



Plan of the building

**Program of V International Conference on Information Technology and
Nanotechnology (ITNT-2019)**

21 May (Tuesday)

9:00-17:00	Registration <i>Samara University, building 1, Hall, 1st floor</i>		
9:30-10:00	Opening of the Conference <i>building 1, room 212</i>		
10:00-11:30	Plenary Session <i>building 1, room 212, room 209-1</i>		
10:00	Prof. Shinji Hayashi (Kobe University, Kobe, Japan) <i>Realization and control of Fano resonances in multilayer systems</i>		
10:45	Prof. Sergey A. Nikitov (Kotelnikov Institute of Radioengineering and Electronics of RAS, Moscow, Russia) <i>Magnonics: from gigahertz to terahertz</i>		
11:30-12:00	Coffee break		
	Workshops		
12:00-17:00	Ivan Chernenkiy (Teacher Assistant, Bauman Moscow State Technical University, Nvidia Certified Instructor) <i>Fundamentals of Deep Learning for Computer Vision</i> building 1, room 204	Dr. Dmitry Sivkov (Software Engineer, Intel) <i>Intel® Software tools : practical workshop for scientists and developers - Optimize your code with Intel tools</i> building 1, room 322	
	Oral Sessions		
12:00-14:00	<i>Section 1 "Computer Optics and Nanophotonics"</i> Track 1: room 209	<i>Section 3 "Mathematical Modeling of Physico-Technical Processes and Systems"</i> Track 1: room 121 Track 2: room 321	<i>Section 4 "Data Science"</i> Track 1: room 212 Track 2: room 220
14:00-15:00	Lunch break		
	Oral Sessions		
12:00-14:00	<i>Section 1 "Computer Optics and Nanophotonics"</i> Track 1: room 209	<i>Section 3 "Mathematical Modeling of Physico-Technical Processes and Systems"</i> Track 1: room 121 Track 2: room 321	<i>Section 4 "Data Science"</i> Track 1: room 212

**Program of V International Conference on Information Technology and
Nanotechnology (ITNT-2019)**

22 May (Wednesday)

9:00-14:00	Registration <i>Samara University, building 1, Hall, 1st floor</i>		
9:15-11:30	Plenary Session <i>building 1, room 212, room 209-1</i>		
9:15	Prof. Sergei Sazhin (University of Brighton, Brighton, United Kingdom) <i>Modelling of sprays: simple solutions to complex problems</i>		
10:00	Prof. Yashar Azizian-Kalandaragh (University of Mohaghegh Ardabili, Ardabil, Iran) <i>Structured Light and its Applications in Microscopy and Optical trapping</i>		
10:45	Sergey Tiraspolsky (Huawei Technologies Co., Ltd., Nizhny Novgorod, Russia) <i>HUAWEI - Russian Research Institute. In front of Challenges</i>		
11:30-12:00	Coffee break		
12:00-17:00	Workshops		
	Dr. Dmitry Sivkov (Software Engineer, Intel) <i>Intel® Software tools : practical workshop for scientists and developers - Optimize your code with Intel tools</i> building 1, room 204	Dr. Andrey Ivanov (adTech Department Chief, Tinkoff.ru) <i>Vowpal Wabbit Tutorial - Time to Market</i> building 1, room 203	
12:00-14:00	Oral Sessions		
	<i>Section 1 "Computer Optics and Nanophotonics"</i> Track 2: room 209 Track 3: room 321	<i>Section 2 "Image Processing and Earth Remote Sensing"</i> Track 1: room 212	<i>Section 3 "Mathematical Modeling of Physico-Technical Processes and Systems"</i> Track 3: room 121
14:00-15:00	Lunch break		
15:00-16:30	Oral Sessions		
	<i>Section 1 "Computer Optics and Nanophotonics"</i> Track 2: room 209 Track 3: room 321	<i>Section 2 "Image Processing and Earth Remote Sensing"</i> Track 2: room 212	<i>Section 3 "Mathematical Modeling of Physico-Technical Processes and Systems"</i> Track 3: room 121
16:30-17:00	Coffee break		
16:30-18:30	Poster Session 1&3 <i>building 1, Hall, 2nd and 3^d floors</i>		

**Program of V International Conference on Information Technology and
Nanotechnology (ITNT-2019)**

23 May (Thursday)

9:00-14:00	Registration <i>Samara University, building 1, Hall, 1st floor</i>		
9:15-11:30	Plenary Session <i>building 1, room 212, room 209-1</i>		
9:15	Prof. Vladimir P. Lukin (V.E. Zuev Institute of Atmospheric Optics of Siberian branch of the Russian Academy of Sciences, Tomsk, Russia) <i>Features of adaptive phase correction of optical wave distortions in conditions of intensity fluctuations</i>		
10:00	Prof. Alexander V. Volyar (V.I. Vernadsky Crimean Federal University, Simferopol, Republic of Crimea) <i>Avalanche instability of OAM in singular beam arrays: problems and perspective</i>		
10:45	Prof. Vladimir Chernov (IPSI RAS - branch of FSRC "Crystallography and Photonics" RAS, Samara, Russia) <i>Ternary machine arithmetic in quadratic fields</i>		
11:30-12:00	Coffee break		
12:00-14:00	Oral Sessions		
	<i>Section 1 "Computer Optics and Nanophotonics"</i> Track 4: room 209 Track 5: room 321	<i>Section 2 "Image Processing and Earth Remote Sensing"</i> Track 3: room 212	<i>Section 4 "Data Science"</i> Track 2: room 204 Track 3: room 220

**Program of V International Conference On Information Technology and
Nanotechnology (ITNT-2019)**

24 May (Friday)

9:00-11:00	Registration <i>Samara University, building 1, Hall, 1st floor</i>		
9:15-11:30	Plenary Session <i>building 1, room 212, room 209-1</i>		
9:15	Dr. Alberto Di Meglio (CERN OpenLab, Geneve, Switzerland) <i>Big Data Challenges in Scientific Research at CERN</i>		
10:00	Prof. Michael Sobolewski (Polish-Japanese Institute of IT, Warsaw, Poland) <i>Service-oriented Governance with SML</i>		
10:45	Prof. Valeriy Labunets (Ural State Forest Engineering University, Yekaterinburg, Russia) <i>Intelligent OFDM telecommunication system</i>		
11:30-12:00	Coffee break		
12:00-14:00	Oral Sessions		
	<i>Section 2 "Image Processing and Earth Remote Sensing"</i> Track 4: room 212	<i>Section 3 "Mathematical Modeling of Physico-Technical Processes and Systems"</i> Track 1: room 121 Track 2: room 321	<i>Section 4 "Data Science"</i> Track 4: room 204 Track 5: room 220
14:00-15:00	Lunch break		
15:00-17:00	Poster Session 2&4 <i>building 1, Hall, 2nd and 3^d floors</i>		
16:30-17:00	Coffee break		
17:00-18:00	Closing Ceremony. Best Paper Award <i>building 1, room 212</i>		

Section 1 - Computer Optics and Nanophotonics

21 May (Tuesday)

Track 1: "Beams"

Chair: *Roman Skidanov*

Section secretary: *Sofiya Ganchevskaya*

12:00	Vadim Dudorov and Anna Eremina <i>Computer correction of turbulent distortions using multi-aperture systems</i>
12:15	Mikhail Kirilenko and Sergey Volotovskiy <i>Calculation of the vortex eigenfunctions of the finite propagation operator in the near-field diffraction</i>
12:30	Maxim Yavorsky, Dmitriy Vikulin and Constantine Alexeyev <i>Dynamic polarization-dependent optical-vortex-controlling via a fiber with acousto-optic interaction</i>
12:45	Yana Akimova, Michael Bretsko, Yuriy Egorov and Alexander Volyar <i>A digital approach to measuring the spectrum of the OAM of real-time degenerate combined singular beams</i>
13:00	Dmitry Savelyev <i>Investigation of the vortex laser beam shift relative to the optical element using high-performance computer systems</i>
13:15	Victor Kotlyar, Alexey Kovalev and Alexey Porfirev <i>Measurement of the fractional orbital angular momentum of asymmetric laser beams by using two cylindrical lenses</i>
13:30	Yury Kapitonov, Pavel Shapochkin, Yury Petrov, Vyacheslav Lovtcius, Sergey Eliseev and Yury Efimov <i>Diffraction from excitonic diffraction grating</i>
13:45	Evgeny Monin <i>Forming of three-dimensional optical fields consistent with the superposition of scalar spherical harmonics</i>
14:00	Lunch break
15:00	Kseniya Efimova, Sergei Kishkin, Daria Prokopova and Svetlana Kotova <i>Research and development of hardware and software complex device for generating of spiral beams of light</i>
15:15	Sergey Stafeev, Anton Nalimov and Victor Kotlyar <i>16-sector metalens for tight focusing of laser light</i>
15:30	Vladimir Podlipnov and Sergey Karpeev <i>Investigation of the formation of hybrid polarized laser beams using a four-sector polarization converter</i>
15:45	Svetlana Kotova, Aleksandra Mayorova, Daria Prokopova and Sergey Samagin <i>Tunable liquid crystal astigmatic plate</i>
16:00	Sergey Degtyarev, Dmitry Savelyev and Svetlana Khonina <i>Metalenses for laser beams creation</i>
16:15	Daria Kalinkina, Alexey Kovalev and Victor Kotlyar <i>Impact of the evanescent waves on the backflow of power in the near field</i>
16:30	Elena Kozlova <i>Comparative modeling of spiral zone plates with a relief from silver and silica glass</i>

22 May (Wednesday)
Track 2: "Sensors and optical devices"

Chair: *Vadim Davydov*

Section secretary: *Veronika Blank*

12:00	Semen Logunov, Vadim Davydov, Michael Vysoczky, Valentin Dudkin and Danila Puz'ko <i>Features of the construction of the registration scheme of optical images in an autonomous quantum magnetic field sensor</i>
12:15	Andrey Rastorguev, Sergey Kharitonov, Nikolay Kazanskiy Aleksandr Butko <i>Simulation of image formation by hyperspectral equipment taking into account the parameters of the spacecraft</i>
12:30	Michael Osipov and Roman Sergeev <i>Research the behavior of subjective speckles depending on the type of entrance aperture</i>
12:45	Alexey Gorevoy, Vasily Koluchkin, Vladislav Batshev and Alexander Machikhin <i>Calibration simulation for stereoscopic optical systems using optical design software</i>
13:00	Andrey Rybakin <i>Research of possibility of optical convolution implementation in convolutional neural network layer</i>
13:15	Lyudmila Shamina, Ivan Bratchenko, Dmitry Artemyev, Alexander Moryatov, Julia Starikova, Elena Tupikova, Igor Platonov, Sergey Kozlov and Valery Zakharov <i>Raman spectroscopy of ascitic fluid from patients with cancer</i>
13:30	Dmitrii Velikovskii, Anton Karandin and Maxim Kupreychik <i>Acousto-optic devices for high-power laser radiation on KGW crystal</i>
13:45	Pavel Khorin and Svetlana Khonina <i>Calculation of diffractive optical elements for the formation of illuminating beams in plane microscopy</i>
14:00	Lunch break
15:00	Vitold Pozhar, Maxim Gaponov, Alexander Machikhin and Sergey Shirokov <i>Hyperspectral monitoring AOTF-based apparatus</i>
15:15	Darya Prokopova, Evgeny Vorontsov, Svetlana Kotova and Nikolay Losevsky <i>Diffractive Optical Elements Optimization Aimed to Increase the Longitudinal Resolution of Microscopes</i>
15:30	Elizaveta Barabanova, Konstantin Vytovtov and Trong Thanh Nguyen <i>The control system elements of the new generation optical switching cell</i>
15:45	Vage Taamazyan <i>Calibrated Polarized Light Field for Object 3D Scanning</i>
16:00	Yulia Khristoforova, Ivan Bratchenko, Lyudmila Shamina, Semen Konovalov, Anastasia Andreeva, Alexandr Moryatov, Dmitry Kassirov, Andrey Orlov, Sergey Kozlov and Valery Zakharov <i>In vivo Raman and autofluorescence study of the pigmented skin lesions</i>

22 May (Wednesday)

Track 3: "Technologies. Plasmons and metamaterials"

Chair: Roman Skidanov

Section secretary: Sofiya Ganchevskaya

12:00	Oleg Morozov, Airat Sakhabutdinov, Ilnur Nureev and Rinat Misbakhov <i>Modelling and record technologies of address fiber Bragg structures based on gratings with two symmetrical pi-phase shifts</i>
12:15	Airat Sakhabutdinov, Oleg Morozov, Ilnur Nureev and Rinat Misbakhov <i>Modelling and record technologies of address fiber Bragg structures based on two identical ultra narrow gratings with different central wavelenghtes</i>
12:30	Dmitriy Prokhorov, Vladimir Shengurov, Sergey Denisov, Mikhail Dorokhin, Artem Rykov, Anton Zdoroveyshchev, Mikhail Ved', Natalya Baidakova and Andrey Zaycev <i>Direct writed waveguides in lithium niobate</i>
12:45	Nishant Tripathi, Valentin But, Sergey Lebedev, Sunil Kumar and Maria Sovetkina <i>Analysis and optimization of optical devices manufacturing technologies based on carbon nanotubes</i>
13:00	Yashar Azizian <i>Simple preparation technologies for nanofabrication and observation of quantum size effect</i>
13:15	Daria Kazakevich, Vladimir Kazakevich, Pavel Kazakevich and Pavel Yaresko <i>Laser ablation in liquids under the conditions of external electric field</i>
13:30	Maxim Gorshkov and Alyona Moskalenko <i>Synthesis of conductive films based on oxidized carbon nanotubes</i>
13:45	Victor Korolkov, Ruslan Shimansky, Vladimir Khomutov, Andrey Seduhin, Ruslan Nasyrov, Valeriy Kiryanov, Alexey Kiryanov and Marina Zavyalova <i>Prospects for creating a laser nanolithography system for tasks of diffractive optics and nanophotonic</i>
14:00	Lunch break
15:00	Nikolay Ivliev, Vladimir Podlipnov and Dmitry Nesterenko <i>Formation of microstructures on the surface of a carbazole-containing azopolymer by the action of laser beams</i>
15:15	Viacheslav Zheleznov, Dmitry Kuzmin, Sergey Odinkov, Alexander Betin, Nikolay Nikonov and Sergey Ivanov <i>Exposure characteristics research of PTR glasses when recording diffraction gratings using a femtosecond laser in IR and UV wavelenghts</i>
15:30	Dmitry Nesterenko, Roman Pavelkin, Victor Soifer and Shinji Hayashi <i>Analysis of the resonance characteristics of surface plasmon-polariton modes for Ag, Au, Cu, and Al in the ultraviolet, visible and infrared regions</i>
15:45	Konstantin Vytovtov, Elizaveta Barabanova and Michail Igumnov <i>Physical foundation of optical smart antenna based on metamaterial and lithium niobate</i>
16:00	Pavel Mokshin, Sucheta Juneja and Vladimir Pavelyev <i>Synthesis of silicon nanowires using plasma chemical etching process for solar cell applications</i>

23 May (Thursday)
Track 4: "Fiber optics"
 Chair: *Svetlana Khonina*
 Section secretary: *Veronika Blank*

12:00	Alexey Podstrigaev, Alexander Lukyanov, Andrey Smolyakov, Andrey Shishkov, Vadim Davydov and Maria Nikitina <i>The expediency of fiber-optical communication line used in different schemes of reception tract of the radio monitoring complex</i>
12:15	Galina Zaretskaya and Andrey Drozdovskii <i>The effect of the refractive index contrast on the transmission characteristics of a non-dissipative structure consisting of two identical optical microwaveguides of rectangular cross section</i>
12:30	Boris Lapin, Constantine Alexeyev, Maxim Yavorsky, Elena Barshak and Dmitriy Vikulin <i>Topologically charged fields localized on defects in multihelicoidal optical fibers with an alternating twist direction</i>
12:45	Artem Semkin, Dmitriy Dudnik, Ksenya Gusachenko, Sergey Sharangovich and Irina Kvasova <i>Investigation of the characteristics of the system of waveguide channels formed in PDLC with inhomogeneity of the amplitude-phase distribution of the forming field</i>
13:00	Vladimir Burdin and Evgenia Eremchuk <i>Longhaul few mode fiber optic link with differential mode delay compensation online amplifiers</i>
13:15	Valery Zakharov, Georgy Leonovich, Alexander Krutov and Aleksandr Lobah <i>Simulation of fiber optic sensors of electrical quantities based on Bragg gratings with correction of instrumental errors</i>
13:30	Anton Bourdine, Oleg Delmukhametov and Vladimir Burdin <i>Computation of precision spatial positioning scheme for mode multiplexing system channels over 16-LP-mode graded-index optical fiber with asymmetrical ellipticity geometry of 42-um core</i>

23 May (Thursday)
Track 5: "Light source. Holography"

Chair: *Vadim Davydov*

Section secretary: *Sofiya Ganchevskaya*

12:00	Aleksandr Degterev, Ivan Lamkin and Sergey Tarasov <i>Research organic light-emitting diodes with colloidal quantum dots</i>
12:15	Anton Krents, Dmitry Anchikov, Nonna Molevich and Elizaveta Yaronova <i>Stabilization of broad-area semiconductor lasers by external optical injection</i>
12:30	Dmitriy Prokhorov, Vladimir Shengurov, Sergey Denisov, Mikhail Dorokhin, Artem Rykov, Anton Zdoroveyshchev, Mikhail Ved' and Natalya Baidakova <i>Light-emitting structures based on Ge/Si(001) layers grown by the HW CVD method for silicon optoelectronics</i>
12:45	Artem Semkin, Dmitriy Dudnik, Viktor Dolgirev and Sergey Sharangovich <i>Experimental investigation of the holographic formation of photon structures by Bessel-like light beams in photopolymer materials</i>
13:00	Ruslan Shimansky <i>The writing and processing of micro-images to check the manufacturing accuracy of precision synthesized holograms</i>
13:15	Pavel Khanevich and Sergey Odinkov <i>Development and research of the method of obtaining computer-synthesized Fourier holograms for the formation of hidden images in security holograms</i>
13:30	Vladimir Sokolov <i>Academician Vladimir Shorin and Computer Optics</i>
13:45	Sergey Odinkov <i>To the 75th anniversary of professor Grigorii Isaevich Greisukh</i>

Section 2 - Image Processing and Earth Remote Sensing

22 May (Wednesday)

Track 1: "Image Analysis and Computer Vision"

Chair: *Vladislav Sergeev*

Section secretary: *Victor Fedoseev*

12:00	Pavel Chochia <i>Image Spectrum Analysis for Distortion Operator Diagnostic</i>
12:15	Viacheslav Antsiperov <i>Target Identification for photon counting image sensors, inspired by mechanisms of human visual perception</i>
12:30	Dmitry Murashov, Alexey Berezin and Ekaterina Ivanova <i>Measuring parameters of texture from images obtained in raking light</i>
12:45	Vladimir Nesterov, Vasily Mukhin and Dmitry Nesterov <i>The method of restoring the real coordinates of the object from its flat image</i>
13:00	Artyom Makovetskii, Sergei Voronin, Vitaly Kober and Aleksei Voronin <i>An algorithm of non-rigid objects registration</i>
13:15	Mikhail Elantcev, Igor Arkhipov and Renat Gafarov <i>The method of iterative image normalization for tasks of visual navigation of UAVs</i>
13:30	Konstantin Kiy and Roman Dosaev <i>A New Real-Time Method of Finding Temporary and Permanent Road Marking and Its Applications</i>
13:45	Kirill Demochkin and Andrey Savchenko <i>Visual Product Recommendation using Neural Aggregation Network and Context Gating</i>

22 May (Wednesday)
Track 2: "Mathematical Models for Image Processing and Analysis"

Chair: *Vladislav Sergeev*
Section secretary: *Victor Fedoseev*

15:00	Alexey Chulichkov <i>Subjective modeling of image shape</i>
15:15	Victor Krasheninnikov, Yulia Kuvayskova and Aleksey Subbotin <i>Autoregressive models of random fields on the circle</i>
15:30	Konstantin Vasiliev, Vitaly Dement'Ev and Nikita Andriyanov <i>Using probabilistic statistics to determine the parameters of doubly stochastic models based on autoregression with multiple roots</i>
15:45	Nikita Andriyanov and Konstantin Vasiliev <i>Optimal filtering of multidimensional random fields generated by autoregressions with multiple roots of characteristic equations</i>
16:00	Alena Goncharova, Ilia Safonov and Ivan Romanov <i>Regression model for selecting the correction parameter for images damaged by backlighting</i>
16:15	Egor Dmitriev and Vladislav Myasnikov <i>Equivalence relation configuration study in the image description and analysis problem</i>

23 May (Thursday)

Track 3: "Processing and Analysis of Earth Remote Sensing Data"

Chair: *Vladislav Myasnikov*

Section secretary: *Victor Fedoseev*

12:00	Vitalii Dementev, Radik Magdeev and Alexander Tashlinskiy <i>Detection and identification of objects on multispectral satellite images</i>
12:15	Evgenii Dremov, Sergey Miroshnichenko and Vitalii Titov <i>Calculation of optimal parameters for aircraft recognition on remote sensing imagery by contour analysis</i>
12:30	Ekaterina Kurbatova and Veronika Lyalina <i>Shadow detection on color images</i>
12:45	Alexey Razmolov, Konstantin Firsov and Irina Klitochenko <i>Radiation model for spectral channels of radiometers installed Sentinel-2A u Landsat 8</i>
13:00	Victor Kobernichenko, Andrey Sosnovsky and Nina Vinogradova <i>The problem of quality assessing for the methods of coherence maps calculation in InSAR remote sensing of the Earth data processing</i>
13:15	Pavel Pahomov, Dmitry Vasin and Vladimir Gromov <i>Elimination of information redundancy of hyper spectral raster images by method "well adapted" basis</i>
13:30	Evgeny Myasnikov <i>Nonlinear dimensionality reduction of hyperspectral data based on spectral information divergence preserving principle</i>
13:45	Mikhail Gashnikov <i>Reducing dimension of parametric space based on the approximation of components for interpolation of multidimensional signals</i>

24 May (Friday)

Track 4: "Special Data Sources for Computer Vision Problems"

Chair: *Vladislav Myasnikov*

Section secretary: *Andrey Kuznetsov*

12:00	Dmitry Murashov, Alexei Morozov and Fedor Murashov <i>A technique for localizing and identifying concealed objects in terahertz images based on mutual information maximization</i>
12:15	Irina Reimers, Ilia Safonov and Ivan Yakimchuk <i>Segmentation of 3D FIB-SEM data with pore-back effect</i>
12:30	Anton Kornilov, Ilia Safonov, Alena Goncharova and Ivan Yakimchuk <i>Selection of an optimal region in a 3D microtomographic image for further analysis</i>
12:45	Zeinulla Zhanabaev, Tatyana Grevtseva, Kirill Gonchar, Gauhar Mussabek, Dana Yermukhamed, Almas Serikbayev, Rakhila Assilbayeva, Akylbek Turmukhambetov and Victor Timoshenko <i>Quantitative analysis of morphology of porous silicon nanostructures formed by metal-assisted chemical etching</i>
13:00	Igor Ischuk and Alexey Dolgov <i>Method of classification of technogenic objects on the basis of construction of multilayer thermal tomograms</i>
13:15	Nikita Demin, Alexander Shirokanev, Natalya Ilyasova and Evgeniy Zamyckij <i>Applying of graph-based retinal OCT image segmentation for localizing of diabetic macular edema regions</i>
13:30	Taisia Chesnokova and Natalya Ilyasova <i>Development of automatic selection technique of interest regions in lungs x-rays images</i>
13:45	Yuliya Vybornova and Vladislav Sergeyev <i>A new watermarking method for vector map data: a study on information capacity of the carrier image</i>

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

21 May (Tuesday)

Track 1: "Mathematical modeling of technical systems"

Co-Chairs: *Vladimir Sobolev and Sergei Sazhin*

Section secretary: *Aleksei Archibasov*

12:00	Hongshi Lu, Yuriy Zabolotnov and Aijun Li <i>Application of spinning electrodynamic tether system in changing orbital parameters of space crafts and systems</i>
12:15	Zhe Dong, Yuriy Zabolotnov, Changqing Wang and Aijun Li <i>Modeling and comparative analysis of schemes for returning payload using space tethered system</i>
12:30	Changqing Wang, Yuriy Zabolotnov and Pavel Voevodin <i>Application of the averaging method to predict the motion and control of the electrodynamic tether system of nanosatellites</i>
12:45	Olga Shteinbreher and Tatyana Burnysheva <i>Application of mathematical modeling to solve problems of optimization of lattice structures</i>
13:00	Mikhail Voskoboinikov, Alexey Podstrigaev and Vadim Davydov <i>Assessment of the view area of parachuted radio monitoring system and stabilization of flight under wind forcing</i>
13:15	Ruslan Pikalov <i>Strategy for the realization soft docking with space debris by using tether system</i>
13:30	Vladimir Aslanov and Tatyana Ledkova <i>The effect of climber initial velocity on orbital space elevator dynamics</i>
13:45	Raoul Nigmatullin and Artem VorobeV <i>How to read the trendless sequences: the "universal" set of quantitative parameters</i>
14:00	Lunch break
15:00	Victor Zhidchenko, Heikki Handroos and Alexander Kovartsev <i>On-line calculation of fatigue in hydraulically actuated heavy equipment using IoT and Digital Twin concepts</i>
15:15	Alexander Kovartsev and Anastasia Nazarova <i>Computer Representation of Water Turbine Performance Characteristics Using Optimal Splines</i>
15:30	Victor Zhidchenko and Alexander Kovartsev <i>Parallel algorithm for controlled motion simulation of space tether systems</i>
15:45	Anatoliy Belousov, Andry Sedelnikov and Anastasia Gorozhankina <i>Simulation of the motion control system for small spacecraft with electrothermal micromotor</i>
16:00	Andry Sedelnikov, Valeria Rodina and Denis Orlov <i>Modeling the effect of temperature deformations of large elastic elements on the dynamics of the orbital motion of a small spacecraft</i>
16:15	Ivan Tkachenko, Sergey Safronov, Ivan Kaurov, Maksim Ivanushkin and Sergey Volgin <i>On the results of processing of the telemetry data received from the "AIST" small satellite constellation</i>
16:30	Grigoriy Fokin <i>Positioning of Radio Emission Sources with Unmanned Aerial Vehicles using TDOA-AOA Measurement Processing</i>
16:45	Ksenia Potienko and Andrey Agafonov <i>Study of the separation process of gases in the microchannel based on the stochastic simulation</i>

21 May (Tuesday)

Track 2: "Mathematical modeling of physical processes and phenomena"

Co-Chairs: *Elena Shchepakina and Sergei Sazhin*

Section secretary: *Natalia Firstova*

12:00	Vladimir Nozhkin, Mikhail Semenov and Igor Ulshin <i>Solution of the differential equation of heat transfer in the atmosphere</i>
12:15	Oleg Phylonin and Konstantin Nasonov <i>Development and research of mathematical model of 3D track detector for nanosatellite</i>
12:30	Mikhail Petrov, Oleg Phylonin and Alexey Galanin <i>Influence of radiation defects in a semiconductor structure on the EMF distribution in the air gap of the gas-discharge chamber</i>
12:45	Igor Kulikov, Igor Chernykh, Viktor Protasov and Irek Gubaydullin <i>Simulation of Formaldehyde Formation During a Galaxy Collision Using Vectorized Numerical Method on Intel Xeon Phi Accelerators</i>
13:00	Yuliya Bobreneva and Irek Gubaydullin <i>Investigation of heat transfer process in the fracture-porous reservoir</i>
13:15	Alexei Eskin, Alexei Martynenko, Fedor Martynenko, Viacheslav Sorokin and Olga Sukhorukova <i>Hyperfine structure of mesomolecular ions $td\mu$, $tr\mu$, $dpr\mu$</i>
13:30	Alexey Eskin, Vladimir Korobov, Alexey Martynenko and Viacheslav Sorokin <i>Energy levels in muonic helium</i>
13:45	Ivan Pisarenko and Eugeny Ryndin <i>Numerical Simulation of High-Speed AIIIIV Photodetectors within Drift-Diffusion Approximation</i>
14:00	Lunch break
15:00	Vladimir Khvesyuk, Bin Liu and Alexander Barinov <i>A new look at Kapitza conductance calculations for various materials</i>
15:15	Vladimir Khvesyuk, Wenpei Qiao and Alexander Barinov <i>Modeling of phonon diffusion using a Monte-Carlo method based on physics of phonon</i>
15:30	Mikhail Semenov, Peter Meleshenko, Andrey Solovyov and Olga Reshetova <i>Dynamic features of systems of hysteresis-related Van der Pol oscillators</i>
15:45	Evgeny Karpov, Mikhail Semenov and Peter Meleshenko <i>Lorenz system. Water wheel model with dry friction</i>
16:00	Larisa Stepanova <i>Computational simulation of the damage accumulation processes in cracked solids by the user procedure UMAT of Simulia Abaqus</i>
16:15	Larisa Stepanova and Sergej Bronnikov <i>Computational modeling crack propagation by molecular dynamics method</i>
16:30	Yuri Astapov <i>The numerical modeling of indentation process for hyperelastic solids</i>
16:45	Vladimir Ryazanov <i>Motion control of an active spacecraft during nanosatellite removal by ion beam</i>

22 May (Wednesday)

Track 3: "Mathematical modeling of information processes"

Co-Chairs: *Vladimir Sobolev and Sergei Sazhin*

Section secretary: *Aleksei Archibasov*

12:00	Ekaterina Orlova <i>Model for discrete optimal control of enterprise's financial processes</i>
12:15	Pavel Tutubalin, Svetlana Novikova and Vladimir Mokshin <i>Status of creation of hardware-software complex of automatic control of the insulin delivery</i>
12:30	Yurii Mezentsev and Nina Baranova <i>About some new results of testing the Algorithm for Solving the Task of Controlling the Input and Output Material Flows of an Industrial Enterprise</i>
12:45	Gregory Blagodatsky, Andrej Kopysov, Vladimir Khvorenkov and Ivan Baturin <i>Research and development of hierarchical models of automated control systems for the parameters of the radio-line of the cognitive radio system</i>
13:00	Anna Aletdinova, Zoja Kapelyuk and Alena Kiprisheva <i>For developing a toolkit of assessing the critical competencies of agricultural employees</i>
13:15	Anna Aletdinova and Yana Tsybina <i>Formalization of conceptual requirements for imitative model of loading a machine-tractor fleet</i>
13:30	Andrew Kalach, Andrey Kravchenko and Andrey Zenin <i>Dynamic model of control of functioning of legal users of information systems</i>
13:45	Andrew Kalach, Dmitriy Ponomarev and Elena Sushko <i>The use of artificial neural networks based on multilayer perceptron for modeling the adsorption activity of the sorbent in water treatment systems</i>
14:00	Lunch break
15:00	Irina Moshkina, Eugene Egov and Anton Romanov <i>Applying method of phase plane to a fuzzy trend when predicting the project metrics presented by time series</i>
15:15	Grigory Voronkov, Pavel Filatov, Albert Sultanov, Ruslan Kutluyarov, Irina Vinogradova and Igor Kuznetsov <i>Improving the efficiency of multichannel systems based on the coordination of channel signals</i>
15:30	Andrey Tyugashev and Yuriy Sygurov <i>Modeling of the Spacecraft onboard apparatus and ways of building a consistent control logic in case of limited onboard resources</i>
15:45	Bulat Eminov, Vyacheslav Zakharov and Sergei Shalagin <i>Simulating of expanded Markov chains by minimal polynomials over the field $GF(q)$</i>
16:00	Andry Sedelnikov, Tanya Ivashova and Sergey Safronov <i>Restoration of the current signal from solar panels of AIST small spacecraft for estimate the parameters of the rotational motion</i>
16:15	Igor Blatov and Elena Kitaeva <i>On the combination of the Hungarian algorithm and the Kabsch algorithm for solving problems of computational geometry</i>

24 May (Friday)

Track 1: "Mathematical modeling of technical systems"

Co-Chairs: *Vladimir Sobolev and Sergei Sazhin*

Section secretary: *Aleksei Archibasov*

12:00	Evgeniy Avdeev, Vladimir Polonsky and Kseniya Volkova <i>Analysis of the riser suspension performance</i>
12:15	Evgeniy Avdeev <i>Steady state numerical calculation of the melt-pool shape</i>
12:30	Aleksey Golubkov, Andrey Tsyganov, Yulia Tsyganova and Igor Petrishchev <i>Decentralized multisensor estimation of motion parameters of an object moving along a complex trajectory</i>
12:45	Andrey Tsyganov, Yulia Tsyganova and Anastasia Kuvshinova <i>Dynamic identification of boundary conditions for convection-diffusion transport model in the case of noisy measurements</i>
13:00	Igor Burkin and Oksana Kuznetsova <i>On some methods for generating extremely multistable systems</i>
13:15	Sergei Pivnev, Vladimir Sidorov and Svetlana Pivneva <i>Algorithm of realization of the problem of double-arc welding with coated electrodes of different types</i>
13:30	Vladimir Koval, Mikhail Stepanov, Olga Torgashova and Olga Pimenova <i>Mathematical modelling of distributed control system for flat plates temperature field by GAMMA-3 software</i>
13:45	Roman Zakurdaev and Irina Chernetskaya <i>Method of manual symmetrication of electric networks</i>

24 May (Friday)

Track 2: "Mathematical modeling of physical processes and phenomena"

Co-Chairs: *Elena Shchepakina and Sergei Sazhin*

Section secretary: *Natalia Firstova*

12:00	Iliya Bocharov and Irina Kozlova <i>Microelectronics component designing by Cadence software</i>
12:15	Anastasia Isaeva and Svetlana Sidorova <i>Mathematical modeling of metal island films growth initial stages</i>
12:30	Alexander Titov and Alexander Khoperskov <i>Verification of the Regional climate model RegCM v4.5 for the Lower Volga</i>
12:45	Valery Bogdanovich and Mikhail Giorbelidze <i>Mathematical simulation of particle impact on a fixed surface in the formation of powder coatings</i>
13:00	Maxim Polyakov <i>Modeling of brightness temperature in biological tissue</i>
13:15	Kirill Zeyde, Dmitriy Pirozhkov, Alisa Vardugina and Nikita Yandovskiy <i>Perturbation cluster method for anisotropy modeling</i>
13:30	Eldar Miftakhov <i>Simulation of a continuous isoprene polymerization process on a neodymium-containing catalytic system in a cascade of reactors</i>
13:45	Normuhammad Ravshanov and Utkir Saidov <i>Direct and inverse problems to study the process of ion solutions filtering in porous medium</i>

Section 4 - Data Science

21 May (Tuesday)

Track 1: "Data Science: Methods and Algorithms"

Co-Chairs: Valeriy Labunets and Vladimir Fursov

Section secretary: Yegor Goshin

12:00	Natalya Ilyasova, Aleksandr Shirokanev and Ilya Klimov <i>Convolutional neural network application for analysis of fundus images</i>
12:15	Iiona Kulikovskikh, Sergej Prokhorov, Tarzan Legović and Tomislav Šmuc <i>Growing descent of stochastic gradient with the generalized logistic map</i>
12:30	Ekaterina Zguralskaya <i>Analysis of the structure of the relationship between the descriptions of objects of classes and evaluation of their compactness</i>
12:45	Al Aktayeva, Lilyia Davletkireeva, Rozamgul Niyazova and Alimzhan Baikenov <i>Date Science: Post Quantum Safe Cryptography</i>
13:00	Oksana Mandrikova, Vladimir Geppener and Bogdana Mandrikova <i>Method of cosmic ray data analysis based on neural networks of vector quantization</i>
13:15	Ekaterina Chernova, Petr Polezhaev, Alexander Shukhman and Yury Ushakov <i>Security event data collection and analysis in large corporate networks</i>
13:30	Vladimir Mokshin, Pavel Tutubalin and Leonid Sharmin <i>Evolutionary methods in modeling behaviour of complex system</i>
13:45	Innokentiy Semushin and Yulia Tsyganova <i>Dynamical physically structured data modeling vs. classical time series analysis</i>
14:00	Lunch break
15:00	Sergey Filonov, Konstantin Aksyonov and Elena Smoliy <i>Ant algorithms application for factory logistics with multiple waypoint routes</i>
15:15	Gregory Blagodatsky, Sergej Vologdin, Maksim Gorohov and Denis Perevedencev <i>Method of knowledge base training of intellectual real - time system based on the algorithm of decision tree</i>
15:30	Dmitry Samoilov, Valentina Semenova and Sergei Smirnov <i>Heuristic algorithm for defuzzification of initial context in formal concept analysis</i>
15:45	Zaur Shibzukhov <i>Center based clustering with robust averaging aggregation functions</i>
16:00	Aleksey Filippov, Nadezhda Yarushkina, Anton Romanov, Maria Grigoricheva and Aleksandra Dolganovskaya <i>Application of the ontology merging in the production capacity planning for the integration of information systems</i>
16:15	Vadim Moshkin, Nadezhda G. Yarushkina, Gelya Ishmuratova and Ilya Andreev <i>Hybridization of fuzzy time series and fuzzy ontologies in the diagnosis of complex technical systems</i>
16:30	Alexandra Makarova and Valentina Sulimova <i>Fast approximate two-class SVM learning for large training sets</i>
16:45	Mikhail Kurbakov, Alexandra Makarova and Valentina Sulimova <i>Data load optimization for solving SVM problem via averaging decision rules method for big training sets</i>

21 May (Tuesday)
Track 2: "Data Science: Technical Applications"

Chair: *Sergey Popov*

Section secretary: *Anton Kotov*

12:00	Yuliya Khitskova and Katerina Makoviy <i>Complex interaction of AHP technique and SWOT – analysis for virtual desktop infrastructure (VDI)</i>
12:15	Alexander Kovartsev, Daria Popova-Kovartseva and Galina Klimashova <i>Parallel algorithm of structural evolution of large Morse clusters</i>
12:30	Alexander Shuravin and Sergey Vologdin <i>Comparison of the characteristics of the genetic algorithm and the method of coordinate search to optimize the temperature regime of the premises</i>
12:45	Maksim Gapeev, Yury Senkevich, Olga Lukovenkova and Alexandra Solodchuk <i>Method for identification of geopulses to include into the Geophysical Signal Catalogue</i>
13:00	Andrey Kosinov, Adilbek Erkimbaev, Georgii Kobzev and Vladimir Zitserman <i>Ontology as a integration means among stand-alone databases on the properties of nanomaterials</i>
13:15	Igor Bychkov, Gennady Oparin, Alexander Feoktistov, Ivan Sidorov, Sergei Gorsky, Roman Kostromin and Alexei Edelev <i>Heterogeneous distributed computing environment for solving large-scale problems of energy security research</i>
13:30	Mikhail Osipov and Oleg Chekodaev <i>Optimization of the process of 3D visualization of the objects model of the urban environment generated on the basis of the attribute information of the digital map</i>

23 May (Thursday)
Track 2: " Data Science: Technical Applications"

Chair: *Sergey Popov*

Section secretary: *Anton Kotov*

12:00	Vladimir Jordan and Igor Shmakov <i>The influence of the initiation's conditions of the SH-synthesis of intermetallic compounds on the combustion parameters of the nanoscale layered composition Ti-15.82wt.%Al</i>
12:15	Mark Bulygin, Maya Gayanova, Alexey Vulfin, Anastasiya Kirillova and Ruslan Gayanov <i>Application of a deep convolutional neural network in the images colorization problem</i>
12:30	Mikhail Gurin, Alexey Vulfin, Vladimir Vasilyev and Andrey Nikonov <i>Intrusion detection system on the basis of data mining algorithms in the industrial network of automated process control system</i>
12:45	Radmir Battalov, Maya Gayanova, Andrey Nikonov, Ruslan Gayanov and Viktoriya Berkholts <i>System for in-depth analysis of network traffic based on artificial intelligence technologies</i>
13:00	Ruslan Ahmedyanov, Klara Tagirova, Alexey Vulfin, Viktoriya Berkholts and Ruslan Gayanov <i>Intelligent system for diagnosing the welded joints quality on the basis of the radiographic method</i>
13:15	Anastasia Kirillova, Vladimir Vasilyev, Andrey Nikonov and Viktoriya Berkholts <i>Decision support system for ensuring information security of an automated process control system</i>
13:30	Viktoriya Berkholts, Murat Guzairov, Arkadiy Frid and Anastasia Kirillova <i>Structure of protected system for collecting, storage and processing of telemetry data</i>
13:45	Marat Enikeev, Marat Fazlytdinov, Leniza Enikeeva and Irek Gubaydullin <i>The forecast of water content on the wells designed to drilling by methods of machine learning</i>

23 May (Thursday)
Track 3: " Data Science: Medical Applications"

Chair: *Artem Nikonorov*

Section secretary: *Yegor Goshin*

12:00	Olga Sushkova, Alexei Morozov, Alexandra Gabova and Alexei Karabanov <i>Investigation of the multiple comparisons problem in the wave train electrical activity analysis of the muscles in Parkinson's disease patients</i>
12:15	Valentina Sulimova, Oleg Seredin and Vadim Mottl <i>Alignment-Based Metric for Biomolecular Sequences for Herpes Viruses Recognition</i>
12:30	Valentina Sulimova, Olga Krasotkina, Sergey Bukhonov, Vadim Mottl and David Windridge <i>The brain-computer interface for recognition mammograms with pathology</i>
12:45	Ivan Kershner, Mikhail Sinkin and Yury Obukhov <i>Detection of epileptic seizures in EEG signals during long-term monitoring of patients after traumatic brain injury</i>
13:00	Vladimir Gridin, Vsevolod Perepelov, Vladimir Solodovnikov and Nikolay Yakhno <i>The diffusion-tensor MRI data analysis for cerebral microangiopathy influence detection on the integrity of the brain white matter in Alzheimer's disease patients</i>
13:15	Renata Tolmacheva, Yury Obukhov and Ludmila Zhavoronkova <i>The determination of phase-coupled channels of EEG signals during cognitive and motor tests</i>
13:30	Roman Kozinets, Vladimir Berikov, Igor Pestunov and Sergey Rylov <i>A method for similarity-based decision tree induction in the problem of recognition of tomographic images</i>
13:45	Inna Rusanova <i>Investigation of retinal pathology in diabetic retinopathy using fractal analysis and binary transformation</i>

24 May (Friday)
Track 4: "Parallel Computations"

Chair: *Sergey Popov*

Section secretary: *Yegor Goshin*

12:00	Alexander Shirokanev, Dmitry Kirsh and Alexander Kupriyanov <i>Effectiveness investigation of a high-performance crystal lattice parametric identification algorithm based on CUDA technology</i>
12:15	Sergey Vostokin and Irina Bobyleva <i>Using the bag-of-tasks model with centralized storage for distributed sorting of large data array</i>
12:30	Aleksandr Shirokanev, Natalya Ilyasova and Vladislav Shihevich <i>CUDA parallel programming technology application for analysis of big biomedical data based on computation of effectiveness features</i>
12:45	Vjacheslav Zakharov, Sergey Shalagin, and Bulat Eminov <i>Distributed image processing based on the same IP-cores in FPGA-architecture</i>
13:00	Valery Zasov <i>Models of parallel specialized processors for solution the problem of signal separation</i>
13:15	Alexey Borisov and Evgeniy Myasnikov <i>Implementation of "Kuznyechik" encryption algorithm using NVIDIA CUDA</i>
13:30	Yann Donon, Rustam Paringer and Alexander Kupriyanov <i>Image storage optimization and feature calculation on Netezza Database system</i>
13:45	Daria Smuseva, Alexey Rolich, Leonid Voskov and Ivan Malakhov <i>Big Data, Internet of Things, Augmented Reality: technology convergence in visualization issues</i>

24 May (Friday)

Track 5: " Data Science: Digital Economy and Management"

Chair: *Michael Sobolewski*

Section secretary: *Denis Zherdev*

12:00	Irina Khaimovich, Vladimir Ramzaev and Ilya Martynov <i>Methods for finding shortest paths on graphs in organizational and economic systems and their implementation</i>
12:15	Mikhail Geraskin <i>Game-theoretic model of wide social groups' behavior with stimulation of volunteering activities</i>
12:30	Mikhail Geraskin and Olga Kuznetsova <i>The credit turnover system "Retailer-Bank-Insurer" analysis taking into account variations in market environment factors</i>
12:45	Alexandr Nechitaylo, Olga Vasilchuk and Ann Gnutova <i>Description and formation of the database perimeter for systematization and storage of multi-structured data</i>
13:00	Maksim Mokrousov <i>Fuzzy search automation in the problem of recognition of old Cyrillic texts</i>
13:15	Marina Nikitina and Yuri Ivashkin <i>The mobile flatbed expert system of food quality sensory assessment</i>
13:30	Viktor Blinov, Sagit Valeev, Natalya Kondratyeva, Rinat Karimov, Alexey Kovtunenکو and Elena Kuzmina <i>Supporting the life cycle of complex technical object on the basis of predictive analytics</i>
13:45	Sagit Valeev, Natalya Kondratyeva, Alexey Kovtunenکو, Marat Timirov and Rinat Karimov <i>Resource management of a distributed stream data processing system in safety systems of infrastructure objects</i>

Poster Session 1

22 May (Wednesday)

16:30-18:30, Hall, 2nd floor

Section 1 - Computer Optics and Nanophotonics

- S1.1 Stanislav Abulhanov, Nikolay Kazanskiy and Yuri Strelkov**
The roughness influence of the secondary optics on the operational properties of the projector
- S1.2 Stanislav Abulhanov and Sergey Poletaev**
Virtual roughness pattern of the optical surface
- S1.3 Stanislav Abulhanov, Nikolay Kazanskiy, Sergey Popov, Nikolay Ivliev and Vladimir Podlipnov**
Device for optical control of the internal pipe surface
- S1.4 Anton Adamov and Vladimir Khramov**
The optimal parameters of the laser triangulation modified thickness meter
- S1.5 Yana Akimova, Michael Bretsko, Yuriy Egorov and Alexander Volyar**
Purely degenerate arrays of optical vortices and measurement of amplitudes and phases of partial modes
- S1.6 Kseniya Andreeva, Evgeniy Andreev, Dmitry Bykov and Leonid Doskolovich**
Design of refractive optical elements for generating prescribed illuminance distribution and wavefront
- S1.7 Eugene Bashkirov and Marya Guslyannikovs**
Influence of Stark shift on atomic entanglement induced by a thermal field of one-mode cavity
- S1.8 Eugene Bashkirov and Mikhail Evseev**
Dynamics of two dipole-coupled superconducting qubits interacting with two independent coplanar resonators
- S1.9 Evgeni Bezus, Elena Kadamina and Leonid Doskolovich**
Adaptive spatial resolution in Fourier modal method for 1D-periodic structures implemented as a coordinate transform based on the error function
- S1.10 Veronika Blank, Roman Skidanov, Yurii Strelkov**
Axicon for imaging spectrometer
- S1.11 Anton Bourdine, Bratchenko Ivan, Dmitry Artemyev, Taisiia Slivkova, Ivan Karptsov, and Alexander Evtushenko**
Research of optical fiber core end lensed microstructure influence on semiconductor laser emission parameters
- S1.12 Muhammad Ali Butt**
Optical elements based on silicon photonics
- S1.13 Muhammad Ali Butt**
Designing of a 1 x 8 Optical power splitter based on coupled mode theory
- S1.14 Roman Davydov and Valery Antonov**
Mathematical modeling of laser ablation for metal targets

- S1.15 Alexey Drobyshev, Pavel Golovinski, Mikhail Preobrazhenskii and Evgeny Mikhin**
The electron tunneling from image potential in a weak electric field
- S1.16 Andrey Drozdovskii and Galina Zaretskaya**
Investigation of the influence of the geometric and physical parameters on the losses in the optical microwaveguides of rectangular cross section
- S1.17 Vadim Dudorov, Anna Eremina and Yury Mikhailov**
Visualisation of the turbulent inhomogeneities for passive Crosswind Profiling
- S1.18 Aleksei Dzyuba**
Optical phase retrieval with the image of intensity in the focal plane based on the convolutional neural networks
- S1.19 Ekaterina Ekimenko, Anton Ekimenko and Anatoly Demin**
The use of digital holography for the analysis of precipitation
- S1.20 Sergey Fomchenkov and Alexey Porfirev**
Investigation of a linear variable optical filter (LVOF) manufacturing process
- S1.21 Sofiya Ganchevskaya, Roman Skidanov and Vadim Vasilev**
Transmitted moment of rotation in Bessel beams formed by different vortex axicons
- S1.22 Anna Glazkova**
Simulation and researching of the formation of Bessel vortex beams using diffraction axicons
- S1.23 Nadezda Grebenikova, Vysotsky, Davydov and Smirnov**
Features of processing optical signals for monitoring the state of the liquid flow environment with a refractometer
- S1.24 Anna Grevtseva, Vadim Davydov, Konstantin Greshnevikov, Maria Nikitina, Vasiliy Rud' and Konstantin Smirnov**
Method of assessment the degree of reliability of the pulse wave image in the rapid diagnosis of the human condition
- S1.25 Maria Kolesnikova, Anna Lyubarskaya, Dmitry Nesterenko and Victor Soifer**
The resolution of optical image edge detection based on Brewster effect
- S1.26 Ilya Komarov and Evgeni Bezus**
Development of a software package for modeling and analysis of light diffraction on periodic nanophotonic structures using the rigorous coupled- wave analysis technique
- S1.27 Elena Korsakova, Natalya Muftahitdinova, Ivan Kashuba, Alexandr Korsakov and Liya Zhukova**
Silver halide IR fibre with extra small diameter
- S1.28 Irina Kozlova and Alexey Yerilkin**
Design of an optical bending sensor
- S1.29 Dmitry Kuzmin, Viacheslav Zheleznov, Sergey Odinokov, Alexander Betin, Nikolay Nikonorov and Sergey Ivanov**
Recording of diffraction optical element in the surface layer of PTR glass by means of a femtosecond laser
- S1.30 Natalya Latukhina, Daria Lizunkova and Ivan Shishkin**
Optical properties of a multilayer structure using porous silicon, optical coatings
- S1.31 Gerhard Liedl, Serguei Murzin and Robert Pospichal**
Colorization of copper surfaces by nanostructuring with ultrashort pulse laser

- S1.32 Anastasija Lykina, Dmitry Artemyev, Vladimir Kukushkin, Ivan Bratchenko, Sofya Avraamova and Nikolay Aleksandrov**
Multivariate analysis of the Raman spectra of biological tissues using regression methods
- S1.33 Alexei Meshalkin, Vladimir Podlipnov, Svetlana Khonina and Elena Achimova**
Analysis of diffraction efficiency of phase gratings in dependence of duty cycle and depth
- S1.34 Evgeny Mikhin, Paul Golovinski and Alexey Drobyshev**
Energy exchange in coupled forced and damped quantum harmonic oscillators at zero temperature
- S1.35 Safaa Mohammed Ridha Hussien Hussien, Sergey Kharitonov, Nikolay Kazanskiy and Vladimr Pavelyev**
Simulation of the interaction of electrons and photons in graphene in the strong coupling approximation
- S1.36 Natalja Moiseeva and Anton Moiseev**
The propagation of pulses of a special shape in an inhomogeneous anisotropic medium with dispersion and torsion of the optical axis
- S1.37 Angelina Moroz and Vadim Davydov**
Fiber-optic communication system for transmitting heterodyne signals in active phased antenna arrays of radar stations
- S1.38 Olga Mossoulina**
Generation of texture surface based on the method of random midpoint displacement
- S1.39 Serguei Murzin, Gerhard Liedl, Robert Bielak and Alexey Melnikov**
Conditions improving of laser heating for forming of materials with a ferritic-martensitic structure
- S1.40 Serguei Murzin, Artur Safin and Maxim Blokhin**
Creation of ZnO-based nanomaterials using pulse-periodic laser action
- S1.41 Serguei Murzin, Nikolay Kazanskiy, Gerhard Liedl and Gerald Humenberger**
Testing of diffractive optical element as part of specific CO₂ laser equipment for metallic materials modification
- S1.42 Anton Nalimov and Victor Kotlyar**
Formation of a polarization vortex with reverse energy flow
- S1.43 Elina Nepomnyashchaya and Elena Velichko**
Spectrometry of molecular interactions in clusters
- S1.44 Dmitry Nesterenko, Anna Lyubarskaya, Maria Kolesnikova and Victor Soifer**
The dependence of the image edge detection directivity by Brewster effect on the gradient of inhomogeneities of objects
- S1.45 Mikhail Osipov, Mikhail Limov and Dmitriy Gnutov**
Mathematical modeling of the interference seismic sensors
- S1.46 Vyacheslav Paranin and Sergey Karpeev**
Transformation of a zero-order Bessel beam in a c-cut lithium niobate
- S1.47 Vladimir Pavelyev, Andrei Mezhenin, Mariia Sovetkina and Anastasiya Rymzhina**
Theoretical study of the photoconductivity mechanism of the structure "carbon nanotubes – silicon substrate"
- S1.48 Gregory Pchelkin, Vadim Davydov and Varvara Fadeenko**
Features microwave transmission on marine objects

- S1.49 Vladimir Podlipnov, Nikolay Ivliev and Roman Skidanov**
Design of a compact imaging hyperspectrometer
- S1.50 Dmitrii Poletaev, Bogdan Sokolenko, Alexandr Nudga and Alexandr Starosek**
Advanced nanoantenna for photovoltaics
- S1.51 Ekaterina Savchenko, Elina Nepomnyashchaya and Elena Velichko**
Combined technique based on light scattering for investigation of the colloid's parameters
- S1.52 Alexandra Savelyeva and Elena Kozlova**
Focusing of laser beam by dielectric nanocylinder with gold core
- S1.53 Anastasia Shatskaya and Dmitry Artyemyev**
Mathematical modeling of optical fiber systems for efficient registration of skin fluorescence
- S1.54 Vladimir Shostka, Nataliya Shostka and Vladislav Vershitsky**
Dynamics of fractal - cluster structures of the surface layer of alcohol-containing aqueous solutions
- S1.55 Nataliya Shostka, Olga Karakchieva, Bogdan Sokolenko and Vladimir Shostka**
System of optical traps for controlled three-dimensional shifting
- S1.56 Yaroslav Skidanov**
Analysis of the possibility of increasing the resolution on the basis of apodization for partially coherent optical systems in the presence of aberrations
- S1.57 Konstantin Smirnov, Vadim Davydov and Yuriy Batov**
InP/InGaAs photocathode for hybrid SWIR photodetectors
- S1.58 Bogdan Sokolenko, Nataliya Shostka, Dmitrii Poletaev, Olga Karakchieva and Server Halilov**
Roughness measurement by optical vortices array with nanoscale resolution
- S1.59 Olga Starinova, Miroslav Rozhkov, Bakhyt Alipova and Irina Chernyakina**
Modeling the process of optical characteristics variation for a solar sail surface during heliocentric flights
- S1.60 Yuri Strelkov and Ali Butt**
Modeling of a Fabry-Perot filter based on TiO₂ and air gap
- S1.61 Andrey Ustinov**
Representation of shifted vortex beams of arbitrary order as a combination of nonshifted vortices
- S1.62 Anastasia Ustinova**
Mathematical modeling of skin multispectral autofluorescence
- S1.63 Vadim Vasilev and Roman Skidanov**
Imaging system based on generalized harmonic lenses
- S1.64 Dmitrii Velikovskii, Anton Karandin and Maxim Kupreychik**
Two-axes Acousto-optics Deflector on KGW crystal
- S1.65 Maria Zablovskaya**
Study of polarization transformations of Gauss-Laguerre beams
- S1.66 Vladislav Zaitsev and Sergey Stafeev**
The effect of refractive index on focusing with a triangular prism
- S1.67 Valery Zakharov**
Fiber-optic power supply monitoring system for autonomous electronic equipment

- S1.68 Oleg Zayakin and Oksana Suldina**
Software application for testing a data treatment module of an experimental laser round meter
- S1.69 Vladimir Zelenskiy**
Parametric modeling of binary fiber optic sensor design
- S1.70 Kirill Zeyde, Vadim Sharov and Alexander Malkin**
Refinements to the microwave waveguide material parameters measurements. Case study
- S1.71 Safaa Mohammed Ridha Hussien Hussien and Muthana Jawad Alboedam**
Atomic and electronic structure of a new composite material based on carbon nanotubes and titanium oxide
- S1.72 Victor Danilov**
Microtechnologies in computer optics
- S1.73 Victor Danilov**
Laser technologies in the formation of harmonic lenses microreliefs

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

- S1.74 Eugene Bashkirov and Vladimir Reshetov**
Entanglement in a detuned two-photon two-atom Tavis-Cummings model
- S1.75 Dmitriy Ivanov, Natalya Chertykovtseva, Anna Terekhova (Zharkova) and Elena Andreeva**
Identification of exponential trend models with fractional white noise
- S1.76 Vladimir Mokshin, Pavel Tutubalin, Alexandr Kirpichnikov and Alexei Soiko**
Simulation and optimization of the cargo terminal in the Anylogic environment
- S1.77 Le Anh Nhat, Dmitry Kulyabov and Konstantin Lovetsky**
A new algorithm used Chebyshev pseudospectral method to solve nonlinear second-order Lienard differential equations
- S1.78 Sergey Novikov, Darya Rogach and Mariya Fedina**
Linear and nonlinear versions of Phase Retrieval
- S1.79 Anastasiya Peksheva**
Problems of nonlinear fracture mechanics: construction of eigenfunctions in a nonlinear eigenvalue problem using the small parameter method
- S1.80 Roman Alexandrov, Nikolay Laguntsov and Sergey Tikhonov**
Mathematical modeling of a multistage electrolysis plant for producing heavy and light water
- S1.81 Nikolay Laguntsov, Sergei Tikhonov, Margarita Karaseva and Alex Tishin**
Mathematical modelling and numerical study of recirculation membrane and membrane-refrigerated systems of compressed air dehydration
- S1.82 Alex Tishin and Vladimir Gurkin**
Development of a mathematical model of molecular-selective gas transfer in a hybrid membrane-adsorption oxygen concentrator

- S1.83 Ruslan Almakaev and Sergey Koledin**
Construction of a catalytic reaction mathematical model using a perceptron with one hidden layer
- S1.84 Kamila Koledina and Sergey Koledin**
Algorithms for optimizing the conditions for complex catalytic reactions
- S1.85 Kamila Koledina, Ravil Zainullin, Sergey Koledin and Arslan Akhmetov**
Multiobjective optimization of temperature in reactor unit of catalytic reforming of gasoline based on the kinetic model
- S1.86 Kamila Koledina, Sergey Koledin, Anna Vovdenko, Alfiya Bayguzina and Ravil Khusnutdinov**
Mathematical modeling of the synthesis reaction benzyl butyl ether
- S1.87 Mikhail Vovdenko, Emil Ahmerov, Kamila Koledina and Anna Vovdenko**
Mathematical modeling of radical-chain reaction of isopropylbenzene oxidation
- S1.88 Alina Mullayanova, Yuliya Mayakova, Kamila Koledina, Ravil Khusnutdinov and Azamat Abdrahmanov**
Kinetics and mechanism of the methylation reactions of anilines with dimethylcarbonate
- S1.89 Aleksei Archibasov**
Asymptotic expansions of solutions in the model of virus dynamics with immune response
- S1.90 Mikhail Balabaev**
Curvature in the construction of smooth invariant manifolds of dynamic models
- S1.91 Ifat Baynazarov, Inur Akhmetov and Rustem Gafiyatullin**
Mathematical model of process of production of phenol and acetone from cumene hydroperoxide
- S1.92 Alexander Biryukov and Mark Shleenkov**
The lifetime of the entangled states of interacting qubits in external fields and the thermostat calculated by path integral approach
- S1.93 Valery Bogdanovich and Mikhail Giorbelidze**
Calculation of residual stresses in plasma spray coatings taking into account the build-up process
- S1.94 Elena Demyanenko and Anastasia Kosolapova**
Development of mathematical model of operation forming with discounting assumption about the flat-deformed state
- S1.95 Leniza Enikeeva**
Simulation of the low-temperature steam reforming of light hydrocarbons mixtures at various flow rates
- S1.96 Natalia Firstova**
Dynamics of the electrochemical reaction behavior under the influence of random perturbations
- S1.97 Yury Gorelov, Sergey Danilov, Lyubov Kurganskaya and Andrey Shcherbak**
About modeling of thermal condition control of the spacecraft scientific equipment blocks
- S1.98 Alexander Gorokhov**
Quantum Control for the Systems with Noncompact Dynamical Groups
- S1.99 Pavel Gulyaev, Alexey Dolmatov and Vladimir Jordan**
Visualization of thermal diffusion instability of a combustion wave in Zeldovich-Barenblatt parameters

- S1.100 Pavel Gulyaev, Vladimir Jordan and Julia Panchenko**
Trace-analysis of a combustion wave thermal instability using high-speed video images: experiment and simulation modeling
- S1.101 Alexander Hodakov, Vitaliy Smirnov, Viacheslav Sergeev and Andrey Gavrikov**
Simulation of thermoelectric processes in the semiconductor structure of a solar cell
- S1.102 Iana Ivanova and Vasily Zubkov**
Modeling of resonant-tunneling effects in nanoheterostructures with quantum well in LabVIEW and Matlab
- S1.103 Olga Kiryanova and Aleksey Chemeris**
Simulation of primer search in the DNA chain
- S1.104 Ilja Kuznetsov, Oleg Strashko and Vladimir Yakovlev**
Algorithms of the choice of an optimum route of the unmanned aerial vehicle in the conditions of the convective and unstable atmosphere
- S1.105 Natalya Latukhina, Galina Rogozhina, Ivan Shishkin and Daria Lizunkova**
Simulation of the pore formation process on silicon wafers with a textured surface
- S1.106 Vladislav Lyubimov**
Modeling of the secondary resonance effects in the spherical motion of a rigid body with flywheels
- S1.107 Maksim Markushin, Vsevolod Kolpakov and Sergey Krichevskiy**
The study of charged particles kinetics in the electrodes system forming a high-voltage gas discharge
- S1.108 Fedor Martynenko, Alexandr Dorokhov, Alexei Martynenko and Andrei Radzhabov**
The contribution of one-meson interaction to fine and hyperfine structure of muonic hydrogen
- S1.109 Alexander Dorokhov, Alexei Martynenko, Fedor Martynenko, Viacheslav Sorokin and Olga Sukhorukova**
Hyperfine structure of P-states of light muonic atoms
- S1.110 Irina Matveeva and Oleg Myakinin**
Monte Carlo modeling of Raman scattering in a multi-layered tissue
- S1.111 Egor Rukin, Nikita Myazin, Vadim Davydov and Valentin Dudkin**
Simulation of non-stationary processes in the study of liquid media by the method of nuclear magnetic resonance in a weak field
- S1.112 Ruslan Sharapov**
Assessment of wind load on billboards
- S1.113 Elena Shchepakina**
Canards and invariant manifolds with stability change in a competitive model of population dynamics
- S1.114 Ekaterina Shchetinina**
On oscillation appearance in one chemical problem
- S1.115 Vladimir Sirochenko**
Numerical simulation of two-dimensional viscous heat-conducting fluid flows in irregular regions
- S1.116 Maria Sitnikova**
Complex viral dynamics models reduction

- S1.117 Vladimir Sobolev**
Decomposition of enzyme kinetics equations
- S1.118 Larisa Stepanova and Vadim Dolgich**
Finite element study of mixed mode loading of the cracked semicircular disc under bending
- S1.119 Larisa Stepanova and Ekaterina Mironova**
Intermediate self-similar asymptotic presentation of the stress and damage fields in the vicinity of the mixed mode crack tip under creep regime
- S1.120 Elena Tropkina**
Reduction of model of oncolytic virus therapy
- S1.121 Yuri Vashukov**
Mathematical modeling of placing the connecting liner process into the hole of a three-layer composite structure
- S1.122 Guzel Abdrakhmanova, Elizaveta Grakhova, Grigory Voronkov and Valery Bagmanov**
Microstrip antenna design for arrays generating OAM mm-wave radio signals
- S1.123 Ivan Meshkov, Guzel Abdrakhmanova, Elizaveta Grakhova, Valery Bagmanov, Irina Vinogradova, Albert Sultanov, Azat Gizatulin and Ilya Kuk**
An approach for generating and detecting the signals with the given orbital angular momentum for wireless communication systems
- S1.124 Valery Antonov, Roman Davydov, Vladimir Maslikov, Dmitry Molodtsov and Alexander Chusov**
Mathematical models of operating regimes of flood control facility's system
- S1.125 Valentina Burmistrova, Alexander Butov, Maxim Volkov, Mariya Moskvicheva and Anatoly Kovalenko**
Some approaches of estimation of the stopping time of the cross-boundary event for the process with change-point
- S1.126 Valentina Burmistrova, Alexander Butov, Maxim Volkov and Yuliya Pchelkina**
Some problems for the processes with compensation of the change-point event
- S1.127 Alexei Chirkov, Taiming Luo and Kirill Egorov**
Modeling heat transfer in a supercritical carbon dioxide flow with strongly variable thermophysical properties
- S1.128 Kirill Egorov, Alexsey Chirkov, Konstantin Ganeev and Timur Zuev**
Model of a real cycle of a power installation with a real-gas working fluid
- S1.129 Kirill Egorov, Bronislav Novitskiy, Mihail Kolosov, Nikolay Malastowski and Larisa Stepanova**
Numerical modeling of ventilation and air conditions systems of buildings for massive culture and sport activities
- S1.130 Milyasha Davletova, Gulshat Islamova and Olesya Dubinets**
Representation of the process of oxidative regeneration of coked catalysts in a fixed bed based on graph theory
- S1.131 Olesya Dubinets, Milyausha Davletova, Irek Gubaydullin and Guzel' Khannanova**
Modeling of coke burning process on catalyst grain
- S1.132 Liana Nurislamova, Irek Gubaydullin, Ravil Uzyanbaev and Alena Musina**
Computational aspects of Simplification of Mathematical Models of Chemical Reaction Systems

- S1.133 Kseniya Shirochenko, Ravil Uzyanbaev and Alexander Safronov**
Modification of the phenol and acetone rectification unit by the mounting the heat exchanger at the decomposition unit of hydroperoxide based on mathematical modeling
- S1.134 Alena Musina and Ravil Uzyanbaev**
Mathematical modeling of the process of thermal decomposition of propane and propane-propylene fraction
- S1.135 Anton Doroshin and Alexandr Eryomenko**
Dynamics of a composite spacecraft with a movable device attached with flexible rods
- S1.136 Azamat Faskhutdinov and Ilya Arefyev**
Mathematical model of the catalytic isomerization reactor block of the pentane-hexane fraction based on the kinetic model
- S1.137 Elena Klimanova and Alexander Maksimov**
Four-dimensional models for control system typical units
- S1.138 Yuliya Korotkova and Yuriy Mezentshev**
Formulation of the problem of optimizing an operating flight schedule to minimize flight delays
- S1.139 Liliya Kosygina**
A new calculation technique of coefficients of the multi-parametric M. William's expansion based on finite element method
- S1.140 Vladimir Kurenkov and Alexander Kucherov**
Methodology and Software for Estimating Target Efficiency of Land Remote Sensing Satellites
- S1.141 Evgeny Maiorov, Ilia Ludan, Johan David Motta Santana and Oleg Saprykin**
The creation of the city traffic flows microscopic model based on SUMO simulation system
- S1.142 Vladimir Maklashov, Mikhail Piganov and Maxim Petrov**
Simulation of transition matrix and strip lines of RF switch
- S1.143 Vladimir Nesterov and Angelica Li**
Structures of absolutely invariant measurement systems and conditions for their physical realizability
- S1.144 Vladislav Neverov and Alexander Danilin**
Simulation of the interaction of the primary microwave converter with a control object based on the laws of geometric optics
- S1.145 Vadim Salmin, Konstantin Peresyppkin, Alexey Chetverikov and Ivan Tkachenko**
Numerical optimization of geometric configuration of large space structure
- S1.146 Olga Vidilina and Nataliya Voropaeva**
Reduction of the optimal control problem for a magnetolectric power drive
- S1.147 Liana Yedigeeva and Alexander Avramenko**
Tethered system Phobos – orbital space station
- S1.148 Elena Zubkova, Oleg Saprykin and Aleksey Tikhonov**
Optimization of urban public transport accessibility based on genetic algorithm
- S1.149 Elena Medvedeva and Alena Evdokimova**
Improving the accuracy of detecting the edges of textural objects in remote sensing images

Poster Session 2

24 May (Friday)

15:00-17:00, Hall, 2nd floor

Section 2 - Image Processing and Earth Remote Sensing

- S2.1 Dmitrii Tihonkih, Artyom Makovetskii, Vitaly Kober and Aleksei Voronin**
Preliminary ICP stage for data-thinning based on object geometry
- S2.2 Alexey Ruchay, Konstantin Dorofeev and Vsevolod Kalschikov**
A novel switching bilateral filtering algorithm for depth map
- S2.3 Alexey Ruchay, Konstantin Dorofeev and Vsevolod Kalschikov**
Accuracy analysis of 3D object reconstruction using point cloud filtering algorithms
- S2.4 Nadezhda Evdokimova and Vladislav Myasnikov**
The image series forgery detection algorithm based on the camera pattern noise analysis
- S2.5 Alexei Morozov, Olga Sushkova and Alexander Polupanov**
Development of a Method of Terahertz Intelligent Video Surveillance Based on the Semantic Fusion of Terahertz and 3D Video Images
- S2.6 Dmitry Murashov, Yury Obukhov, Ivan Kershner and Mikhail Sinkin**
Algorithm for detecting diagnostic events in video channel of video-EEG monitoring data
- S2.7 Aleksandr Burlakov, Alexander Machikhin, Demid Khokhlov, Lyudmila Sleptsova, Viktor Kuzmin, Aleksei Gadzaov, Dmitrii Tytik, Sergei Busev and Vadim Kasatkin**
Acousto-optic spectral imaging for early diagnostics of the functional condition of the developing biosystem
- S2.8 Yuliya Podgornova and Sultan Sadykov**
Comparative analysis of segmentation algorithms for isolating microcalcifications on mammograms
- S2.9 Dmitriy Andrianov, Sergey Ereemeev and Yuri Kovalev**
Algorithm for constructing 3D Barcodes for represent nD spatial objects in GIS
- S2.10 Igor Kudinov, Mikhail Nikiforov and Ivan Kholopov**
Camera and auxiliary sensor calibration for a multispectral panoramic vision system with a distributed aperture
- S2.11 Evgeny Petrov and Natalia Kharina**
Restoration of the distorted frames of video
- S2.12 Alexey Kovalenko and Yana Demyanenko**
Image clustering by autoencoders
- S2.13 Evgeny Myasnikov**
Automatic search for vanishing points on mobile devices
- S2.14 Lubov Shiripova and Evgeny Myasnikov**
Human action recognition using dimensionality reduction and support vector machine
- S2.15 Olga Strukova and Evgeny Myasnikov**
The choice of methods for the construction of PCA-based features and the selection of SVM parameters for person identification by gait
- S2.16 Elizaveta Rudinskaya and Rustam Paringer**
Development of face detection technology using combinations of Haar cascades

- S2.17 Nikita Andriyanov**
The software package for statistical analysis of autoregressive and doubly stochastic random processes and random fields
- S2.18 Victor Krasheninnikov and Aleksey Subbotin**
Double stochastic wave models of multidimensional random fields
- S2.19 Dmitrii Kraus, Ramilya Kalimullina and Alena Zhukova**
Numerical characteristics of image geometric deformation parameters estimates convergence at stochastic gradient estimation
- S2.20 Olga Malenova, Anna Yashina, Marina Albutova and Larisa Trubnikova**
Algorithm for detecting spherulite marker in human blood serum facies
- S2.21 Nikita Andriyanov and Maxim Sluzhivyi**
The solution for identifying the order and parameters of autoregression with multiple roots of characteristic equations
- S2.22 Pavel Smirnov and Roman Kovalenko**
Technique to model the movement of the scene using image sequence
- S2.23 Alexander Tashlinskii, Mikhail Tsaryov and Galina Safina**
Adaptation of the mathematical apparatus of the Markov chain theory for the probabilistic analysis of recurrent estimation of image inter-frame geometric deformations
- S2.24 Alexander Tashlinskii, Galina Safina and Roman Kovalenko**
Probabilistic finite modeling of stochastic estimation of image inter-frame geometric deformations
- S2.25 Michael Bolotov, Vadim Pechenin and Nikolay Ruzanov**
Neural recognition model surfaces of machine parts based on the results of the optical scanning
- S2.26 Andrey Kuznetsov**
Digital image forgery detection using deep learning approach
- S2.27 Anna Egorova and Victor Fedoseev**
Comparative evaluation of semi-fragile JPEG watermarking methods
- S2.28 Victor Fedoseev**
A method for watermarking JPEG 2000 lossy compressed images
- S2.29 Egor Dmitriev and Vladislav Myasnikov**
Possibility estimation of 3D scene reconstruction from multiple images
- S2.30 Egor Dmitriev, Alexander Borodinov, Aleksey Maksimov and Sergey Rychazhkov**
Automatic detection of constructions using binary segmentation algorithms
- S2.31 Aleksandr Borodinov, Alexander Yumaganov and Anton Agafonov**
Public transport route planning in the stochastic network based on the individual preferences of users
- S2.32 Anton Agafonov, Vladislav Myasnikov and Aleksey Maksimov**
The use of stable probability distributions in the reliable routing problem
- S2.33 Aleksandr Borodinov and Vladislav Myasnikov**
Creating a profile of individual preferences, calculated based on the analysis of traffic tracks
- S2.34 Leonid Lebedev and Anastasia Shakhlan**
Optimizing the computational complexity of lossy compression algorithms of hyperspectral images

- S2.35 Vadim Turlapov, Leonid Lebedev and Vladimir Gromov**
Study and markup automation of hyperspectral image objects for machine learning methods
- S2.36 Dmitry Vasin and Sergey Rotkov**
Geometric modeling of raster images of documents with poorly formalized description of objects
- S2.37 Mikhail Gashnikov**
Interpolation of multidimensional signals using the reduction of the dimension of parametric spaces of decision rules
- S2.38 Nikolay Glumov and Mikhail Gashnikov**
Adaptive interpolation of multidimensional signals for airborne compression
- S2.39 Aleksey Maksimov and Mikhail Gashnikov**
Parameter space dimension reduction of an adaptive interpolator during multidimensional signal differential compression
- S2.40 Aleksey Maksimov and Vladislav Sergeev**
A comparative study of the optimal and interpolation methods for restoration a stationary continuous signal from discrete values
- S2.41 Natalia Rodionova**
Identification of thawed and frozen soil state in some Siberia regions by multi-temporal Sentinel 1 radar data in 2017-2018
- S2.42 Alina Bavrina, Anna Denisova, Lyudmila Kavelenova, Eygeny Korchikov, Oksana Kuzovenko, Yulia Makarova, Nataly Prokhorova, Daria Terentyeva and Victor Fedoseev**
Natural and revitalized grassy ecosystems as biodiversity refuges: on the abilities of remote sensing survey for their detection and study
- S2.43 Anna Denisova, Lyudmila Kavelenova, Eygeny Korchikov, Alexander Pomogaybin, Nataly Prokhorova, Daria Terentieva, Victor Fedoseev and Nikolay Yankov**
On the effective recognition of forest and bushy communities on the base of remotely sensed (RS) data supported by ground studies
- S2.44 Alexey Pyataev, Andrey Redkin and Anna Pyataeva**
Tree state category identification for boreal area conifers using global features estimation by fuzzy logic approach
- S2.45 Natalya Sevastianova and Nina Vinogradova**
Multi-channel data storage format definition for visualization tasks on the example of SPOT-4 images
- S2.46 Andrey Sosnovsky**
Evaluation of the multilooking effectiveness in interferometric SAR data processing
- S2.47 Oleg Shishkin, Nikolay Abramov, Alexander Talalae, Vitaly Fralenko and Vyacheslav Khachumov**
Neural network technologies to search for targets in Earth remote sensing images
- S2.48 Vitalii Dementev and Dmitrii Kondratev**
Using double-stochastic filters to estimate the dynamics of objects on satellite image sequences
- S2.49 Anna Denisova, Anna Egorova and Vladislav Sergeev**
Application of superpixel segmentation and morphological projector for structural changes detection in remote sensing images

- S2.50 Alexander Belov and Anna Denisova**
Spatial interpolation methods for spectral-spatial remote sensing image super-resolution algorithm based on gradient descent approach
- S2.51 Vasilii Kopenkov**
Combined usage of the optical and radar remote sensing data in territory monitoring tasks
- S2.52 Ruslan Brezhnev, Yuriy Maglinets, Ksenia Raevich and Gennady Tsybulsky**
Features of the End User Interaction with the Spatial Objects Remote Research System
- S2.53 Komal Kumari, Mukesh Boori and Alexander Kupriyanov**
Groundwater potential zones in relation to catchment condition in Orenburg, Russia
- S2.54 Mukesh Boori, Rustam Paringer, Komal Choudhary and Alexander Kupriyanov**
Vegetation drought dynamics analysis in European Russia
- S2.55 Anna Klikunova and Alexander Khoperskov**
Creating a digital elevation model for interfluve
- S2.56 Anton Ekimenko, Ekaterina Ekimenko and Sergei Shavetov**
Application of vision systems to improve the effectiveness of monitoring compliance with technical safety requirements at industrial facilities

Section 4 - Data Science

- S2.57 Irina Khaimovich, Vladimir Ramzaev and Vadim Chumak**
Multimodel Clustering of Social Networks in Social Dampening Applying BIG DATA (acquiring knowledge from data)
- S2.58 Danil Polukarov**
Some features of computer network modelling in the OMNeT++ environment
- S2.59 Dmitry Bizin and Sergey Burlov**
Development of a web filter to control access to web resources
- S2.60 Anastasiia Timofeeva and Yurii Mezentsev**
Forecasting using predictor selection from a large set of highly correlated variables
- S2.61 Dmitriy Zhukov, Vladimir Klyachkin, Victor Krasheninnikov and Yulia Kuvayskova**
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