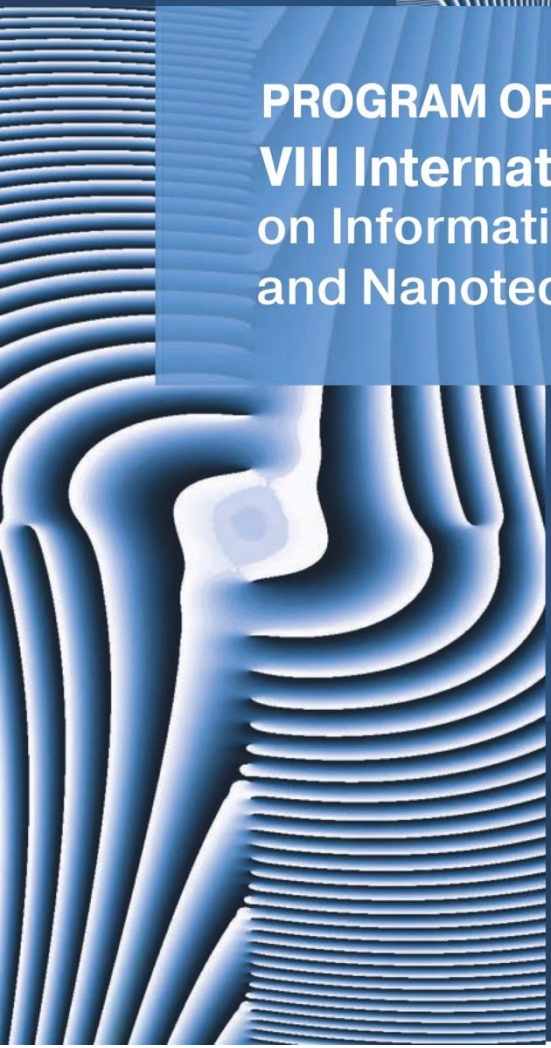
ITNT 2022

PROGRAM OF
VIII International Conference on Information Technology and Nanotechnology



23-27 MAY
SAMARA, RUSSIA

The VIII International Conference on Information Technology and Nanotechnology (ITNT-2022) is held online from May 23th to 27th, 2022. The Conference is intended 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, Nanotechnology, and Artificial Intelligence, 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

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)

Partners

IEEE

Photonics

Media partners

Photonics Russia

Computer Optics

Conference Venue

The ITNT-2022 is held in the 15th building of the Samara University.
Address: 34, Moskovskoye shosse, Samara, 443086, Russia.

In 2022, **ITNT moved to online**. Additional details on the Website.

Conference topics

Section 1 "Computer Optics and Nanophotonics"

- Diffractive Optics (Design, Simulation and Manufacturing of Diffractive Optical Elements, Applications);
- Planar Optical Structures (Waveguides, Photonic Crystals, Resonance Structures, Bragg Gratings);
- Hyperspectral Systems (Optical Schemes, Dispersive Elements, Spectral Filters);
- Nanophotonics (Design, Simulation and Manufacturing of Elements of Nanophotonics, Plasmonics, Metasurfaces);
- Optical Sensing Systems, Information Transmission and Processing (Optical Calculations, Modeling of Optical Imaging Systems, Optical Neural Networks, Fiber Optics, Information Transfer in Free-space);
- Singular Optics (Generation and Registration of Optical Vortices, Propagation and Focusing of Optical Vortices, Cylindrical Vector Beams, Spin-Orbital Conversion).

Section 2 "Information technology in Earth remote sensing"

- Information Technology in Design of Earth Remote Sensing Spacecraft and Payload;
- Software and Mathematical Solutions for Motion Control of Observation Spacecraft;
- Software and Hardware for Receiving, Processing and Analyzing Data Received from Earth Remote Sensing Spacecraft;
- Mathematical Modeling of the Processes of Earth Remote Sensing Spacecraft Performance;
- Modern Design Solutions for the Development of Earth Remote Sensing Spacecraft and their Constellations, Including CubeSat;
- UAV-based Remote Sensing Systems.

Section 3 "Digital Image Processing, Analysis and Pattern Recognition"

- Mathematical Methods of Digital Image Processing and Pattern Recognition (Filtering, Enhancement, Color Mapping, Reconstruction, Compression, Spectral Transformations and Invariants, Mathematical Morphology, Segmentation, Images Mosaicing, Feature Extraction and Selection, Descriptors, Dimensionality Reduction, Image Retrieval);
- 3D Vision (Photogrammetry, Shape or Scene Reconstruction, Registration, Geometry Transformation, Point Cloud Processing; Scene Analysis; Structure from Motion);
- Image-Based Biometric Systems (Face, Fingerprints, Retina, Gesture and Action Recognition; Object Detection and Tracking; Motion Analysis);

- Geoinformation Systems and Technologies (Vectorization, Tracing, Geospatial Analysis and Modeling; Geometric and Radiometric Correction; Data Fusion, Spectral Unmixing, Change and Anomaly Detection,);
- Multimedia Protection and Verification (Watermarking, Forgery Detection, Steganography, Steganalysis).

Section 4 "Artificial Intelligence"

- New Approaches, Trends and Fundamental Results in the Field of Artificial Intelligence and its Applications to Pattern Recognition and Image Analysis, Text Processing, Speech Information;
- Neural Network Methods and Deep Learning: New Architectures, Neural Models, Teaching Methods, Multimodal Intelligent Systems, New Approaches to Solving Applied Problems, Preparing Data for Training, Forming Datasets;
- Applied Artificial Intelligence Technologies in Image Processing, Unmanned Vehicles, Industrial and Agricultural Applications, Medical Applications, Ecology, Environmental Monitoring and Others;
- Software Technologies for Solving Problems of Artificial Intelligence – Frameworks, Libraries, Open Initiatives and Communities;
- Multidisciplinary Aspects of Artificial Intelligence and Machine Learning: Ethical and Ontological Aspects of Artificial Intelligence, Systems of Trusted Artificial Intelligence.

Section 5 "Data Science"

Computer Science:

- Data Engineering: Data Preprocessing, Validation and Augmentation;
- Data Visualization;
- Mathematical Methods of Data Analysis;
- Software Platforms and Libraries for Data Processing;
- Hardware for Data Storage and Processing;
- High-performance, Parallel and Cloud Computing, Big Data Technologies;
- Databases, Tools and Languages for Working with Databases.

Data Mining Applications:

- Solution of Urgent Applied Problems: Time Series Analysis;
- Natural Language Processing;
- Video Data Streams Analysis;
- Diagnostic Data Analysis.

Programm Committee

Programm Committee Chair

Soifer V.A. – academician of RAS, Prof., President of Samara National Research University, Samara, Russia.

Programm Committee Vice-Chair

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Korotkova O. – Prof., University of Miami, Coral Gables, USA;
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Kulchin Yu. N. – academician of RAS, Prof., Institute of Automation and Control Processes, Vladivostok, Russia;

Organizing Committee

Organizing Committee Chair

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Fomchenkov S.A. – Samara National Research University, Samara, Russia;
Yakunenkova D.M. – Image Processing Systems Institute of RAS – Branch of the FSRC "Crystallography and Photonics" RAS, Samara, Russia.

Conference Schedule

Time zone: Samara (GMT +4)

23 May		24 May		25 May		26 May		27 May	
		09:30-11:00	Plenary Session	**09:30-11:00**	Plenary Session	**09:30-11:00**	Plenary Session	**09:30-11:00**	Plenary Session
10:30-10:40	Opening Ceremony	**11:00-11:10**	Break	**11:00-11:10**	Break	**11:00-11:10**	Break	**11:00-11:10**	Break
10:40-12:40	Plenary Session	**11:10-12:40**	Oral Session	**11:10-12:40**	Oral Session	**11:10-12:40**	Oral Session	**11:10-12:40**	Oral Session
12:40-13:10	Lunch Break	**12:40-13:10**	Lunch Break	**12:40-13:10**	Lunch Break	**12:40-13:10**	Lunch Break	**12:40-13:10**	Lunch Break
13:10-14:40	Oral Session	**13:10-14:40**	Oral Session	**13:10-14:40**	Oral Session	**13:10-14:40**	Oral Session	**13:10-14:40**	Oral Session
14:40-14:50	Break	**14:40-14:50**	Break	**14:40-14:50**	Break	**14:40-14:50**	Break	**14:40-14:50**	Break
14:50-16:20	Oral Session	**14:50-16:20**	Oral Session	**14:50-16:20**	Oral Session	**14:50-16:20**	Oral Session	**14:50-15:10**	Closing Ceremony
16:20-16:30	Break	**16:20-16:30**	Break	**16:20-16:30**	Break	**16:20-16:30**	Break		
16:30-18:00	Poster Session	**16:30-18:30**	Round Table Session	**16:30-18:00**	Oral Session	**16:30-18:00**	Oral Session		

The Plenary Session talks, as well as the talks from Oral Sections, will be available for discussion during their presentation according to the Conference Schedule.

You can look through the talks posted as Posters at VK during the whole time of the Conference. If you want to ask the authors, please, follow the links and put your question in the comments. You can also use the feedback form on our Website.

The BigBlueButton platform is used for remote participation in the Conference. We ask you to carefully check the Program. Below are the parameters for connecting to online sessions.

BBB-0	
Room title:	ITNT-2022 Plenary Session
Link:	https://bbb0.ssau.ru/b/p00-uii-i5o-ztj
Access code:	365028

BBB-1	
Room title:	ITNT-2022 Oral Session – Section 1 "Computer Optics and Nanophotonics"
Link:	https://bbb0.ssau.ru/b/p00-xnu-g1u-03p
Access code:	236628

BBB-2	
Room title:	ITNT-2022 Oral Session – Section 2 “Information technology in Earth remote sensing”
Link:	https://bbb0.ssau.ru/b/p00-taz-6bv-pjo
Access code:	977196

BBB-3	
Room title:	ITNT-2022 Oral Session – Section 3 "Digital Image Processing, Analysis and Pattern Recognition"
Link:	https://bbb0.ssau.ru/b/p00-pav-gif-hxn
Access code:	571553

BBB-4	
Room title:	ITNT-2022 Oral Session – Section 4 "Artificial Intelligence"
Link:	https://bbb0.ssau.ru/b/p00-aou-eeu-fkk
Access code:	879674

BBB-5	
Room title:	ITNT-2022 Oral Session – Section 5 "Data Science”
Link:	https://bbb0.ssau.ru/b/p00-lp9-we5-esy
Access code:	237014

Program of the VIII International Conference on Information Technology and Nanotechnology (ITNT-2022)

23 May (Monday)
Time zone: Samara (GMT +4)

10:30-10:40	**Opening Ceremony** *BP-15 (online: BBB-0)*	
10:40-12:40	**Plenary Session** *BP-15 (online: BBB-0)*	
12:40-13:10	**Lunch Break**	
13:10-14:40	**Oral Sessions**	
	Section 1 "Computer Optics and Nanophotonics" *406-15 (online: BBB-1)*	Section 5 "Data Science" *408-15 (online: BBB-5)*
14:40-14:50	**Break**	
14:50-16:20	**Oral Sessions**	
	Section 4 "Artificial Intelligence" *406-15 (online: BBB-4)*	Section 5 "Data Science" *408-15 (online: BBB-5)*
16:20-16:30	**Break**	
16:30-18:00	**Poster Session** *(online: VK-link)*	

Program of the VIII International Conference on Information Technology and Nanotechnology (ITNT-2022)

24 May (Tuesday)
Time zone: Samara (GMT +4)

<table>
<tr><td>09:30-
11:00</td><td colspan="2">Plenary Session
BP-15 (online: BBB-0)</td></tr>
<tr><td>11:00-
11:10</td><td colspan="2">Break</td></tr>
<tr><td rowspan="2">11:10-
12:40</td><td colspan="2">Oral Sessions</td></tr>
<tr><td>Section 1 "Computer Optics and Nanophotonics"
406-15 (online: BBB-1)</td><td>Section 2 “Information technology in Earth remote sensing”
408-15 (online: BBB-2)</td></tr>
<tr><td>12:40-
13:10</td><td colspan="2">Lunch Break</td></tr>
<tr><td rowspan="2">13:10-
14:40</td><td colspan="2">Oral Sessions</td></tr>
<tr><td>Section 1 "Computer Optics and Nanophotonics"
406-15 (online: BBB-1)</td><td>Section 2 “Information technology in Earth remote sensing”
408-15 (online: BBB-2)</td></tr>
<tr><td>14:40-
14:50</td><td colspan="2">Break</td></tr>
<tr><td rowspan="2">14:50-
16:20</td><td colspan="2">Oral Sessions</td></tr>
<tr><td></td><td>Section 2 “Information technology in Earth remote sensing”
408-15 (online: BBB-2)</td></tr>
<tr><td>16:20-
16:30</td><td colspan="2">Break</td></tr>
<tr><td>16:30-
18:30</td><td colspan="2">Roundtable Session
(online translation: link)</td></tr>
</table>

Program of the VIII International Conference on Information Technology and Nanotechnology (ITNT-2022)

25 May (Wednesday)
Time zone: Samara (GMT +4)

09:30-11:00	**Plenary Session** *BP-15 (online: BBB-0)*	
11:00-11:10	**Break**	
11:10-12:40	**Oral Sessions**	
	Section 1 "Computer Optics and Nanophotonics" *406-15 (online: BBB-1)*	Section 5 "Data Science" *408-15 (online: BBB-5)*
12:40-13:10	**Lunch Break**	
13:10-14:40	**Oral Sessions**	
	Section 1 "Computer Optics and Nanophotonics" *406-15 (online: BBB-1)*	Section 5 "Data Science" *408-15 (online: BBB-5)*
14:40-14:50	**Break**	
14:50-16:20	**Oral Sessions**	
	Section 4 "Artificial Intelligence" *406-15 (online: BBB-4)*	Section 5 "Data Science" *408-15 (online: BBB-5)*
16:20-16:30	**Break**	
16:30-18:30	**Oral Sessions**	
		Section 5 "Data Science" *408-15 (online: BBB-5)*

Program of the VIII International Conference on Information Technology and Nanotechnology (ITNT-2022)

26 May (Thursday)
Time zone: Samara (GMT +4)

09:30-11:00	**Plenary Session** *BP-15 (online: BBB-0)*	
11:00-11:10	**Break**	
11:10-12:40	**Oral Sessions**	
	Section 1 "Computer Optics and Nanophotonics" *406-15 (online: BBB-1)*	Section 4 "Artificial Intelligence" *408-15 (online: BBB-4)*
12:40-13:10	**Lunch Break**	
13:10-14:40	**Oral Sessions**	
	Section 3 "Digital Image Processing, Analysis and Pattern Recognition" *406-15 (online: BBB-3)*	Section 4 "Artificial Intelligence" *408-15 (online: BBB-4)*
14:40-14:50	**Break**	
14:50-16:20	**Oral Sessions**	
	Section 3 "Digital Image Processing, Analysis and Pattern Recognition" *406-15 (online: BBB-3)*	
16:20-16:30	**Break**	
16:30-18:30	**Oral Sessions**	
	Section 3 "Digital Image Processing, Analysis and Pattern Recognition" *406-15 (online: BBB-3)*	

Program of the VIII International Conference on Information Technology and Nanotechnology (ITNT-2022)

27 May (Friday)
Time zone: Samara (GMT +4)

<table>
<tr><td>09:30-
11:00</td><td colspan="2">Plenary Session
BP-15 (online: BBB-0)</td></tr>
<tr><td>11:00-
11:10</td><td colspan="2">Break</td></tr>
<tr><td rowspan="2">11:10-
12:40</td><td colspan="2">Oral Sessions</td></tr>
<tr><td>Section 1 "Computer Optics and Nanophotonics"
406-15 (online: BBB-1)</td><td>Section 4 "Artificial Intelligence"
408-15 (online: BBB-4)</td></tr>
<tr><td>12:40-
13:10</td><td colspan="2">Lunch Break</td></tr>
<tr><td rowspan="2">13:10-
14:40</td><td colspan="2">Oral Sessions</td></tr>
<tr><td></td><td>Section 4 "Artificial Intelligence"
408-15 (online: BBB-4)</td></tr>
<tr><td>14:40-
14:50</td><td colspan="2">Break</td></tr>
<tr><td>14:50-
15:10</td><td colspan="2">Closing Ceremony
BP-15 (online: BBB-0)</td></tr>
</table>

Plenary Session

23 May (Monday)
Time zone: Samara (GMT +4)
BP-15 (online: BBB-0)

Chair: Academician of RAS, Prof. Victor Soifer
Secretary: Dr. Andrey Kuznetsov

10:40	**Prof. Ivan Oseledets** Skolkovo Institute of Science and Technology, Russia *???*
11:10	**Prof. RAS Yury Vizilter** State Research Institute of Aviation Systems (GosNIIAS), Russia *Actual tasks and results in CV and ML (2020-2021)*
11:40	**Prof. Arkady Shipulin** Center of Photonic Science and Engineering, Russia *ECOPIC – ECOsystem for Photonic Integrated Circuits*
12:10	**Prof. Alexander Volyar** Crimean Federal University, Russia *Internal perturbations of structured vortex beams: Controlling OAM by radial numbers*

24 May (Tuesday)
Time zone: Samara (GMT +4)
BP-15 (online: BBB-0)

Chair: Prof. Artem Nikonorov
Secretary: Dr. Denis Zherdev

09:30	**Prof. Yunxia Jin, Prof. Shijie Liu, Prof. Jianda Shao** Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China *Reflective Gratings for Chirped Pulse Amplification Laser Systems*
10:00	**Prof. Grigory Kabatyansky** Skolkovo Institute of Science and Technology, Russia *Error-correcting codes and post-quantum cryptography*
10:30	**Andrey Kolesnikov** MyOffice, Russia *Mail server migration*

25 May (Wednesday)
Time zone: Samara (GMT +4)
BP-15 (online: BBB-0)

Chair: Prof. Anton Doroshin
Secretary: Ekaterina Khnyreva

10:40	**Prof. Aleksandr Potyupkin** Joint Stock Company "Russian Space Systems", Russia *Modeling the functioning of multi-satellite orbital groupings*
11:10	**Prof. David Asatryan** Russian-Armenian University, Armenia *Automatic dominant orientation estimation of texture images using the scattering ellipse of the gradients*
11:40	**Dr. Atanas Marinov Atanassov** Institute of Space Research and Technology, Bulgarian Academy of Sciences, Bulgaria *Development of methods, algorithms and program tools for analysis and design of space missions for Earth observation*

26 May (Thursday)
Time zone: Samara (GMT +4)
BP-15 (online: BBB-0)

Chair: Prof. Aleksey Kovalev
Secretary: Dr. Elena Kozlova

09:30	**Dr. Andrey Vyunishev** Kirensky Institute of Physics, Siberian Branch of the Russian Academy of Sciences, Russia *Synthesis of complex vortex optical fields: from single vortices to 3D gratings*
10:00	**Prof. Kehar Singh** Indian Institute of Technology, India *Multiuser optical image authentication algorithm based on sparse constraint and polar decomposition in cascaded fractional Mellin domain*
10:30	**Dr. Vladimir Arlazarov** Dorodnicyn Computing Centre, RAS (CC RAS), Russia Smart Engines, Russia *Security analysis of neural network models and ways to prevent attacks on artificial intelligence*

27 May (Friday)
Time zone: Samara (GMT +4)
BP-15 (online: BBB-0)

Chair: Prof. Vladislav Sergeev
Secretary: Dr. Sergey Stafeev

09:30	**Prof. Saifollah Rasouli** Institute for Advanced Studies in Basic Sciences (IASBS), Iran *A review on radial carpet beams (RCBs) and some new studies on the self-healing of the RCBs*
10:00	**Dr. Andrey Pryamikov** Prokhorov General Physics Institute, Russia *Strong light localization in micro - structured fibers and vortex movements of the Poynting vector of the core modes*
10:30	**Dr. Ivan Kostadinov** PROAMBIENTE S.c.r.l., Italy *Modern solutions for remote sensing of the Earth and near-Earth space from the board of unmanned vehicles*

Oral Session – Section 1 "Computer Optics and Nanophotonics"

23 May (Monday)
Time zone: Samara (GMT +4)
406-15 (online: BBB-1)

Chair: Dr. Elena Kozlova
Secretary: Elena Kadomina

13:10	**Dmitry Savelyev, Sergey Degtyarev** *The features of the optical vortices diffraction on silicon ring gratings*
13:25	**Sergey Stafeev, Andrey Pryamikov, Grigory Alagashev, Viktor Kotlyar** *Transverse energy flows in all solid band gap fiber*
13:40	**Alexey Kovalev, Victor Kotlyar** *Orbital angular momentum of two optical vortices passed through a sector aperture*
13:55	**Dmitriy Vikulin, Elena Barshak, Boris Lapin, Anna Enina, Constantine Alexeyev, Maxim Yavorsky** *All-fiber acoustically-driven CNOT gate for optical vortices*
14:10	**Constantine Alexeyev, Selime Alieva, Elena Barshak, Boris Lapin, Isaac Rifatov, Maxim Yavorsky** *Differential group delay for optical vortices in a 3-turn fiber coil resonator*

24 May (Tuesday)
Time zone: Samara (GMT +4)
406-15 (online: BBB-1)

Chair: Dr. Alexey Porfirev
Secretary: Dr. Mikhail Kirilenko

11:10	**Sahar Al-Sammarraie, Lyudmila Bratchenko, Elena Typikova, Peter Lebedev, Valery Zakharov, Ivan Bratchenko** *Silver nanoparticles-based substrate for blood plasma analysis under 785 nm laser excitation*
11:25	**Andrey Makarov, Vladimir Podlipnov, Ali Hamandi, Roman Skidanov, Nikita Firsov, Pavel Boriskin** *Hyperspectral imaging of microscopic medical preparations*
11:40	**Hamza Mohammad, Vladimir Podlipnov, Veronika Blank** *Spectral lenses to highlight blood vessels in the skin*
11:55	**Rodion Dobretsov, Anatoliy Evstrapov** *Creation of a device for detecting fluorescence from microfluidic chips*
12:10	**Sergey Kharitonov, Vladimir Fursov** *Images computer simulation of diffraction lens*
12:25	**Bogdan Sokolenko, Nataliya Shostka, Dmitrii Poletaev, Selim Yakubov, Andrej Prisyajniuk, Ismail Ismailov** *High-frequency controlled fiber optical traps*

Chair: Prof. Vladimir Pavelyev
Secretary: Dr. Konstantin Tukmakov

13:10	**Veronika Blank, Roman Skidanov** *Spectral lens for determining plant stress*
13:25	**Sofiya Ganchevskaya, Vadim Vasilyev** *Parameters optimization of the harmonic lens system according to the criterion of minimum focal shift.*
13:40	**Azat Nizametdinov, Alexey Chertoriysky, Artem Shuravin** *Measurement of micro-deformations using a fiber-optic Fabry-Perot interferometer of low contrast*
13:55	**Vladimir Burdin, Olga Gubareva, Vladimir Gureev, Michael Dashkov** *Tracking All-Dielectric Fiber-Optic Cable Route*
14:10	**Artyom Shavshin** *Development of automatic control of optical signal gain in a atomic frequency standard based on rubidium-87 atoms*
14:25	**Daniil Provodin, Vladislava Borodaenko, Vadim Davydov** *Optical method for express control of the state of liquids*

25 May (Wednesday)
Time zone: Samara (GMT +4)
406-15 (online: BBB-1)

Chair: Prof. Alexey Kovalev
Secretary: Dr. Anton Nalimov

11:10	**Pavel Khorin, Aleksey Porfirev** *Application of a wavefront sensor based on matched filtering for setting up a laser radiation collimator*
11:25	**Maksim Pomeshchikov** *Simulation of a Wavefront Aberration Sensor Matched to Zernike Functions*
11:40	**Vladimir Toporovsky, Alexis Kudryashov, Vadim Samarkin, Ilya Galaktionov, Alexey Rukosuev** *Zernike polynomials with high-resolution bimorph deformable mirror*
11:55	**Leonid Sevastianov, Konstantin Lovetskiy, Dmitry Kulyabov** *Multistage pseudo-spectral method (of collocations) for the approximate solution of an ordinary differential equation of the first order*
12:10	**Andrey Ustinov, Evgeniy Monin** *Intensity analysis on caustic of autofocusing chirp beams*
12:25	**Natalia Konobeeva, Anastasia Kulbina, Mikhail Belonenko** *Extremely short optical pulses in an optically anisotropic medium with carbon nanotubes in the presence of a mechanical load*

Chair: Prof. Roman Skidanov
Secretary: Dr. Veronika Blank

13:10	**Leonid Mochalov, Aleksandr Logunov, Mikhail Kudryashov, Igor Prokhorov, Maksim Vshivtsev, Vladimir Malyshev** *Preparation and properties of As-Se thin films doped with ytterbium*
13:25	**Fedor Sidorov, Aleksandr Rogozhin** *Simulation of microoptical structure formation by thermostimulated e-beam lithography*
13:40	**Roman Kuts, Viktor Korolkov, Aleksandr Sametov, Sergei Golubtsov, Vadim Cherkaschin** *Investigation of errors in thermochemical laser writing of crossed diffraction gratings*
13:55	**Nguyen Thi Huyen Trang, Sergey Kudryashov** *Fabrication of array of micro-holes by femtosecond laser pulses for advanced IR-sensing applications*
14:10	**Sergei Vasin, Vyacheslav Sergeev, Ilya Frolov** *Study of spectral and polarization optical characteristics of polymer films with ordered carbon nanotubes*

26 May (Thursday)
Time zone: Samara (GMT +4)
406-15 (online: BBB-1)

Chair: Prof. Evgeni Bezus
Secretary: Dr. Nikita Golovastikov

11:10	**Pavel Mokshin, Dimitry Golovashkin, Vladimir Pavelyev** *The iterative approach based on the FDTD method to the calculation of metal-dielectric photonic crystal elements*
11:25	**Evgeni Bezus, Dmitry Bykov, Leonid Doskolovich** *Integrated resonant diffraction gratings for Bloch surface waves*
11:40	**Pavel Golovinski, Eldar Enikeev** *Spontaneous emission of quantum dot coupled with quantum plasmonic resonator*
11:55	**Yulia Dvuzhilova, Ilya Dvuzhilov, Natalia Konobeeva, Mikhail Belonenko** *Few-cycle optical pulses in an anisotropic optical photonic crystal under optical resonator condition*
12:10	**Andrey Tarasov** *Whispering Gallery Modes in ZnO Polyhedral Microcrystals*

27 May (Friday)
Time zone: Samara (GMT +4)
406-15 (online: BBB-1)

Chair: Dr. Sergey Stafeev
Secretary: Dr. Elena Kozlova

11:10	**Anton Nalimov, Viktor Kotlyar** *Influence of optical "dipoles" on the topological charge of a beam in the far field*
11:25	**Elena Barshak, Boris Lapin, Dmitriy Vikulin, Constantine Alexeyev, Maxim Yavorsky** *Two-bit operation of controlled inversion and swap over optical vortices in a system of anisotropic optical fibers*
11:40	**Vladislav Zaicev, Sergey Stafeev, Victor Kotlyar** *Formation of the reverse flow of exposure and light by a cubic prism of quartz glass*
11:55	**Alexandra Savelyeva, Elena Kozlova, Viktor Kotlyar** *New type of vortex laser beams: Laguerre-Gauss beam squared*
12:10	**Victor Kotlyar, Alexey Kovalev** *Strengths of superposition of laser vortices*
12:25	**Elena Kozlova** *Simulation of femtosecond laser puls focusing by zone plate*

Oral Session – Section 2 "Information Technologies for Earth Remote Sensing and Image Processing"

24 May (Tuesday)
Time zone: Samara (GMT +4)
408-15 (online: BBB-2)

Chair: Dr. Ivan Tkachenko
Secretary: Ekaterina Khnyryova

11:10	**Mukesh Singh Boori, Komal Choudhary, Rustam Paringer, Alexander Kupriyanov** *Ecosystem health comparison in between Tatarstan and Samara state, Russia*
11:25	**Daria Ryzhova, Vadim Davydov** *Monitoring of emergency situations on water objects using remote sensing of the Earth*
11:40	**Oleg Goryachkin, Aleksey Borisenkov, Nikolay Gusev, Alexey Lifanov** *SAR system for searching and detecting objects in the forest area, based on UAVs*
11:55	**Komal Choudhary, Mukesh Singh Boori, Alexander Kupriyanov** *A brief overview of satellite imagery for yield estimation in agroecosystem*
12:10	**Olga Starinova, Danhe Chen, Elizaveta Sergaeva, Roman Khabibullin, Irina Chernyakina** *Motion control of an electric propulsion observation spacecraft in a irregular gravitational field*
12:25	**Anton Doroshin, Alexandr.V. Eremenko** *Attitude dynamics modeling of a dual-spin nanosatellite with an elastic longitudinal axis*

Chair: Dr. Ivan Tkachenko
Secretary: Ekaterina Khnyryova

13:10	**Victoria Ivannikova, Vadim Davydov, Peter Goritskov** *Test equipment for testing digital devices that perform processing on FPGAs*
13:25	**Camilla Kurasova, Lyubov Kukushkina, Anna Solomnikova, Vasily Zubkov** *Influence of processing on the surface morphology of diamond wafers for the production of optoelectronic products*

13:40	**Maksim Ivanushkin, Ivan Tkachenko, Anastasiia Krestina** *Method for the design of a multi-satellite space system for global continuous monitoring of the Earth*
13:55	**Igor Isaev, Ivan Obornev, Eugeny Obornev, Eugeny Rodionov, Mikhail Shimelevich, Sergey Dolenko** *Comparison of data integration methods for neural network solution of the inverse problem of exploration geophysics*
14:10	**Aleksei Kumarin, Aleksandra Sobornitskaya, Ilya Kudryavtsev** *Design methods of planar magnetic actuators for small satellites attitude control systems*
14:25	**Peter Zavyalov, Sergey Makarov, Mikhail Stupak, Alexander Verhoglyad, Andrey Yelesin, Marina Zavyalova, Maxim Kravchenko, Dmitry Skokov, Evgeny Vlasov, Alexey Ermolenko** *Approach to controlling the position of the space observatory "Millimetron" mirror elements by the high-precision system*

Chair: Dr. Ivan Tkachenko
Secretary: Ekaterina Khnyryova

14:50	**Anastasiia Krestina, Ivan Tkachenko, Maksim Ivanushkin** *Design analysis of the aerodynamic deorbiting system for Earth remote sensing small spacecraft*
15:05	**Mikhail Stepanov, Andrey Stepanov, Olga Stepanova** *Criteria for assessing the quality of remote sensing of the Earth by a UAV group*
15:20	**Dmitry Plotnikov, Pavel Kolbudaev, Alexey Matveev, Evgeny Loupian, Andrey Proshin** *Daily surface reflectance reconstruction using LOWESS on the example of various satellite systems*
15:35	**Ivan Kaurov** *Design a thermal management system for a remote sensing small spacecraft*
15:50	**Mikhail Kovalev, Vladimir Zelensky, David Hovakimyan, Tatiana Starostina** *UAV's autonomous navigation principe based on Earth remote sensing data*

Oral Session – Section 3 "Digital Image Processing, Analysis and Pattern Recognition"

26 May (Thursday)
Time zone: Samara (GMT +4)
406-15 (online: BBB-3)

Chair: Prof. Vladislav Sergeev
Secretary: Mariia Sovetkina

13:10	**Mikhail Lange, Semion Paramonov** *Error probability and computational complexity of classifying objects in a space of multilevel representations*
13:25	**Dmitry Murashov** *A Two-Level Method for Combining Segmentation Maps Based on Information Redundancy Measure*
13:40	**Artyom Makovetskii, Sergei Voronin, Vitaly Kober, Alexei Voronin** *Registration algorithm for incongruent point clouds*
13:55	**Arina Varlamova, Kitov Victor** *Depth maps correction based on neighboring frames*
14:10	**Valeriy Kosykh, Gennadiy Gromilin, Nikolay Yakovenko** *New algorithm for determining 3D coordinates of the eye cornea center in a non-contact eye-tracking system*
14:25	**Tatiana Yakovleva** *Study of accuracy of the signal reconstruction against the noise background by the maximum likelihood technique at the two-parameter analysis of Rician data*

Chair: Prof. Vladislav Sergeev
Secretary: Mariia Sovetkina

14:50	**Vladimir Fursov** *Recursive filter for defocus correction on a non-uniform sample grid with stability control*
15:05	**Roman Kovalenko, Alexander Tashlinskii** *Correction of the Interpolation Effect in Modeling the Process of Estimating Image Spatial Deformations*
15:20	**Vitaliy Dementev, Alexey Belyanchikov, Konstantin Vasiliev, Nikita Andriyanov** *Restoration of Spatially Inhomogeneous Images Based on Doubly Stochastic Filters*
15:35	**Radik Magdeev, Aleksandr Tashlinskii, Marat Suetin** *Joint Usage of Neural Networks and Stochastic Referencing of Images While Estimating Defects in Bridge Structures*
15:50	**Roman Kovalenko, Alexander Tashlinskii** *Optimization of the Histogram Intervals Number which Approximate Brightness Probability Distributions in Stochastic Image Alignment Based on Mutual*
16:05	**V. E. Dementyev, A.G. Tashlinsky, M. N. Suetin, M.A. Gaponova** *Improving the quality of video processing based on the use of an artificial YOLO*

	neural network

Chair: Prof. Vladislav Sergeev
Secretary: Mariia Sovetkina

16:30	**Turlapov Vadim, Lysov Maxim** *Гиперспектральные и тепловые изображения в ранней диагностике засухи растений пшеницы с помощью XAI*
16:45	**Boris Boiarskii, Mikhail Sinegovskii** *Application of NDVI and NDRE vegetation indices in the assessment of soybean productivity under nitrogen controlled-release fertilizer*
17:00	**Дудоров Вадим, Шестаков Степан** *Метод дистанционного измерения скорости ветра в режиме реального времени*
17:15	**Vitaliy Dementiev, Kirill Sviatov, Maria Gaponova** *Image processing algorithms for solving the problem of self-driving cars navigation*
17:30	**Alphiya Diyazitdinova** *Homography Superposition of the Television Image for Multicam Machine Vision by Data of the Environmental Test*

Oral Session – Section 4 "Artificial Intelligence"

23 May (Monday)
Time zone: Samara (GMT +4)
406-15 (online: BBB-4)

Chair: Prof. Pavel Serafimovich
Secretary: Vladimir Procenko

14:50	**K. Abdulhalikova, P. Tutubalin, A. Alexandrov, S. Sotnikov, I. Urakchinsky** *Development of a prototype of intelligent insulin pump*
15:05	**N. Demin, N. Ilyasova** *Semantic segmentation of lung radiographs using U-net type neural network*
15:20	**A. Makarov, D. Ulyanov, N. Ivliev, A. Nikonorov, V. Podlipnov, N. Firsov** *Neural network classification of coffee varieties on hyperspectral images*
15:35	**R. Nasyrov, A. Kruzhkov** *Recursive Approach in Machine Learning Optimization Problems*
15:50	**A. Dyrnochkin, V. Moshkin** *Approach to extraction and clustering bibliographic information*
16:05	**A. Ivanova, N. Kharin, T. Baltina, O. Sachenkon** *Muscle tone control system based on LIF model neural network*

25 May (Wednesday)
Time zone: Samara (GMT +4)
406-15 (online: BBB-4)

Chair: Prof. Artem Nikonorov
Secretary: Victoria Evdokimova

14:50	**A. Nigmatzyanov, D. Shepelev, V. Vasilev, E. Ershov, M. Tchobanou** *Dynamic camera spectral sensitivity estimation*
15:05	**O. Berbasov, A. Privalov** *Using Neural Networks to Predict When a Long Queue of Messages Sent on a Highway is Exceeded a Specified Threshold*
15:20	**D. Antonov, S. Sukhov** *Knowledge fusion by pruning in spiking neural networks*
15:35	**D. Kurilo, V. Moshkin** *Development of a hybrid time series anomaly detection system*
15:50	**A. Lyakishev, A. Privalov** *Using Neural Networks to Model Human Mobility*
16:05	**O. Permiakova, A. Rogozhin, A. Miakonkikh, E. Smirnova, K. Rudenko** *The effect of pulse amplitude on the linearity of the weight update in the HfO2-based memristor*

26 May (Thursday)
Time zone: Samara (GMT +4)
408-15 (online: BBB-4)

Chair: Dr. Yuliya Vybornova
Secretary: Dmitriy Ulyanov

11:10	**T. Makarovskikh, A. Salah, A. Badr, A. Kadi, H. Alkattan, M. Abotaleb** *Automatic classification Infectious disease X-ray images based on Deep learning Algorithms*
11:25	**I. Aglukov, K. Svyatov, S. Sukhov** *Multitasking training of intelligent agents on hidden representations*
11:40	**V. Govoviznina** *Automatic summarization of texts*
11:55	**E. Pugovkina, A. Belousov** *Using natural language text clustering methods in recommender systems*
12:10	**D. Shustanov, P. Yakimov** *Development of computer vision system for the outer surface of the pipe defects detection*
12:25	**E. Churaev, A. Savchenko** *Multi-user facial emotion recognition in video based on user-dependent neural network adaptation*

Chair: Dr. Yuliya Vybornova
Secretary: Dmitriy Ulyanov

13:10	**V. Vasilyev, A. Vulfin, A. Kirillova** *Algorithms for proactive security of industrial systems based on machine learning technologies*
13:25	**N. Andriyanov** *Estimating Object Coordinates Using Convolutional Neural Networks and Intel Real Sense D415/D455 Depth Maps*
13:40	**P. Skobelev, A. Tabachinskiy, E. Simonova, O. Goryanin** *Development of crop-simulation multiagent system for smart digital twin of plant*
13:55	**A. Smagin** *Semantic segmentation of meshed fencing constructions and searching breaks*
14:10	**V. Gridin, I. Novikov, B. Salem, V. Solodovnikov** *Semi-automatic one-class image labeling using a neural network object detection model*
14:25	**N. Klepikov, T. Mikheeva** *Recognition of road signs in the intelligent transport geographic information system ITSGIS*

27 May (Friday)
Time zone: Samara (GMT +4)
408-15 (online: BBB-4)

Chair: Dr. Denis Zherdev
Secretary: Nikita Firsov

11:10	**D. Novichkov, S. Grachev, E. Panteley** *Development of an intelligent food production management system*
11:25	**A. Zuravska** *Classification of imaginary leg movements based on Riemannian geometry*
11:40	**T. Makarovskikh, M. Abotaleb** *Hyper-parameter Tuning for Long Short-Term Memory (LSTM) Algorithm to Forecast a Disease Spreading*
11:55	**Y. Vybornova, D. Ulyanov** *Method for Protection of Deep Learning Models using Digital Watermarking*
12:10	**O. Molokovich, R. Nasyrov** *Reducing the impact of graphic data corruptions on artificial intelligence applications using the algorithm of non-local selection of objects*
12:25	**D. Pashchenko, E. Razova, A. Kotelnikova, S. Vychegzhanin, E. Kotelnikov** *Interpretation of language models attention matrices in text sentiment analysis*

Chair: Dr. Denis Zherdev
Secretary: Nikita Firsov

13:10	**A. Shabalin, O. Nikolaychuk** *Adaptation of the Educational Process Using a Rule-based System*
13:25	**A. Belglazov, L. Beloglazova, O. Bodin, T. Istomina, A. Spirkin** *Subvocal interface in assistive information technology*
13:40	**A. Kovalenko, Y. Demyanenko** *Video denoising with realistic noise generation*
13:55	**T. Kuznetsova, P. Repp, V. Fofanov** *Aeroengine NOx-emissions automatic control based on neural network model*
14:10	**I. Lvovich, Y. Lvovich, A. Probrazhenskiy, Y. Preobrazhenskiy, Y. Sakharov** *The simulation of internet of things system on the base of neural network approach*
14:25	**D. Kurilo, V. Moshkin** *Development of a hybrid time series anomaly detection system*

Oral Session – Section 5 "Data Science"

23 May (Monday)
Time zone: Samara (GMT +4)
408-15 (online: BBB-5)

Chair: Prof. Vladimir Fursov
Secretary: Dr. Evgeniy Minaev

13:10	**Olga Sergeevna Sushkova, Alexei Alexandrovich Morozov, Alexandra Vasilievna Gabova, Alexei Vyacheslavovich Karabanov, Sergei Nikolaevich Illarioshkin** *An investigation of neurophysiological regularities of Parkinson's disease at the first stage by the wave train electrical activity analysis*
13:25	**Dmitriy Borisov, Aleksandr Blagov** *Development of the application for modeling locomotor activity of laboratory animals*
13:40	**Oleg Gerasimov, Karina Sharafutdinova, Ramil Rakhmatulin, Tatyana Baltina, Maxim Baltin, Artur Fedyanin** *Using a digital prototype to analyze bone strength based on CT data*
13:55	**Pavel Podzolkov** *Algorithm for estimating the duration of disease stages from a set of incomplete data*
14:10	**Valeriia Guryanova** *Scalogram-EMD Distance for Mobile ECGs*

Chair: Prof. Vladimir Fursov
Secretary: Dr. Evgeniy Minaev

14:50	**Marina Nikitina** *Agent-Oriented Simulation Modeling of Systems*
15:05	**Pavel Sitnikov, Evgeniya Dodonova, Irina Dubinina, Oleg Golovnin, Anton Ivaschenko, Natalya Ilyasova** *Digital platform of integrated monitoring for regional development analysis*
15:20	**Yulia Vladimirovna Hitskova, Katerina Alexandrovna Makoviy, Irina Fedorovna Astakhova, Olga Evgenievna Efimova** *Choosing a behavior strategy for an electronic trading participant in the field of public procurement using forecasting*
15:35	**Igor Bychkov, Alexander Feoktistov, Roman Kostromin** *A platform for simulation modeling of equipment for infrastructure objects in a distributed environment*
15:50	**Elena Rostova, Michail Geraskin** *Algorithm for choosing industrial risk insurance rates based on analysis of large arrays of data on insurance objects*

25 May (Wednesday)
Time zone: Samara (GMT +4)
408-15 (online: BBB-5)

Chair: Prof. Alexander Privalov
Secretary: Daria Arkhipova

11:10	**Vladimir Geppener, Bogdana Mandrikova, Nikita Pataichuk** *Method of complex analysis of natural data using artificial intelligence*
11:25	**Margarita Dakinova, Leysan Bikchentaeva, Oscar Sachenkov, Tatyana Baltina, Guzel Yafarova** *Spectral analysis of stabilographic signals by Fourier and Hilbert – Huang methods*
11:40	**Eldar Miftakhov, Svetlana Mustafina, Tatyana Mikhailova, Azat Daminov** *Application of remote computing technologies for the study of physical and chemical processes*
11:55	**Roman Vladimirov, Vladimir Shirokiy, Oleg Barinov, Irina Myagkova, Sergey Dolenko** *Study of input feature significance in prediction of the geomagnetic index using machine learning methods*
12:10	**Varvara Gazaryan, Pavel Kudryavtsev, Alexandra Bezrukova, Yulia Kurbatova, Natalya Shapkina, Alexey Chulichkov** *Time series statistical analysis of surface layer air temperature of the atmosphere in various regions in Russia*
12:25	**Maksim Gapeev, Yuri Senkevich, Olga Lukovenkova, Alexandra Solodchuk** *Anomaly Detection in Pulse Geoacoustic Signals*

Chair: Prof. Alexander Privalov
Secretary: Daria Arkhipova

13:10	**Nikita Dragunov, Elena Dyukova, Anastasia Dyukova** *Supervised Classification and Finding Frequent Elements in Data*
13:25	**Valentina Semenova, Sergey Smirnov** *Revealing the features of an object based on incomplete and conflicting empirical data*
13:40	**Valentina Sulimova, Andrey Kopylov, Sergey Dvoenko, Mikhail Kurbakov** *Distributed implementation of the mean decision rules method with smart sampling for large SVM problems*
13:55	**Vladimir Mikhailov, Tatyana Mikhailova, Eldar Miftakhov, Svetlana Mustafina** *Analysis of pattern matching algorithms considering their practical application based on experiments*
14:10	**Alexey Gurianov** *Oblivious Piecewise-Linear Decision Trees*

Chair: Prof. Dimitry Golovashkin
Secretary: Dr. Anton Kotov

14:50	**Vadim Pechenin, Ekaterina Pechenina, Alexander Kupriyanov** *Development of a nozzle assembly technique using clustering methods*
15:05	**Boris Likhttsinder, Elena Kitaeva, Alexander Privalov** *Queue Analysis for Video Traffic Using the Generalized Interval Method*
15:20	**Andrey Tsyganov, Yulia Tsyganova, Anastasia Kuvshinova, Tatiana Kureneva** *New discrete-time filtering algorithms based on the MWGS-orthogonalization for systems with multiplicative and additive noises*
15:35	**Aleksander Kolpakov, Dmitriy Beilekchi, Alexander Proskuryakov, Aleksey Belov** *Research and development of an algorithm for suppressing the acoustic effect of a loop in loudspeaker communication systems*
15:50	**Alexander Khusnutdinov, Vitaly Karmanov** *Solving the problem of flow distribution of hydraulic networks in conditions of unreliable initial data*
16:05	**Andrey Tsyganov, Yulia Tsyganova, Alexey Golubkov** *Decentralized algorithm for detecting changes in the motion mode of an object based on multisensor data*

Chair: Prof. Dimitry Golovashkin
Secretary: Dr. Anton Kotov

16:30	**Alexander Chernyshov** *Determination of the probability of loss of information on a partially recorded write once optical disc during long-term storage in an electronic archive*
16:45	**Valery Zasov, Andrey Lobachev** *Improving the Reliability of Detecting Data Race Conditions in Multithreaded Systems*
17:00	**Victor Zhidchenko, Egor Startcev, Juha Kortelainen, Akhtar Zeb, Leo Torvikoski, Saeid Torkabadi, Heikki Handroos** *Microservices-based architecture for the digital twins of heavy equipment*
17:15	**Mikhail Volkov, Anastasia Kovrigina, Daria Taran** *Investigation of the polar coordinate system for wireless self-organizing networks*
17:30	**Elena Basan** *Data Simulation for Testing UAV Intrusion Detection Systems*
17:45	**Raman Saurabh, Sarang Balasaheb Bhasme, Muhammad Salman Saeed, Alexey Nazarov, Chanchal Kumar** *Masquerading Email Detection*

Poster Session – Section 1 "Computer Optics and Nanophotonics"

23 May (Monday)
Time zone: Samara (GMT +4)
16:30-18:00

ID 59: Sergei Belibikhin, Anastasia Kulbina, Natalia Konobeeva, Mikhail Borisovich Belonenko.
Influence of the vector order parameter on the evolution of electromagnetic pulses in an optically anisotropic medium with carbon nanotubes

ID 68: Olga Dyukareva
Propagation of beams with a power-law dependence on the radius

ID 69: Yuriy Egorov, Mikhail Bretsko, Yana Akimova, Alexander Volyar, Alexander Rubass
Polychromatic Bessel beams of zero and first orders

ID 73: Christina Konnova
Investigation of overcoming the diffraction limit based on superoscillatory functions

ID 107: Eugene Bashkirov
Dynamics of two-photon Tavis-Cummings model with Kerr media

ID 110: Ekaterina Gryaznova, Kirill Malanin
A system with a fiber-optic communication line for measuring the parameters of active phased antenna arrays in the far zone in landfill conditions

ID 121: Atamyrat Khozhaev
Modeling the formation of contour laser beams

ID 143: Anna Dubman
Modeling curvilinear diffraction gratings for generating optical vortices

ID 146: Lyudmila Bratchenko, Sahar Zead, Elena Tupikova, Daria Konovalova, Peter Lebedev, Valery Zakharov, Ivan Bratchenko
Analyzing the serum of hemodialysis patients by means of the combination of SERS and machine learning

ID 153: Mikhail Bretsko, Yana Akimova, Alexander Volyar, Yuriy Egorov, Server Halilov, Selim Yakubov
Sectoral perturbation of quadratic spiral vortex beam

ID 154: Maria Yakusheva, Roman Davydov, Daria Isakova
Features of signal absorption fronts of laser radiation in rapid diagnosis of human health

ID 162: Gregory Pchelkin, Vladimir Demidov, Anton Bourdine, Egishe Ter-Nersesyants, Aleksandr Khokhlov, Aleksandra Matrosova, Konstantin Dukelskii, Michael Dashkov, Andrey Podoprigora, Valery Pilipova, Vadim Davydov, Vasilisa Romashova, Rano Kashina
Study of the characteristics of few-mode microstructured optical fibers with 6 cores made of highly doped GeO2 silica and induced chirality

ID 165: Vitaliia Sviatkina, Anna Kordyukova, Andrey Belyaev, Vadim Davydov
Development of a Light Source Layout for a New Method for Multispectral Image Processing of Skin Neoplasms

ID 168: Server Halilov, Mikhail Bretsko, Yana Akimova, Alexander Volyar, Alexander Rubass, Bogdan Sokolenko, Vladimir Shostka, Elena Onikienko, Selim Yakubov
Vortex fiber optic filter

ID 169: Anna Skidanova
Modeling the propagation of polygon beams

ID 170: Aleksandr Gorokhov
Dynamics of two 3-level atoms in nonideal cavities

ID 171: Mikhail Bretsko, Yana Akimova, Alexander Volyar, Yuriy Egorov, Server Khalilov
Destruction and recovery of spiral vortex beams

ID 174: Viacheslav Sergeev, Ilya Frolov, Oleg Radaev
Measurement of the Overheating Temperature Profile of the Surface of the Light-Emitting Heterostructure by the Temperature Droop of the Luminescence Brightness

ID 176: Pavel Khorin, Stanislav Sergynin
Diffraction of pulsed linearly polarized Gaussian laser beams on a spiral phase plate

ID 207: Andrei Bodunov
Recognition of vortex beams using convolutional neural networks

ID 208: Valentin Logachev
Simulation of the formation of vortex beams during diffraction by a thin spiral aperture

ID 220: Elena Sorokina, Yulia Khristoforova, Ivan Bratchenko
A study of skin Raman spectra from different body sites and different phenotypes

ID 222: Andrey Krupnikov, Mikhail Kirilenko
Calculation of a phase diffractive optical element that forms a given set of spheroidal functions

ID 223: Arina Starikova, Mikhail Kirilenko
Analysis of the weights of Hermite-Gaussian modes in a two-dimensional Airy beam

ID 229: Anastasia Shatskaya; Victoria Evstiforova; Dmitry Artemyev; Andrey Sokolov
Design of fiber-optic Raman sensor using metal-organic frameworks

ID 237: Lyubov Kukushkina, Anna Solomnikova, Vasiliy Zubkov
Measurements and modeling of optical absorption spectra of single-crystal diamond

ID 242: Dmitry Shurupov, Valery Volynkin, Vladimir Demidov, Sergey Eustropief, Grigory Pchelkin, Konstantin Dukelsky, Vadim Davydov
Fiber-optic sensor based on an organic phosphor for detecting UV radiation in the A range

ID 253: Olga Gubareva, Vladimir Gureev, Oleg Osipov
Algorithms for determining the location of an intruder using DAS in space

ID 254: Serguei Murzin, Heinz Palkowski, Alexey Melnickov, Ekaterina Nosova, Maksim Blokhin
Features of laser welding of sandwich composite metal-polymer materials

ID 255: Serguei Murzin, Stanislav Osipov
Creation of one-dimensional nanostructures based on zinc oxide

ID 259: Sergei Sharangovich, Victor Dolgirev
Analytical model of light diffraction on multilayer inhomogeneous holographic PPM-LC diffraction structures

ID 271: Elizaveta Konstantinova, Vasily Slezhkin, Valery Bryukhanov
Kinetic Study of the Luminescence of CdZnSeS/ZnS Quantum Dots Adsorbed on the Surface of Silver Island Film Nanoparticles

ID 274: Alexsandra Kurkova, Yuri Zakharenko, Natalya Kononova, Zoya Fomkina
Transmission of the unit of length to modern lasers and laser measuring systems

ID 279: Selim Yakubov, Bogdan Sokolenko, Nataliya Shostka, Dmitrii Poletaev, Andrej Prisyazhniuk, Viktor Voytitsky
Rotational motion encoder based on optical vortex interferometry

ID 286: Atik Ur Rehman, Yousuf Khan, Sergey Fomchenkov, Muhammad Ali Butt
Investigation of Optical Amplification Action in Dielectric Photonic Crystals Cavity Based Structure

ID 287: Igor Rudenok
Optical properties of nanoscale structured metamaterials for optimization of photon components

ID 310: Dinar Subeev, Sergey Stafeev
Beam divergence in the region of the reverse energy flow

ID 313: Gleb Brazovskii
Research of the possibility of using WDM technology in POF fiber

ID 316: Elena Kozlova, Sergey Stafeev
Investigation of the influence of an aluminum cantilever on the polarization of a light field

ID 328: Anton Voevodin
Modeling and investigation of laser beam propagation in gradient waveguides

ID 345: Irina Chernetsova, Anna Orlova, Ekaterina Kolesova
Investigation of the dependence of theCdSe/ZnS semiconductor Quantum Dots luminescent properties of different concentrations on the frequency of excitation

ID 354: Nikolay Yakovlev, Alexander Isupov, Elena Andreeva
Investigation of the effect of four-wave mixing in DWDM transmission system

ID 358: Stanislav Abulkhanov
Прогнозирование эксплуатационных свойств отражающей шероховатой поверхности элемента металлооптики с помощью цепных дробей

ID 398: Viktor Danilov
Laser technology for material processing and formation of nanostructures using diffractive optical elements

ID 399: Alexey Kovalev, Victor Kotlyar
Off-axial propagation-invariant elliptic beams and their orbital angular momentum

Poster Session – Section 2 "Information technology in Earth remote sensing"

23 May (Monday)
Time zone: Samara (GMT +4)
16:30-18:00

ID 30: Kseniya Arinushkina, Anton Valov, Ekaterina Isupova
Improvement of the frequency standard on cesium atoms used in spacecraft for remote sensing of the Earth

ID 62: Nataly Rodionova
Satellite measurements of aerosol optical depth, black carbon and carbon monoxide concentration in the atmosphere of Yakutsk during wildfires 2013-2021

ID 234: Evgeny Sechak, Anatoly Demin
Expanding the capabilities of optoelectronic systems for remote sensing of the Earth

ID 293: Dmitry Isaenko, Bogdan Reznikov, Sergey Rodin
Multifunctional ecological monitoring complex with optical communication channel

ID 363: Nguyen Huy Anh, Nguyen Thi Anh Thu, Nguyen Trinh Minh Anh, Tran Thi Thanh Lam
Estimation of fractional vegetation cover in Dak Lak Province using Landsat 8 OLI satellite images

ID 382: Roman Aleshko, Vladimir Berezovsky, Ksenia Shoshina, Irina Vasendina, Roman Vorontsov, Tatyana Desyatova
Development of methodology for automated determination of forest parameters based on data from unmanned aerial vehicles

ID 400: Andrei Sedelnikov, Denis Orlov, Valeria Serdakova, Alexandra Nikolaeva, Ekaterina Khnyryova
Investigating the temperature field of large elastic elements of a small spacecraft for the Earth remote sensing to assess the effect of a temperature shock on its rotational motion

Poster Session – Section 3 "Digital Image Processing, Analysis and Pattern Recognition"

23 May (Monday)
Time zone: Samara (GMT +4)
16:30-18:00

ID 26: Ilya Galaktionov, Alexander Nikitin, Julia Sheldakova, Vladimir Toporovsky, Alexis Kudryashov
Modified Fizeau interferometer with the fringes polynomial smoothing algorithm

ID 74: Mikhail Gashnikov
General Structure of a Machine Learning Method for Compression of Images

ID 75: Mikhail Gashnikov
Choosing Machine Learning Methods for Image Compression

ID 77: Rinat Diyazitdinov
Prototype of the Optical Triangulation Scanner for Shape Measurement of the Drill-pipe Joint

ID 80: Yuliya Pchelkina, Rustam Paringer, Polina Savelyeva, Marina Egorova
The Application of Image Mining Methods in Cephalometric Analisys

ID 81: Ruslan Yuzkiv, Mikhail Gashnikov
Modification of Machine Learning Algorithms for Embedding in Image Compression Methods

ID 84: Aleksey Maksimov, Mikhail Gashnikov
Generalization of Machine Learning-Based Compression Method to Hyperspectral Images

ID 87: Radik Magdeev, Galina Safina
Extraction of convex hulls of metal microstructure objects from metallographic images

ID 91: Alexander Tashlinskii, Radik Ibragimov, Galina Safina
Application of Renyi Mutual Information in Stochastic Referencing of Multispectral and Multi-temporal Images

ID 120: Anton Agafonov, Alexander Yumaganov, Vladislav Myasnikov
Adaptive Traffic Signal Control Based on Maximum Weighted Traffic Flow

ID 134: Alan Asanov, Yulia Vybornova, Victor Fedoseev
Исследование стойкости компактных дескрипторов векторной карты к трансформациям её содержимого

ID 138: Anton Agafonov, Evgeniya Efimenko
Comparison of Traffic Signal Control Algorithms in a Large-Scale Traffic Simulation Environment

ID 147: Yuliya Ganeeva
Comparison of methods for reconstructing intermediate video frames with a dynamic scene

ID 149: Yuliya Ganeeva, Vladislav Myasnikov
The impact of intermediate video frames reconstruction step on the result of 3D reconstruction of objects

ID 159: Сергей М. Зраенко
The effect of the integration of spectral channels and seasonal satellite images on the distinctiveness of coniferous and deciduous forests

ID 192: Alexander Yumaganov, Anton Agafonov
Vehicle trajectory planning in the problem of traffic flow control at signalized intersections

ID 196: Ирина Пальчикова, Евгений Смирнов, Ирина Будаева, Игорь Латышов, Василий Васильев, Александр Кондаков
Аппаратно-программный комплекс для составления паспорта огнестрельного повреждения

ID 200: Dmitriy Mashkov, Natalya Ilyasova, Nikita Demin
Invectigation of segmentation methods for highlighting areas of interests on lung X-rays

ID 211: Alina Bavrina, Victor Fedoseev, Dmitry Karnaukhov
Investigation of the effectiveness of the stochastic modulation method for steganographic embedding in thermal video data

ID 226: Давид Шапиро, Владислав Сергеев, Виктор Федосеев
Метод защиты видео при помощи фазовых цифровых водяных знаков

ID 243: Вероника Прудовская
Распознавание оптических мод Эрмита-Гаусса с использованием нейронной сети

ID 244: Алексей Бехтерев
Распознавание оптических мод Лаггера-Гаусса с использованием сверточной нейронной сети

ID 250: Павел Волков
Алгоритмы сокрытия и извлечения информации в аудио-файлах

ID 302: Радик Ибрагимов, Олег Шидиков
Применение взаимной информации в задаче стохастической привязки расфокусированных разноспектральных изображений

ID 305: Nikita Andriyanov, George Papakostas
Optimization and Benchmarking of Convolutional Networks with Quantization and OpenVINO in Baggage Image Recognition

ID 317: Вячеслав Анциперов, Владислав Кершнер
Использование рецептивных полей в методах машинного обучения для обработки изображений, представленных выборками случайных отсчетов

ID 327: Marina Albutova, Victor Krasheninnikov, Olga Malenova, Larisa Trubnikova, Yuliya Kuvayskova
Detection of a fork-like marker of ureaplasmosis in the image of the biological fluid facies

ID 341: Yegor Goshin, Daria Arkhipova
Алгоритм разреженного представления в задаче устранения шумов на изображениях

ID 343: Дарья Аксенова, Егор Гошин
Исследование влияния шумов на результат сверхразрешения по цветным изображениям

ID 366: Вячеслав Анциперов
Генеративная модель автокодировщиков изображений на основе рецептивных полей

ID 379: Евгений Васильев, Никита Ким, Андрей Филатов, Данила Ермолаев, Илья Микерин

Разработка сервиса сегментации спутниковых данных с помощью алгоритмов глубокого обучения и библиотеки OpenVINO

ID 295: Polupanov Dmitrii, Abdyusheva Svetlana, Garipova Alsu, Vsevolod Gallyamov

Improving neural network methods for recognizing lung lesions with coronavirus infection

ID 324: Michael Shpekin, Chingiz Mukhametshin, Alexander Semenov, Renat Salimov

High resolution orbital photogrammetry on the example of modeling selected relief elements in the Tsiolkovsky crater on the Moon

ID 350: Artyom Makovetskii, Vitaly Kober, Dmitrii Zhernov, Alexei Voronin

Neural network in the truncated point clouds registration problem

Poster Session – Section 4 "Artificial Intelligence"

23 May (Monday)
Time zone: Samara (GMT +4)
16:30-18:00

ID 82: E. Skachkova, A. Alenin, V. Mokshin
Machine learning methods in the analysis of production and maintenance of oil wells

ID 145: V. Mokshin, A. Sultanova, L. Sharnin
Using Convolutional Neural Networks to Monitor Security at an Industrial Facility

ID 150: D. Kozlov, V. Myasnikov
The impact of a set of environmental observations in the problem of acquiring movement skills in three-dimensional space using reinforcement learning algorithms

ID 118: I. Andreev, V. Moshkin, N. Yarushkina
Hybrid Algorithm of Classifying Candidates for Subject Area Terms

ID 148: D. Kozlov
Comparison of Reinforcement Learning Algorithms in Problems of Acquiring Locomotion Skills in 3D Space

ID 158: A. Rud', S. Rud', M. Shushkina
Research and application of the convolutional neural network YOLO for automated testing of desktop and mobile applications

ID 10: A. Mukhin, D. Gribanov, R. Paringer
Semantic segmentation of hyperspectral imaging using convolutional neural networks

ID 32: I. Kilbas, D. Gribanov, R. Paringer
A neural network based algorithm for classification of sets of human body keypoints

ID 175: A. Rud', S. Rud', M. Shushkina
Methods of preprocessing screenshots of desktop applications for optical character recognition system

ID 232: A. Pogadaev, V. Vasilyev, E. Ershov
Calculation of illumination correction errors using multidimensional histogram based on the original stand

ID 155: A. Zhdanova, A. Kupriyanov, D. Sherenkov
Morphological text analysis using neural networks

ID 284: D. Polupanov, S. Abdyusheva, V. Gallyamov
Stacking approach to the problem of bankruptcies forecasting

ID 355: N. Firsov, L. Zherdeva, E. Minaev, D. Zherdev
Damage detection of building surfaces using neural network

ID 360: V. Evdokimova
Adaptation of Neural Network Algorithms for Image Reconstruction for Different Exposure Conditions

Poster Session – Section 5 "Data Science"

23 May (Monday)
Time zone: Samara (GMT +4)
16:30-18:00

ID 19: Vadim Zinnatullin, Sergey Koledin
Visual development environment and visual programming as an effective tool for data collection and analysis

ID 20: Irina Khaimovich, Vladimir Ramzaev, Vadim Chumak
Simulating and territorial competitiveness data analysis in the transition to clean energy economy

ID 23: Valentin Yunusov, Sergey Demin, Inna Rusanova, Alexander Minkin, Alexander Elenev
Spatiotemporal scaling of visually evoked human neuromagnetic signals

ID 24: Julia Kuvaiskova, Natalya Lomovtseva, Vladimir Klyachkin
Multi-class classification for complicated technical systems' operation diagnostics

ID 25: Natalia Lomovtseva, Yulia Kuvaiskova, Irina Karpunina, Vladimir Klyachkin, Dmitry Yastrebov
Machine learning tools for robot navigation control with distance measuring sensors

ID 58: Elena Rostova, Mikhail Geraskin
Algorithm for choosing industrial risk insurance rates based on analysis of large arrays of data on insurance objects

ID 99: Yulia Tsyganova, Andrey Kalyanov, Oleg Lukin
Estimation of object motion parameters in case of changing the quality of measurements data

ID 100: Innokenty Semushin, Yulia Tsyganova, Andrey Tsyganov
Parameter identification of a distributed multisensor filtering system

ID 101: Yuliana Krivosheeva
Investigation of the error of the difference solution of the heat equation in a multilayer medium by the method of a computational experiment

ID 111: Stefan Popov, Sergey Vostokin
Counting orthogonal pairs of diagonal Latin squares – a load test for studying the performance of distributed file systems

ID 119: Grigory Spiridonov, Vladimir Mokshin, Eldar Shamsiev
Development of an information system to improve the efficiency of oil wells operation

ID 125: Irina Matveeva, Oleg Myakinin, Ivan Bratchenko
Decomposition of in vivo skin Raman spectra by multivariate curve resolution method

ID 140: Yuliya Kuvayskova, Natalya Lomovtseva, Vladimir Klyachkin
Multi-class classification for complicated technical systems' operation diagnostics

ID 142: Natalya Lomovtseva, Yuliya Kuvayskova, Irina Karpunina, Vladimir Klyachkin, Dmitry Yastrebov
Machine learning tools for robot navigation control with distance measuring sensors

ID 156: Mikhail Ovchinnikov, Viktor Grigoriev
Interface quality assessment based on time series analysis of user training results

ID 182: Yegor Goshin
Multicollinearity-based approach for camera motion estimation invariant to the scene depth

ID 183: Maxim Tislenko, Andrey Gaidel
Comparison of feature selection algorithms for Data classification problems

ID 210: Valentin Yunusov, Sergey Demin
The analysis of local correlation characteristics of human bioelectric signals while performing cognitive tasks

ID 215: Valery Zasov, Pavel Melnikov
Two-stage Adaptive Interference Cancellers with Controlled Adaptation Intervals

ID 227: Vladimir Mokshin, Ainur Minigaliev, Ivan Kychkin
Discrete-event model of the study of oil objects

ID 236: Maksimilian Khotilin
The technology of informative features searching method applying for the problem of classifying areas of natural hyperspectral images

ID 262: Levon Elbakyan, Lusine Elbakyan
Development of a method for assessing the quality of means of technical protection of information

ID 277: Vladislav Lyubimov, Ruslan Mammadov
Analysis of numerical data in simulation the descent of a space probe with a brake screw in the martian atmosphere

ID 291: Marina Murtazina, Tatiana Avdeenko
Feature Selection Techniques Analysis for Identification of Cognitive and Resting States based on EEG Data

ID 296: Olga Solovieva, Natalya Klyachina, Natalya Gretsova, Maxim Gretsov, Oksana Avdeyuk, Alexander Sedyukov
Piecewise Linear Smoothing for Multidimensional Experimental Data by a Variational Method and its Visualization

ID 298: Muhammad Salman Saeed, Raman Saurabh, Sarang Balasaheb Bhasme, Alexey Nazarov
Machine Learning Based Intrusion Detection System in Cloud Environment

ID 320: Sarang Balasaheb Bhasme, Raman Saurabh, Muhammad Salman Saeed, Alexey Nazarov
Heuristics-based Modelling of Human Decision Process

ID 323: Anastasia Stolbova, Valery Dyakonov, Oleg Golovnin
Software Tools of the Brain-Computer Interface for Electroencephalograms Analysis based on Continuous Wavelet Transform

ID 325: Victor Krasheninnikov, Yuliya Kuvayskova, Vladimir Klyachkin
Forecasting the state of a technical object based on a model of a system of quasi-periodic processes in the form of images on a cylinder

ID 329: Konstantin Dobratulin, Marina Nezhurina
Algorithmic support of a personal virtual assistant for automating the processing of client requests

ID 352: Andrey Khasanov, Vadim Shishkin, Kirill Larin
Automation of software avionics verification in accordance with DO-178C standard

ID 368: Tehseen Ullah, Ameer Hamza Siraj, Umer Mukhtar Andrabi, Alexey Nazarov
Approximating and Predicting Energy Consumption of Portable Devices

ID 384: Ilya Igushkin, Anatoly Shikhalev, Dmitry Vorontsov, Verzun Natalya, Mikhail Kolbanyov, Irina Akhmetova
Student's t-table modification for the linear correlation coefficients estimation in the small samples cases

ID 387: Nazliya Shaimardanova, Alfiya Zakirova, Dmitriy Vorontsov
Quality Management Principles in generating statistical data

ID 401: Ilya Igushkin
The method of specification the degree of reliability for "zero hypotheses" about the distribution laws basing on Pearson's and Kolmogorov's consent criteria

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