



May 13-15, 2021  
Kazan Federal University



Kazan  
Federal  
University

INSTITUTE  
of Information Technology  
and Intelligent Systems

Time	May 13, Thursday				
17:00–18:00	Registration of participants, Kremlevskaya 35, Lobby				
18:00–20:00	Welcome reception (1310)				
Time	May 14, Friday				
8:00–9:00	Registration of participants, Kremlevskaya 35, Lobby				
8:00–9:00	Coffee corner (1310)				
9:00–9:15	<b>OPENING CEREMONY (1310 + Zoom Room 2)</b>				
9:15–9:40	<b>KEYNOTE SPEAKER Dr. Max Talanov (1310 + Zoom Room 2)</b> Neurotechnologies to manage a robotic system				
	Room 1306	Room 1307	Room 1308	Zoom Room 1	Zoom Room 2
9:45–11:00	<b>Session 1</b> Electronics testing-1	<b>Session 4</b> Electron Devices	<b>Session 7</b> Control-1	<b>Session 10</b> Robotics and information systems for disaster management-2	<b>Session 13</b> AI and Neural Networks-2
11:00–11:30	Coffee break (1310)				

11:30–13:00	<b>Session 2</b> Electronics testing-2	<b>Session 5</b> Radiophysics	<b>Session 8</b> Robotics and information systems for disaster management-1	<b>Session 11</b> Robotics	<b>Session 14</b> Signal Processing-2
13:00–14:30	<b>Lunch Break</b>				
14:30–14:55	<b>KEYNOTE SPEAKER Prof. Yuri Choni (1310 + Zoom Room 2)</b> Stabilizing the beams of a large-sized satellite antenna within the frame of an engineering approach to antenna synthesis				
15:00–17:00	<b>Session 3</b> Electronics testing-3	<b>Session 6</b> AI and Neural Networks-1	<b>Session 9</b> Signal Processing-1	<b>Session 12</b> Control-2	<b>Session 15</b> General Track (15:00-16:00)
17:00–18:00	Free talks with coffee ( <b>1310</b> ) & Technical Tour			Virtual Technical Tour (RUS, ENG) Zoom Room 2	
19:00–23:00	Banquet			Restaurant Hayal	
<b>May 15, Saturday</b>					
10:00–15:00	Tour of Kazan (sightseeing tour) – 4-5 hours, обзорная экскурсия				

## Detailed program for May 14

May 14			
Room 1310 & ZOOM Room2	OPENING CEREMONY	Friday, 9:00–9:15	
Room 1310 & ZOOM Room2	KEYNOTE SPEAKER <b>Dr. Max Talanov</b> Neurotechnologies to manage a robotic system	Friday, 9:15–9:40	
Room 1306	Session S1 – Electronics testing-1	Friday 9:45–11:00	Chair: Dr. L. Kessarinskiy
S1-1	Automation of Laser Single-Event Effect Testing of Integrated Circuits for Space Missions <i>A. Tsirkov, D. Savchenkov, A. Novikov, A. Pechenkin</i>		
S1-2	Investigation of operating system influence on single event functional interrupts using fault injection and hardware error detection in ARM microcontroller <i>I. Loskutov, N. Kravchenko, V. Marfin, P. Nekrasov, D. Bobrovsky, A. Smolin, A. Yanenko</i>		
S1-3	Single event burnout sensitivity prediction based on commercial MOSFET electrical characteristics analysis <i>L. Kessarinskiy, V. Kessarinskiy, A. Tararaksin, A. Shirin, D. Boychenko</i>		
S1-4	An Automated System for Quick Checking of NI PXI Equipment Performance With a Large Number of Signal Lines <i>M. Rogovaia, D. Kostyuchenko, O. Kalashnikov, A. Mashkova</i>		
S1-5	Compact Models for Radiation Hardening by Design of SiGe BiCMOS, GaAs and SOI CMOS Microwave Circuits <i>D. Sotskov, N. Usachev, V. Elesin, A. Nikiforov, N. Zhidkov</i>		

Room 1307	Session S4 – Electron Devices	Friday 9:45–11:00	Chair: Dr. E. Semyonov
S4-1	Effect of Different De-Embedding Techniques on Small-Signal Parameters of X-Band Low-Noise Amplifier <i>A. Popov, I. Dobush, A. Metel, D. Bilevich, A. Goryainov, A. Kalentyev, A. Salnikov, I. Vasil'evskii</i>		
S4-2	Study of a Q-band Power Amplifier for Satellite Communication Systems <i>D. Dmitriev, V. Ratushnyak, A. Gladyshev, V. Tyapkin</i>		
S4-3	Preselection of the Object Response in a Baseband Pulse Nonlinear Radar <i>E. Semyonov</i>		
S4-4	Ultrasound sensor modeling in Gazebo simulator for diagnostics of abdomen pathologies <i>B. Abbyasov, A. Dobrokvashina, E. Kharisova, L. Gavrilova, T. Tsoy, R. Lavrenov, S. Bulatov, E. Maslak, N. Schiefermeier-Mach, E. Magid</i>		
Room 1308	Session S7 – Control-1	Friday 9:45–11:00	Chair: Dr. A. Glushchenko
S7-1	Adaptive Cascade Control of DC Motor under Condition of Parametric Uncertainty Using Lyapunov Stability Criterion <i>A. Glushchenko, V. Petrov, K. Lastochkin</i>		
S7-2	Design and implementation of memristive neuron leakage integrator, and learning feedback <i>D. Masaev, M. Talanov, E. Zykov, A. Suleimanova, A. Toshev, V. Erokhin</i>		
S7-3	BDD and DNF Based Algorithms for Constructing All Testability Functions of Combinational Circuit <i>O. Golubeva</i>		
S7-4	Measurement of Thin Film Magnetic Characteristics in the Radio Frequency Range <i>A. Burmitskikh, N. Boev, S. Kleshnina</i>		
S7-5	Online Monitoring and Visualization with ROS and ReactJS A. <i>Ivanov, A. Zakiev, T. Tsoy, K-Hs. Hsia</i>		

ZOOM Room1	Session S10 – Robotics and information systems for disaster management-2	Friday 9:45–11:00	Chair: Prof. M. Svinin
LINK:	Conference ID: 682 139 0747 <a href="https://zoom.us/j/6821390747">https://zoom.us/j/6821390747</a>		
S10-1	Robust Adaptive Multi-Agent Coverage Control for Flood Monitoring <i>D. Guo, Y. Bai, M. Svinin, E. Magid</i>		
S10-2	Live Displacement Estimation for Rough Terrain Mobile Robot: BART LAB Rescue Robot <i>B. Sharma, B. M. Pillai, J. Suthakorn</i>		
S10-3	Application of the user's digital footprint in the adaptive authentication problem <i>A. Iskhakov, A. Salomatin, R. Meshcheryakov</i>		
S10-4	Aspects of Nuclear Power Plant Digital Decommissioning <i>E. Jharko, R. Meshcheryakov, V. Promyslov</i>		
S10-5	Monitoring of the earth's surface in conditions of low visibility <i>M. Mokrova, I. Kotelnikov</i>		

ZOOM Room2	Session S13 – AI and Neural Networks-2	Friday 9:45–11:00	Chair: Dr. A. Saveliev
LINK:	Conference ID: 816 803 2004 <a href="https://zoom.us/j/8168032004">https://zoom.us/j/8168032004</a>		
S13-1	Implementation of Audio Recognition System for Unmanned Aerial Vehicles (November 2020) <i>E. Solis Romeu, D. Shashev, S. Shidlovkiy</i>		
S13-2	Determining distance to an object and type of its material based on data of capacitive sensor signal and machine learning techniques <i>P. Kozyr, A. Saveliev, L. Kuznetsov</i>		
S13-3	Intelligent Modeling of Cement Plant Mill Unit Using Artificial Neural Network and Real Data <i>E. Moradkhani, M. Mola</i>		
S13-4	Analysis of textual content as a mechanism for ensuring safety of the socio-cyberphysical system <i>A. Iskhakova, A. Iskhakov, R. Meshcheryakov, I. Kulagina</i>		
S13-5	Substantiation of Methods and Development of an Algorithm for Neural Network Estimation of Object Classification Parameters in Aerial Imagery <i>V. Nguyen, F. Pashchenko</i>		
Room 1310	Coffee break	Friday, 11:00–11:30	

Room 1306	Session S2 – Electronics testing-2	Friday 11:30–13:00	Chair: Dr. L. Kessarinski
S2-1	Measurement of Parameters of Analog-toDigital Converters Based on the NI HardwareSoftware Complex in the Course of a Radiation Experiment <i>R. Torshin, G. Sorokoumov, D. Bobrovsky, D. Titovets, M. Kalashnikova</i>		
S2-2	High-speed spectrometer based on a silicon CCD-array matrix for transient changes measuring in optical radiation spectra <i>T. Minibayev, D. Ukolov, R. Mozhaev, A. Nikiforov</i>		
S2-3	An Automated System of Lowered Temperature Setting for Long-Term Radiation Experiments <i>M. Muzafarov, A. Kolosova, A. Pechenkin, G. Davydov, P. Gromova, D. Boychenko, A. Demidova</i>		
S2-4	The electrical bias Influence on the total ionizing dose degradation of the MOST parameters <i>A. Borisov, A. Borisov, A. Nefedova. G. Chukov</i>		
S2-5	The optimal estimation of Single event effects sensitivity parameters using a focused laser source and heavy ion cyclotron on example of a library of analog IP units <i>A. Borisov, A. Novikov, N. Petrun, A. Nefedova, G. Chukov</i>		
S2-6	The radio monitoring complex by continuous analysis of energy spectra of radio signals based on USRP FPGA and LabVIEW <i>A. Shirin, S. Arabian, L. Kessarinskiy, V. Gorbatov, A. Durakovskiy</i>		

Room 1307	Session S5 – Radiophysics	Friday 11:30–13:00	Chair: Dr. A. Sulimov
S5-1	Synthesis of directivity pattern for various antenna arrays configurations of vertical atmospheric sensing radar station <i>D. Dmitriev, V. Ratushnyak, A. Gladyshev, M. Buravleva, A. Chernovolenko</i>		
S5-2	Measuring Complex for Studying Directional Characteristics of Antennas of Satellite Earth Stations <i>A. Gladyshev, D. Dmitriev, V. Ratushnyak, V. Tyapkin</i>		
S5-3	Analysis of Polarization Diversity Applicability in Meteor Key Distribution Systems <i>A. Sulimov, A. Karpov</i>		
S5-4	The optimal excitation voltage for spherical slotted antenna coated by two layers of dielectric material and plasma <i>O. Dautov, M. Al-abadi</i>		
S5-5	Estimation of the Radiated Emission from a Protective Turn of a Meander Line in the Air <i>A. Hasan, T. Gazizov</i>		
S5-6	Research of Radiated Emissions of a Microcontroller Using Various Power Supplies <i>A. Demakov, V. Semenjuk, M. Komnatnov, T. Gazizov</i>		



Room 1308	Session S8 – Robotics and information systems for disaster management-1	Friday 11:30–13:00	Chair: Dr. R. Lavrenov
S8-1	Assessment of Map Construction in vSLAM <i>A. Bokovoy, K. Muraviev, K. Yakovlev</i>		
S8-2	Comparison of Theta*-RRT and GRIPS post-smoothing methods <i>Z. Ali, B. Angulo, V. Golovin, K. Yakovlev</i>		
S8-3	Estimation of 4-DoF manipulator optimal configuration for autonomous camera calibration of a mobile robot using on-board templates <i>T. Tsoy, R. Safin, E. Magid, S-K Saha</i>		
S8-4	Embedded ArUco: a novel approach for high precision UAV landing <i>A. Khazetdinov, A. Zakiev, T. Tsoy, M. Svinin, E. Magid</i>		
S8-5	Improved Graphical User Interface for Crawler Robot Servosila Engineer <i>A. Dobrokvashina, R. Safin, Y. Bai, R. Lavrenov</i>		
S8-6	Functional Requirements Synthesis in Creation of Modular UAV Multisensory System Payload for Mountain Snow Search and Rescue Missions <i>A. Russkin, M. Alekhin, A. Iskhakova</i>		

ZOOM Room1	Session S11 – Robotics	Friday 11:30–13:00	Chair: Prof. K-H. Hsia
LINK:	Conference ID: 682 139 0747 <a href="https://zoom.us/j/6821390747">https://zoom.us/j/6821390747</a>		
S11-1	Development of Pneumatic Artificial Muscles and an Anthropomorphic Gripper Control Module <i>V. Ryabchevsky, A. Nikonov, G. Nikonova</i>		
S11-2	Pipe Inspection Robots: A Case Study of Mechanical Design Issues and Challenges <i>N. Zuhdi, A. Mansor, F. Rustam, A. Chand</i>		
S11-3	Bowling Pinsetter Implementation with VEX IQ <i>K-H. Hsia, Y-Ch. Chen, G.-R. Lin</i>		
S11-4	Robot arm planning and control by tau-Jerk theory and a visual-based recurrent ANN observer <i>I. Carvajal, E.A. Martinez-Garcia, R. Lavrenov, E. Magid</i>		
S11-5	New promising ways of widespread popular mobile devices practical use value increase <i>S. Matinyan, N. Mamedova, M. Afanasev, E. Makarenkova</i>		
S11-6	The Effect of Node Deployment for MT6D in Industry Control System <i>Yen-Yu Chen, I-Hsien Liu, Chi-Che Wu, Chuan-Gang Liu, Jung-Shian Li</i>		

ZOOM Room2	Session S14 – Signal Processing-2	Friday 11:30–13:00	Chair: Dr. I. Trubin
LINK:	Conference ID: 816 803 2004 <a href="https://zoom.us/j/8168032004">https://zoom.us/j/8168032004</a>		
S14-1	The Effect of Frequency Offset on the Probability of Bit and Packet Errors in Processing Signals with Chirp Spread Spectrum Modulation <i>S. Mukhamadiev, E. Dmitriyev, E. Rogozhnikov, N. Duplishcheva</i>		
S14-2	Low Noise Voltage Amplifier for Quartz and High Impedance Sensors <i>V. Ivanov</i>		
S14-3	Iterative Balancing Algorithm for Multistage DC Amplifiers <i>V. Ivanov, En Un Chye</i>		
S14-4	CICADA: A New Tool to Design Circuits with Correction and Detection Abilities <i>A. Stempkovsky, T. Zhukova, S. Gurov, D. Telpukhov</i>		
S14-5	Improving the quality of reconstruction of noisy images in the wavelet region <i>E. Medvedeva, I. Trubin</i>		
S14-6	Low-Resolution Quantizer's Output Signal Analysis in Presence of Multipath Fading Effects <i>A. Gvozdarev, Yu. Bryukhanov</i>		
	Lunch break	Friday, 13:00–14:30	
Room 1310 & ZOOM Room 2	KEYNOTE SPEAKER <b>Prof. Yuri Choni</b> Stabilizing the beams of a large-sized satellite antenna within the frame of an engineering approach to antenna synthesis	Friday, 14:30–14:55	

Room 1306	Session S3 – Electronics testing-3	Friday 15:00–17:00	Chair: Dr. L. Kessarinski
S3-1	Development of a software package for the analysis of electromagnetic radiation using LabVIEW <i>I. Kagin, E. Simakhin, S. Arabian, L. Kessarinskiy, A. Durakovskiy</i>		
S3-2	Features of the Software Component of the Memory Test Setup Based on the Object-Oriented Approach in LabVIEW Development Environment <i>I. Shvetsov-Shilovskiy</i>		
S3-3	The optimal measuring system composition for the transceivers radiation hardness investigation <i>R. Vaskin, V. Kalashnikov, G. Sorokoumov, D. Boychenko</i>		
S3-4	Solid-State Drives Parameters Control System For Ionizing Radiation Tests <i>V. Chepov, S. Shmakov, I. Shvetsov-Shiovsky, A. Petrov, V. Kalashnikov</i>		
S3-5	Automated control system for leakage currents monitoring in memory ICs under dose exposure based on National Instruments PXI platform <i>A. Gracheva, I. Shvetsov-Shilovskiy, S. Shmakov, A. Petrov, A. Yanenko</i>		
S3-6	A Practical Approach to Underground UHF Channel Characterization <i>V. Elesina, A. Kuznetsov, G. Chukov, V. Elesin, N. Usachev</i>		
S3-7	Technology Processes Characterization for Design of Radiation-Tolerant Microwave Ics <i>D. Sotskov, A. Kuznetsov, V. Elesin, N. Usachev, G. Chukov, D. Boychenko</i>		
S3-8	Simultaneous parametric and functional testing of digital VLSI during radiation experiments <i>S. Arabyan, V. Shuvalov, L. Kessarinskiy, A. Shirin, D. Boychenko</i>		

Room 1307	Session S6 – AI and Neural Networks-1	Friday 15:00–17:00	Chair: Dr. R. Lavrenov
S6-1	Stability Assessment of Direct Neural Control Scheme with Reference Model using Online and Offline Training <i>A. Glushchenko, V. Petrov, K. Lastochkin</i>		
S6-2	Investigation the possibility of increasing the accuracy of predicting the critical frequency of the F2 layer using artificial neural networks <i>K. Sidorenko, A. Vasenina</i>		
S6-3	Modelling a TurtleBot3 Based Delivery System for a Smart Hospital in Gazebo <i>R. Safin, R. Lavrenov, K-H. Hsia, E. Maslak, N. Schiefermeier-Mach, E. Magid</i>		
S6-4	Modeling IIoT Traffic Processing by Intra-Chip NoC Routers of 5G/6G Networks <i>D. Starov, D. Kutuzov, A. Osovsky</i>		

Room 1308	Session S9 – Signal Processing-1	Friday 15:00–17:00	Chair: Prof. V. Djigan
S9-1	Recursive Numerically-Controlled Polynomial Phase Signal Oscillator <i>V. Lesnikov, T. Naumovich, A. Chastikov</i>		
S9-2	Dealiasing Technique for Processing of Sub-Nyquist Sampled Bandpass Analytic Signals <i>V. Lesnikov, T. Naumovich, A. Chastikov</i>		
S9-3	Retrieving Best-Fit Paraboloid from Signals of a Ground Based Beacon for Electroic Compensation of Satellite Multi-beam Hybrid Reflector Antenna Distortions Y. Choni, A. Dardymov, A. Romanov, I. Danilov		
S9-4	Stabilization of beams of a satellite hybrid reflector antenna via processing signals from the ground beacon <i>P. Romanov, Yu. Choni</i>		
S9-5	Estimation of the Effect of Multiplicative Noise on Signal Resolution by the Woodward Criterion <i>V. Artyushenko, V. Volovach</i>		
S9-6	Estimation of the Effect of Multiplicative Noise on Signal Resolution Using a Statistical Criterion <i>V. Artyushenko, V. Volovach</i>		
S9-7	Real-Valued Arithmetic Linearly-Constrained Beamforming in Symmetric Adaptive Arrays <i>V. Djigan</i>		
S9-8	Simple Algorithm of Antenna Array Calibration <i>V. Kurganov, V. Djigan</i>		

ZOOM Room1	Session S12 – Control-2	Friday 15:00–17:00	Chair: Dr. D. Kutuzov
LINK:	Conference ID: 682 139 0747 <a href="https://zoom.us/j/6821390747">https://zoom.us/j/6821390747</a>		
S12-1	Expanding the field of synchronized phasor measurements application in power systems <i>A. Mokeev, S. Piskunov</i>		
S12-2	Experimental Setup of Data Transmission via Visible Light in a Temperature Control System <i>S. Grigoryeva, A. Alimkhanova, E. Grigoryev, G. Gyorok</i>		
S12-3	Optimization of Synchronization in Monitoring and Control Systems <i>A. Nikonov, G. Nikonova, L. Pavlov</i>		
S12-4	Optimization of Model Parameters by Complex Probabilistic Criteria <i>T. Pham, Tr.A. Bui, V. Nguyen, Q. Nguyen, F. Pashchenko, A. Pashchenko.</i>		
S12-5	Adjusting the Current Controller for a Load Simulator Based on the Boost DC-DC Converter <i>A. Yudintsev, A. Tkachenko, D. Lyapunov</i>		
S12-6	Physically-based comments to the operating stability for pulse control <i>Yu. Kolokolov, A. Monovskaya</i>		
S12-7	Regulator peculiarities to the adaptation and evolution of local climate dynamics <i>Yu. Kolokolov, A. Monovskaya</i>		
S12-8	Method for organizing network requests in iOS applications <i>I. Stukalov, N. Mamedova, O. Staroverova, E. Makarenkova</i>		

ZOOM Room 2	Session S15 – General Track	Friday 15:00–16:00	Chair: Dr. E. Kharisova
LINK:	Conference ID: 816 803 2004 <a href="https://zoom.us/j/8168032004">https://zoom.us/j/8168032004</a>		
S15-1	EMD-Based Method to Improve the Efficiency of Speech/Pause Segmentation <i>A. Alimuradov, A. Tychkov</i>		
S15-2	Information technologies in professional training of medical University graduates: modelling standard interaction with outpatients and treatment process <i>S. Bulatov, E. Kharisova, R. Safin, R. Lavrenov</i>		
S15-3	Intelligent Processing of Voice Messages in Civil Aviation: Message Recognition and the Emotional State of the Speaker Analysis <i>N. Andriyanov, D. Andriyanov</i>		
S15-4	Design and development of a hardware and software system for simulation of feedback tactility <i>M. Shigapov, V. Kugurakova</i>		
Room 1310 Zoom Room 2	Free talks with coffee & Technical Tour	Friday, 17:00–18:00	
19:00- 23:00	Banquet	Restaurant Hayal	