

Tomsk IEEE Chapter & Student Branch  
of the Institute of Electrical and Electronics Engineers  
Russia Siberia Section of the IEEE  
Tomsk State University of Control Systems and Radioelectronics  
(TUSUR University)

# IEEE INTERNATIONAL SIBERIAN CONFERENCE ON CONTROL AND COMMUNICATIONS

SIBCON-2019

PROGRAM

APRIL 18-20, 2019  
TOMSK, RUSSIA



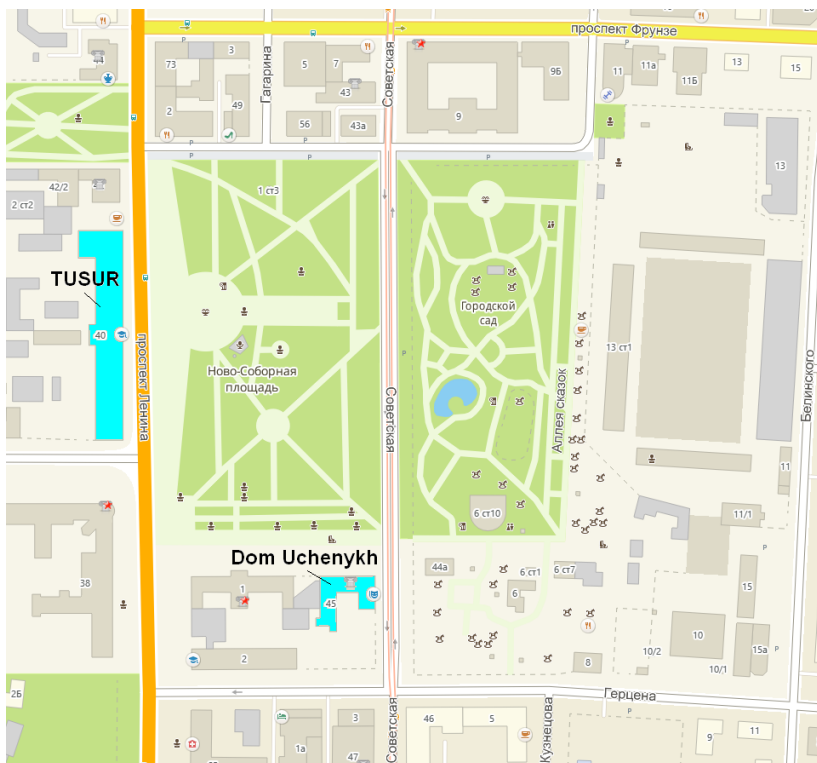
<http://sibcon.tusur.ru>

## Conference venue

The conference will be held in

- Dom Uchenykh (Sovetskaya Street, 45)
- Main Building of the Tomsk State University of Control Systems and Radioelectronics. (Lenin Avenue, 40, 201 (Conerence Hall), 312 (auditorium)).

How to get there?



Time		April 18, Thursday		
8:30–9:30		Registration of participants, Dom Uchenykh, Lobby		
9:30–10:45 Track 1		<b>PLENARY OPEN SESSION</b> Conference Hall, Dom Uchenykh		
10:45–11:15		Welcome Luncheon (Dom Uchenykh, Hall)		
11:15–12:30 Track 2		<b>Session N</b> Robots (Conference Hall, Dom Uchenykh)	<b>Session G-1</b> Communications (Small Hall, Dom Uchenykh)	
12:30–14:00		Lunch		
14:00–15:30 Track 3		<b>Session U-1</b> Electron Devices (Conference Hall, Dom Uchenykh)	<b>Session D-1</b> Theory of Control (Small Hall, Dom Uchenykh)	<b>NI Hands-on</b> (TUSUR Radio Eng. Bld., 416)
15:30–15:50		Break		
15:50–18:00 Track 4		<b>Session U-2</b> Electron Devices (Conference Hall, Dom Uchenykh)	<b>Session D-2</b> Theory of Control (Small Hall, Dom Uchenykh)	<b>NI Hands-on</b> (TUSUR Radio Eng. Bld., 416)
18:30–20:30		Get Together Party (Dom Uchenykh, Hall)		
April 19, Friday				
9:00–10:35 Track 5		<b>Session F-1</b> NI Technologies (Main Bld., 201)	<b>Session S-1</b> Antennas (Main Bld., 312)	
10:35–11:00		Break (TUSUR Main Bld., 230)		
11:00–12:30 Track 6		<b>Session F-2</b> NI Technologies (Main Bld., 201)	<b>Session S-2</b> Antennas (Main Bld., 312)	
12:30–13:30		Lunch		
13:30–15:00 Track 7		<b>Session R-1</b> Microwave Devices (Main Bld., 201)	<b>Session G-2</b> Communications (Main Bld., 312)	Tomsk sightseeing tour (from TUSUR Main Bld.)
15:00–15:15		Break (TUSUR Main Bld., 230)		
15:15–16:30 Track 8		<b>Session R-2</b> Microwave Devices (Main Bld., 201)	<b>Session W</b> Signal & Data Processing (Main Bld., 312)	
16:30–18:30		Technical Tour (NIIAEM, Nanocenter)		

Dear colleagues,

I am pleased to welcome you at the 14th IEEE Siberian Conference (SIBCON) at Tomsk State University of Control Systems and Radioelectronics.

Recognized for its high scientific level and urgency of the topics it discusses, the SIBCON brings together committed and passionate researchers, experts, developers, and engineers for an in-depth, comprehensive discussion of a range of topics that hold a crucial importance for the modern age. The topics discussed at the SIBCON address the fundamental problems of control and communications theory, robotics and automation, computer measurement technologies, sensors and cyber-physical systems, all of which are immensely important. Evolution of these areas of knowledge will drive the process digitalization, improvement of life quality and security, and transition to conceptually new technology around the globe.

It is no coincidence that, having originated at TUSUR, this year the SIBCON came back to our university. High-technology research, in-depth discussion, pursuit of integration of fundamental principles and practical knowledge for applied problems, exploration of topical ideas that are ahead of the time: the SIBCON values these approaches that have always been essential to TUSUR.

I am confident that the SIBCON held in the university city of Tomsk, at one of the leading engineering universities in Russia – at TUSUR – will give impetus to new joint research and breakthrough projects for peers from different cities and countries that will drive the development of electronics and information technology in Russia.

I would like to express my sincere gratitude to the SIBCON Organization Committee that ensures a continued growth of the quality of papers, and my special gratitude to the IEEE (Institute of Electrical and Electronics Engineers) and the Tomsk IEEE Chapter for their sponsorship of this conference. From 2000 onwards, TUSUR has been the host to the Tomsk IEEE workshop “Intelligent Simulation, Design and Control Systems” that has become an important tool for development of research in information security, computer science, electronics and electronic engineering for our university.

Please let me express my wishes for productive discussions during the three days of the conference, new experiences from the rich cultural program, and only positive emotions from your stay in Tomsk.

Rector of TUSUR University

Professor A. Shelupanov



## Welcome Words from Conference Chair

As Chair of the International Siberian Conference on Control and Communications I would like to welcome you at Tomsk State University of Control Systems and Radioelectronics.

The SIBCON has a long tradition as a high-quality conference that covers all aspects of devices and technologies for control and communications. This Conference is organized in an effort to facilitate a deeper interaction among experts, designers, device technologists in order to support a deeper discussion of the challenges of system integration.

The past conferences were held in Tomsk, Krasnoyarsk, Omsk, Astana, Moscow, each with an increasing number of participants. Following their success and based on suggestions from the Technical Program Committee members, this year the SIBCON has returned to Tomsk, a wonderful city with a unique legacy of history, science and culture.

An important part of the conference is its social side. Tomsk is one of most popular Siberian cities for traveling. We have planned some social events and a city tour for the participants. So I encourage you to explore Tomsk and get a taste of its rich history, culture and international cuisine. I would like to join the entire SIBCON team in wishing you an enjoyable and productive stay in Tomsk.

The Conference is sponsored by the IEEE Electron Devices Society and the Tomsk IEEE Chapter. I would like to express my deep appreciation to every contributor who helps hold the event to the highest international standard. My thanks go to the members of the Local Organization Committee – Alexander Medovnik, Inna Yarimova, Oleg Stukach for their excellent work in organizing this Conference. I have no doubt that their experience and advice that have gone into the SIBCON will lead the success of the Conference. I extend special gratitude to the subcommittee chairs, members and their affiliations of the International Program Committee. It is through their efforts that the SIBCON has received many submissions, and it is also with their contributions that the conference has succeeded in selecting the highest-quality papers. Many faculty members and students have volunteered to help in organizing the Conference. We take this opportunity to thank the Technical Program Committee members, the invited speakers, session organizers, session chairmen, reviewers, authors and sponsors in organizing such an event.

Finally, let me express the best wishes for success of the SIBCON, as well as for successes of the future SIBCON conferences in other regions and countries. I hope you enjoy this Conference and the friendships you make here, and hope you keep the Conference Proceedings in your library, which may be of use for you and your colleagues in your future research.

Welcome to the 2019 SIBCON and welcome to Tomsk!

General Chair  
Vice-Rector of TUSUR



V.M. Rulevskiy

### **Invitation**

The 14th Siberian Conference SIBCON-2019 aims to offer opportunities to learn and to share information on the latest advances in communications, electron devices, and control systems. It will be held in Tomsk, Russian Federation, on April 18–20, 2019 based on Tomsk State University of Control Systems and Radioelectronics. The conference is organized by the IEEE units in Siberia and National Instruments Rus R&D on a regular basis in order to promote interdisciplinary discussion and interaction among scientists and engineers with an emphasis on the IEEE membership. While the scientific program is expected to create stimulating professional interaction, the magic of Tomsk, hot spring atmosphere and wealth of historic wooden architecture promise a pleasant and memorable stay. The conference will include plenary sessions with invited speakers, parallel thematic sessions with oral presentations, and a social program.

### **Organized by**

- Tomsk State University of Control Systems and Radioelectronics (TUSUR);
- Russia Siberia Section of the Institute of Electrical and Electronics Engineers;
- The Tomsk Chapter & Student Branch of the IEEE;
- National Instruments Rus R&D.

### **Sponsors**

- TUSUR;
- National Instruments Rus R&D;
- Scientific Journal "Symmetry".

### **Technical Sponsor**

The IEEE Electron Devices Society (IEEE ED-S).

### **Information Support**

- Scientific and technical journal "Automatics & Software Engineering" [www.jurnal.nips.ru](http://www.jurnal.nips.ru);
- Scientific and technical journal "Spacecrafts & Technologies" [www.journal-niss.ru](http://www.journal-niss.ru);
- Scientific journal "Symmetry" <https://www.mdpi.com/journal/symmetry>.

### **Detailed Information**

All registration information and hotel reservation forms, instructions for the preparation camera-ready paper etc. will be available in the second announcement at the Web [sibcon.tusur.ru](http://sibcon.tusur.ru).

### **Program Committee**

Chair – Viktor M. Rulevskiy, Prof., TUSUR Vice-Rector for Research and Innovation

Chairmen of the International Program Committee – A.V. Medovnik, Yu.B. Gritsenko, O.V. Stukach, V.S. Panko

## **Contacts**

### Steering committee

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### Registration fee

Inna A. Yarimova  
Tel.: +7(3822)701582, E-mail: nirs@main.tusur.ru

### Proceedings and Special Sessions

Oleg V. Stukach  
E-mail: ieee@main.tusur.ru

## **Registration**

Advance registration is performed through sending of full paper or paying of the registration fee. Final registration of participants will be held on sessions.

## **Registration fee**

The registration fee - \$280 for IEEE members and \$380 for other participants needs be paid only upon receipt of the official invitation letter, which will be sent to the first author by mail. Registration fee includes a visa support, one copy of the Proceedings, a get-together party, banquet, cultural and technical visits, and coffee breaks.

## **Participation**

To take part at the conference, it is necessary to send to Organizing Committee the full papers and to pay the registration fee. All participants of the conference should register at <http://sibcon.tusur.ru>

## **Proceedings**

All accepted papers will be published in conference Proceedings, registered in IEEE Xplore <http://ieeexplore.ieee.org/> and indexed in scientific databases. The participants will be provided with the electronic version of the proceedings.

## **Electronic Copyright Form (eCF)**

Each author whose paper has been accepted for publication will receive email from IEEE regarding eCF (from copyrights@ieee.org with subject "Copyright Pending Notice for Article: ...title of your paper..."). This email will provide the authors with a link to the online eCF wizard, as well as a unique login name and password to access their own copyright forms. When an author completes the online copyright transfer process and submits the form, he/she will receive an automated confirmation email letting him/her know that the transfer has been completed successfully.

Please use the link in the email invitation sent earlier in order to access your eCF, and complete the entire form. If you have any difficulty accessing the eCF site, please contact the IPR Office at [copyrights@ieee.org](mailto:copyrights@ieee.org)

### **Banquet**

Join us for the "Get Together Party" from 18:30 p.m. on the 18th of April in Dom Uchenykh. The dinner menu includes mini skewers, manty, mini cutlers, potato croquette, cold snacks, desert, wine and non-alcoholic beverages. There is no charge for the conference attendees.

### **Technical Program**

The technical program will cover all aspects of control and communications: theory, fundamental studies, and applied studies. It will include plenary session and thematic sessions composed of oral presentations. Contributed papers will be 7 minutes in length, with some minutes for discussion. Invited papers will be 25 minutes, with 5 minutes for discussion. Multimedia projector will be available.

### **Sections**

D	Theory of Control
F	National Instruments Technologies
G	Communications
N	Robots
R	Microwave Devices
S	Antennas
U	Electron Devices
W	Signal & Data Processing

### **Plenary Open Session**

- Greetings of the General Chair
- Greetings of the Technical Program Committee Chair
- Research and Education Activities of TUSUR
- Keynote papers

### **Guidelines for Oral Presentations**

Please note that the overall time available for your presentation is limited to 10 minutes of which 7 minutes are allowed for the actual presentation and 3 minutes for discussion. You should plan your presentation carefully. You should select your vocabulary to address as wide an audience as possible and avoid unfamiliar abbreviations or expressions. Your oral presentation should be performed to answer the following questions:

- Why was the project undertaken?
- What was done?
- What was learned?
- What does it mean?



Remember, the three rules for an effective presentation are:

- Tell them what you are going to say (spend a few moments introducing your topic and what you intend to speak about).
- Tell them (deliver your talk, including the methods, results and conclusions)
- Tell them what you said (summarize the most important points of your lecture).

Please remember that the responsibility of having your paper ready for Presentation at the scheduled time is primarily in your hands as the presenter. Check the readability, completeness and order of your slides before your presentation. Arrive well in advance of the session, and acquaint yourself with the operation of the podium and location of the equipment. Conference staff will be present to assist you. There are no scheduled breaks in the agenda so it is mandatory that the presentations be loaded before the beginning of each session.

Be careful to speak in accordance with the sequence of your slides. Avoid making major modifications to your transparencies during your presentation. Please stay within the time limit allocated for your presentation.

Technical equipments provided in the Conference room are:

- Multimedia video projector;
- Projection screen;
- Standard multimedia PC.

The operating system for session computers is Microsoft Windows 8. The available software is Microsoft Office 8 (or newer) that includes Word, Excel, PowerPoint, Adobe Acrobat Reader, and Windows Media Player. Therefore, all presentations must be compatible with this software. We suggest you to upload your presentation on a USB memory stick better than connecting your laptop.

### **Transportation**

All information about transportation you can receive via e-mail or telephones of the Organizing Committee.

Transport to the place of the conference: from railway station by bus N 2, 4, 442, 119; from Yuzhnzya Sq. by bus N 19, 22, 32; from the city center by bus N 2, 3, 4, 12, 19, 22, 23, 26, 32 to "Novo-Sobornaya" stop.

Tel. for information:

540730 - Bus Station

412466 - Air Ticket Office

541940, 541941 - Railway Station "Tomsk-1"

### **Accommodation**

"Tomsk", 65 Kirova Str.; tel. (3822)-524115. On the railway station square.

"Sputnik", 15 Belinskogo Str.; tel. (3822)-526660. By bus to "University" stop.

"Severnaya", 86 Lenin Ave.; tel. (3822)-512324. By bus to "TSUM" stop.

"Sibir", 91 Lenin Ave.; tel. (3822)-527225. By bus to "Glavpochtamt" stop.

### Keynote papers

<b>Plenary Session</b>		Conference Hall, Dom Uchenykh	April 18, 9:30–10:45 Track 1
d020	Hardware-in-the-Loop Prototyping of Radio-Frequency Electronics for Complex Systems Faster Development and Integration Test		Dubatov A., Lyubenko A.Yu.
d035	Designing Robust Controllers by the Mini-Max Search Method		Zhmud V.A., Stukach O.V., Ivoilov A.Yu., Roth H.

### Regular papers

<b>Session N</b>	<b>Robots</b> (Conference Hall, Dom Uchenykh)	April 18, 11:15–12:30	
n400	Controlling a robotic arm using optical feedback	Kapustin V.V., Maltsev Y.I., Movchan A.K.	
n405	Method of Maximum Permitted Learning Rate Calculation for Neural Network Controller of Balancing Robot	Glushchenko A.I., Petrov V.A., Lastochkin K.A.	
n410	Hierarchical control system design problems for multiple autonomous underwater vehicles	Bychkov I., Davydov A., Kenzin M., Maksimkin N., Nagul N., Ul'yanov S.	
n415	Analysis and development of a digital radar flaw detector for robotic defect detection systems	Potylitsyn V.S., Kokhonkova E.A., Romanov V.V.	
n420	Contrast enhancement algorithm modification and comparative analysis of image fusion quality indices for enhanced vision systems of robotic complexes	Kirillov S.N., Baukov A.A., Pokrovsky P.S., Skonnikov P.N.	
n425	Analysis of the effectiveness path planning methods and algorithm for the anthropomorphic robot manipulator	Petrenko V., Gurchinsky M., Shutova Y., Tebueva F., Pavlov A., Antonov V., Ryabtsev S.	

n430	Complexity Reduction for two Human-like Ambidextrous Robotic Hands Control	Al Akkad M.A.
n435	Convolutional neural networks of the YOLO class in computer vision systems for mobile robotic complexes	Zoev I.V., Beresnev A.P., Markov N.G.
n440	Мобильное приложение для ручного управления роботизированной платформой на базе Arduino Mega 2560	Шурыгин Ю.А., Шестеров И.А., Изюмов А.А.

<b>Session Communications</b>		April 18, 11:15–12:30
<b>G-1</b>	(Small Hall, Dom Uchenykh)	
g200	Methods to form both anti-interference and hiding radio signals for prospective communication systems	Kirillov S.N., Pokrovskij P.S., Lisnichuk A.A., Lukasin I.V.
g203	The Quality Indicators of the Processing Procedure for a Spread Spectrum Signal Using Statistical Modeling Investigation	Kuzmin E.V.
g205	Estimation of measurement accuracy of information signal parameters at simultaneous influence of multiplicative and additive non-Gaussian noise	Artyushenko V.M., Volovach V.I.
g210	Measurement and Analysis of Impulsive Noise on Car Power Lines	Krasovsky A., Vasyukov S., Murzin I.
g213	Synthesis of algorithms of adaptive signal processing using of the nonlinear blocks with approximation of optimal amplitude transfer characteristic	Artyushenko V.M., Volovach V.I.
g215	Non-linear FM demodulation with neural networks in through-the-earth mine communications	Kudinov M., Kudinov D., Kokhonkova E.

g220	Comparison of TCP Congestion Control Algorithms in Network Coded Relaying Scheme	Meitis D.S., Vasiliev D.S., Abilov A., Kaysina I.
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<b>Session U-1</b> <b>Electron Devices</b> (Conference Hall, Dom Uchenykh)		April 18, 14:00–15:30
u700	Verification of an Automatic GaAs HEMT Nonlinear Modeling Technique	Popov A.A., Bilevich D.V., Salnikov A.S., Dobush I.M., Kalentyev A.A., Goryainov A.E.
u705	AlGaIn/GaN diodes with Ni Schottky barrier and recessed anodes	Fedin I.V., Erofeev E.V., Fedina V.V.
u710	Micro-transformer-based integrated digital isolator in 180/90 nm CMOS	Butuzov V., Kus O., Smirnov E., Nazarenko A., Prokopyev V., Smirnova T., Salynsky N., Bocharov Y., Dmitriev N., Trofimov A.
u715	Automated measuring unit for analysis of thin magnetic film ferroresonance spectrum	Burmitskikh A.V., Boev N.M., Izotov A.V., Andyuseva V.G.
u720	Energy efficient sensors based on carbon-modified silica films	Sakharov Y., Troyan P., Zhidik Y.
u725	Surface Acoustic Waves in Ca <sub>2</sub> Al <sub>2</sub> SiO <sub>7</sub> Piezoelectric Crystal	Taziev R.M.
u730	Hole Mobility Model for 6H-SiC Thermoresistive Sensors Simulation	Ivanov I.V., Kozlov A.G.

<b>Session D-1</b> <b>Theory of Control</b> (Small Hall, Dom Uchenykh)		April 18, 14:00–15:30
d040	Towards the Defuzzification Procedure in an ANFIS	Chernyshov K.R.
d050	An Extension of the Method of Aggregated Regulators to a Discrete Stochastic Object	Kolesnikova S., Tsvetnitskaya S., Pobegailo P.

d055	Application of State-Space Method for Control System Analysis	Ignatenko V., Yudintsev A. Lyapunov D.
d060	The Research of the Determined Chaotic Mode of Electrotechnical Systems with the Generating Sources by Velocity Gradient Method of Vector Lyapunov Functions	Beisenbi M.A., Satpayeva A.K., Nikulin V.V., Goncharov V.I., Mussabayeva S.S., Zhalmuhamedova Z.M.
d070	Adaptive Trailer Set Path Curvature Control for Trailer Backup	Kruglov S., Kovyrshin S.
d075	Autotuning for PI Controller of Test Bench with Electrohydraulic Actuator	Yurkevich V.D.
d078	Investigation Methods of Parameters Random Variations in Control Systems	Kofanov Y.N., Sotnikova S.Y., Sargsyan G.A.

<b>Session Electron Devices</b>		April 18, 15:50–18:00
<b>U-2</b> (Conference Hall, Dom Uchenykh)		
u735	On the development of a universal two-channel sensitive digital sensor for recording seismic vibrations	Potylitsyn V.S., Maikov O.A., Kudinov D.S.
u740	Using Hall-Effect Sensors for Weak Pulsed Magnetic Fields Measurement	Avdochenko B.I., Karlova G.F.
u745	Fundamental problem of heat transmission in the closed volume of inert gas	Starosek D., Tuev V., Khomyakov A., Chulkov A., Ozerkin D.
u750	IC testing of high-frequency switching DC-DC converter using models of thermal processes	Potapov L.A., Shkolin A.N., Draki A.Y.
u755	Sensor of neutron fluence for radiation tests	Barmakov Yu.N., Butina A.V., Butin I.V., Feoktistova L.V.
u760	Approach of TID-measurements using p-channel MOSFETs and its software	Barmakov Yu.N., Butin V.I., Butin A.V.,

	and hardware implementation	Feoktistova L.V.
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<b>Session D-2 Theory of Control</b> (Small Hall, Dom Uchenykh)		April 18, 15:50–18:00
d080	Models for periodic task scheduling based on combining data processing cycles to support the onboard navigation and control system of a UAV	Khachumov M., Khachumov V.
d084	Monitoring of Power Supply	Obach I.I., Abouellail A.A., Soldatov A.I., Soldatov A.A., Sorokin P.V., Shinyakov Y.A., Sukhorukov M.P.
d088	Analytics on Nonlinear Phenomena in Dynamics of Hysteresis Regulators with Double Synchronization	Kolokolov Yu., Monovskaya A., Bagrov V.
d090	Practice-oriented notes on the experimental bifurcation analytics for pulse systems	Kolokolov Yu., Monovskaya A.
d093	To emergency forecasting in pulse system dynamics: experimental verification	Kolokolov Yu., Monovskaya A.
d095	Towards safe cyber-physical systems: the Reflex language and its transformational semantics	Anureev I., Garanina N., Liakh T., Rozov A., Zyubin V.

<b>Session F-1 NI Technologies</b> (Main Bld., room 201)		April 19, 9:00–10:35
f100	LabVIEW-based Automatic Verification of Process-Oriented Software	Liakh T., Rozov A., Zyubin V.
f105	The Use of Software and Hardware Complex Based on NI ELVIS II and LabVIEW to Measure the Dielectric Permittivity Spectra of Materials by the Capacitor Method	Atamasov V.V., Malenko G.I.

f110	The Implementation of the Cross-Cutting Design Technique of Electronic Communication Modules Using National Instruments Technologies	Korolev P., Novikov K., Polesky S., Korotkova G.
f115	Special software for Automated Measuring Complex based on Rohde & Schwarz equipment	Droz O.V., Russkikh P.A., Kapulin D.V.
f120	Laboratory Bench for Predicting the Reliability of Wireless Devices Based on the NI MyRIO Platform	Zhadnov V., Korolev P., Sosnin A., Sedov K.
f125	Fast Responding Fundamental and RMS Discrete Fourier Analysis by LabView HIL Simulation	Dobrucky B. Urica T., Konarik R., Hargas L., Koniar D.
f130	Experimental studies on the excitation and registration of an optoacoustic signal in a liquid	Kravchuk D.A.

<b>Session</b>	<b>Antennas</b>	<b>April 19, 9:00–10:35</b>
<b>S-1</b>	(Main Bld., room 312)	
s600	Simple Pre-Steering Constraints for Wideband LCMV-beamformer	Erokhin A.A., Salomatov Y.P., Gafarov E.R., Ushakov V.N.
s605	Radiation Center Position of Helix Antenna in the Pulsed Mode	Andreev Y.
s610	Multiband Three-Layer GNSS Microstrip Antenna	Gafarov E.R., Erokhin A.A., Stankovsky A.V., Salomatov Y.P.
s615	Approximation of the Discrete Green's Function for the numerical solution of the Parabolic Equation	Akulinichev Y.P., Mogilnikov A.V.
s620	Comparison of Electric and Magnetic Dipoles as Antennas for Near-Field Nonlinear Baseband Radars	Semyonov E.V., Tuchin A.V.
s625	Determination of phase ambiguity	Dmitriev D.D., Fateev

	in the interferometer using a three-frequency GLONASS signal	Yu.L., Ratushniak V.N.
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<b>Session NI Technologies</b>		April 19, 11:00–12:30
<b>F-2</b> (Main Bld., room 201)		
f135	Spectral characteristics of the noise voltage of analog sensors and computer interfaces Vernier	Suranov A.
f140	Automated quasioptical system for EHF imaging of heterogeneous materials with subwavelength resolution	ZhakupovS. N., Badin A.V., Berdugin A.I.
f145	Software and hardware development and testing of repeaters of communication satellites	Gladyshev A.B., Dmitriev D.D., Tyapkin V.N.
f150	Software Simulation of Thermocouples	Abouellail A.A., Abouellail Y.A., Soldatov A.I., Soldatov A.A., Kolosova Yu.R.
f155	Automating the temperature dependences of electrophysical parameters measurements in microwave range	Posohov R.I., Kochetkova D.
f160	Modular Platform for Photonic Optical Experiments and Quantum Cryptography	Rodimin V., Ponomarev M., Kazieva T., Kurochkin Y., Krivoshein E., Sharoglazova V.

<b>Session Antennas</b>		April 19, 11:00–12:30
<b>S-2</b> (Main Bld., room 312)		
s635	Fractal Patterns in Long-term Behavior of GPS and GLONASS Orbits	Ovchinnikova E.V., Tsarev S.P.
s640	Polarization characteristics of reflected pulses of ultrawideband radiation at detection of metal	Nekrasov E.S., Balzovsky E.V., Buyanov Y.I., Koshelev V.I.



	objects in conditions of limited visibility.	
s645	The Resolution Capability of the Through-Transmission Method of Testing of Composites Using Linear Array	Chang J., Soldatov A.I., Abouellail A.A., Soldatov A.A., Obach I.I.
s650	Оценка точности определения координат наземного источника радиоизлучения с борта летательного аппарата пассивным однопозиционным методом путем компьютерного моделирования	Мещеряков А.А., Денисов В.П., Полянских П.А.
s655	Предельные характеристики устранения неоднозначности измерений в фазовых радиопеленгаторах, построенных в соответствии с принципом максимального правдоподобия	Дубинин Д.В., Денисов В.П., Мещеряков А.А.

<b>Session R-1</b>		<b>Microwave Devices</b>	April 19, 13:30–15:00
		(Main Bld., room 201)	
r500	Design of MMIC Subharmonic Mixer for K-band Receiver based on 0.25 $\mu\text{m}$ SiGe BiCMOS Technology	Babak L.I., Kokolov A.A., Sheyerman F.I., Pomazanov A.V.	
r505	Parameters Checkout of a Short-Wave Power Amplifier With Automatic Mode Adjustment via a Two-Frequency Test Signal	Sak P.V., Rakhlin V.P., Nikonova G.V.	
r510	A Method for Complex Impedance Determining by the Reflection Coefficient Magnitude-Only Measurement	Panko V.S., Ushakov V.N., Lemberg K.V., Baskova A.A., Salomatov Y.P.	
r520	Active Tunable Bandpass Filter with Voltage Gain Control in SiGe BiCMOS 130 nm	Erokhin V.V., Murasov K.V., Kosykh A.V., Zavyalov S.A., Koemec D.A.	

r530	Analysis of Asymmetric Broad-Side Coupled Lines by Conformal Mapping Technique	Sychev A.N., Zharov K.K.
r540	Modal filter with interdigital structure of conductors For 100 Mbit/s Ethernet equipment protection	Khazhibekov R., Zabolotsky A.
r545	Transmission of DVB-T2 Standard Signal in a Turn of Protective Meander Microstrip Line	Surovtsev R.S., Kapustin V.V., Nosov A.V.
r550	Comparative Analysis of Microstrip and Reflection Symmetric Four-Conductors Modal Filters	Chernikova E., Belousov A., Zabolotsky A.

<b>Session Communications</b>		April 19, 13:30–15:00
<b>G-2</b> (Main Bld., room 312)		
g225	Compact non-linear power amplifier for wideband underwater and underground near-field magnetic communication systems	Belyaev B.A., Babitskii A.N., Boev N.M., Izotov A.V., Sushkov A.A., Korolev E.V., Burmitskikh A.V.
g250	Detection of optical fiber segments with mechanical stress in optical cables using Brillouin reflectometers	Bogachkov I.V., Trukhina A.I., Gorlov N.I.
g255	Research of the features of Mandelstam - Brillouin backscattering in optical fibers of various types	Bogachkov I.V., Trukhina A.I., Gorlov N.I.
g265	Energy efficient method of data transmission in a heterogeneous network of the Internet of things for remote areas	Voskov L., Lysogor I., Rolich A.
g270	Assessing the Possibility of Integration LPWAN Technology into Tracking and Monitoring Systems for Special Vehicles	Ilin A.D., Belogurov B.D.

g290	Audio transmission system using white LEDs	Baklanov A., Grigoryeva S., Alimkhanova A., Grigoryev E., Sayun V.
s630	Carrier compensation mode implementation in satellite communication channels	Ryzhenko I.N., Nepomnyashchiy O.V., Lutsenko A.E., Varygin O.G.
g295	Determination of the range of the spacecraft	Panko S.P., Sizykh O.I., Khnykin A.V., Sukhotin V.V.

<b>Session</b>	<b>Microwave Devices</b>	<b>April 19, 15:15–16:30</b>
<b>R-2</b>	(Main Bld., room 201)	
r555	Analog/Digital Anti-Aliasing Filters	Samoylov L.K., Denisenko D.Yu., Prokopenko N.N.
r560	Tunable Impedance Transformer Based on Split Strip Lines	Malyutin N.D., Andreev A.V., Malyutin G.A., Sharabudinov R.M.
r565	Loss simulation of ultrashort pulse extreme points in the microstrip C-section with changing of its length	Gazizov R.R., Gazizov R.R., Gazizova E.E.
r570	The general approach to the analysis of filters for signals with constant and variable parameters	Mokeyev A.V.
r575	Selecting requirements and characteristics for high-speed digital demodulators and information receiving systems	Kulagin V.P., Molchanov Y.V., Fedotov A.V., Kuznetsov Y.M.
r580	Application of configurable diagnostic models on IIR-filters and Laguerre filters for finding parametric defects in continuous dynamic objects	Bloshchinskiy V.D., Shalobanov S.V., Shalobanov S.S.
r590	Universal programmable DC amplifier for low frequency noise measurements	Ivanov V., Chye E.U., Levenets A.

r595	The propagation constants of waveguide modes of the left-handed thin film on nonlinear substrate near the frequency of the zero group velocity	Litvinov M.R., Zarevich A.I., Konkin D.A., Litvinov R.V.
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<b>Session W</b>		<b>Signal &amp; Data Processing</b>	April 19, 15:15–16:30
		(Main Bld., room 312)	
j300	The Pipelined QR Decomposition Hardware Architecture Based On Givens Rotation CORDIC Algorithm	Sokolovskiy A.V., Fateev Yu.L., Tyapkin V.N., Veisov E.A.	
j305	Conditional local approximation in the representation of a discrete process by interpolation polynomials	Kropotov Y.A., Kolpakov A.A., Belov A.A., Proskuryakov A.Yu.	
j310	Informative Components from Biophysical Signals Selection Method Based on Discrete Wavelet-Conversion	Kabanov A.A.	
j315	The architecture and functionality of the software to identify the actual voltage static load characteristics of large consumers	Kondrashov M., Pankratov A., Batseva N.	
j320	Application of Expectation Maximization Algorithm for Measurement-based Power System Load Modeling	Pankratov A.V., Batseva N.L., Polyakova E.S., Tavlintsev A.S., Lapatin I.L., Lipnitskiy I.Y.	
j325	Metod of Fast Video Inpainting	Petrov E.P., Kharina N.L.	
j330	Intelligent system of environment monitoring on the basis of a set of IOT-sensors	Iskhakov A., Meshcheryakov R.	
j335	Application of digital watermarks in the problem of operating signal hidden transfer in multi-agent robotic system	Shumskaya O., Iskhakova A.	

w800	Verification of wireless key generation using software defined radio	Sulimov A.I., Galiev A.A., Karpov A.V., Markelov V.V.
w810	A method to Determine Speech Intelligibility for Estimating Psycho-Emotional State of Control System Operators with a High Degree of Responsibility	Alimuradov A.K., Tychkov A.Yu., Churakov P.P.
w815	Linear regression to determine the cluster radius for fuzzy rule base generation	Sarin K., Hodashinsky I., Filimonenko I.
w830	Thermal print scanning attacks in the retail environments	Gurvinder Singh, Sergey Butakov, Bobby Swar
w840	Применение метода ближайших соседей для идентификации пользователя по клавиатурному почерку	Олюнина Ю.С.
w850	Construction of Permissible Functions and their Application for Fault Tolerance	Golubeva O.
w860	Подходы к повышению оперативности обработки транзакций в системах распределенного реестра на базе технологии блокчейн	Eskov S.S.

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