National Research University Higher School of Economics
Russian Section of the Institute of Electrical and Electronics Engineers (IEEE)
Moscow A.S. Popov's Scientific Technical Society
Penza State University
The Tomsk Chapter & Student Branch of the Siberia Section of the IEEE

Moscow Workshop on Electronic and Networking Technologies (MWENT-2020)

March 11–13, 2020
Moscow, Russia

March 16–17, 2020
Penza, Russia

mwent.hse.ru

Final Program

	Moscow Workshop on Electronic and Networking Technologies March 11–13, 2020 National Research University Higher School of Economics Moscow, 34 Tallinskaya Str., MIEM HSE		
Time	March 11, Wednesday		
9:30 – 14:00	Registration of participants, lobby 1st floor		
10:00 – 10:10 10:10 – 10:20 10:20– 10:40 10:40– 11:00 11:00– 11:20 11:20– 11:40	OPEN SESSION *Greeting remarks by the Research supervisor* ***Yu.V.Gulyaev*** *Greeting remarks by the Co-Chair of the Organizing Committee* ***E.A.Krouk*** PLENARY SESSION I ***E.S. Gornev****, Russian industrial microelectronic technology problems.* ***S.Y. Yurish****, High Performance ADC for Smart Sensors* ***V.S. Melikyan****, Artificial Intelligence in Integrated Circuit Design* ***D. Garatelli****, Modified Shperical Bessel Functions as a New Class of Operator Fuctions and their Application in Solving Problems of Electrodynamics and Mathematical Physics* Room 506		
11:40 – 13:00	Luncheon		
13:00 – 15:00	**Fundamental problems of Electronics I** Room 403	**Networks and Telecommunications I** Room 405	**Satellite Communications** Room 406
15:00 – 15:30	Coffee Break		
15:30 – 17:00	**Fundamental problems of Electronics II** Room 403	**Networks and Telecommunications II** Room 405	**Information Security** Room 406
17:30 – 20:30	Get Together Party		
March 12, Thursday			
9:30 – 12:00	Registration of participants, lobby 1st floor		
10:00 – 10:25 10:25 – 10:50 10:50 – 11:15 11:15 – 11:40	PLENARY SESSION II ***Y.V. Kolkovsky****, New Technologies for Remote Sensing of the Earth* ***A.D. Grigoriev****, Terahertz Electronics: Achievements and Problems* ***A.L. Lokhov****, IC Layout Verification at the Leading Edge of Technology. Mentor Graphics Calibre Platform Overview* ***S.G. Rusakov****, Problems of Theory and Simulation of Reactance-Less Memristor-Based Circuits* Room 506		
11: 40 – 13:00	Luncheon		
13:00 – 15:00	**Electronic Engineering and Technology I** Room 405	**Electronic Engineering and Technology II** Room 406	
15:00 – 15:30	Coffee Break		
15:30 – 18:00	**Electronic Engineering and Technology III** Room 405	**Signal Processing** Room 406	
March 13, Friday			
Social Program			

	Moscow Workshop on Electronic and Networking Technologies Special Session			
	March 16–17, 2020 Penza State University Penza, 40 Krasnaya Str., PSU			
Time	March 16, Monday			
9:30 – 10:00	Registration of participants, lobby 1st floor			
10:00 – 10:40	PLENARY OPEN SESSION *Greeting remarks by the Special Session Chair I.I. Artemov* *Greeting remarks by the Special Session Co-Chair E.A.Pecherskaya* *Greeting remarks by the Technical Program Chair O.V.Stukach* Room 1-217			
10:45 – 11:00	*Tatyana Murashkina, Dr.Tech.Sc. PSU, Russia* Laser Optical Fiber Systems Prospects Use Evaluation Room 1-217			
11:00 – 11:15	*Nikolay Yurkov, Dr.Tech.Sc. PSU, Russia* Estimates of Reliability Indicators for Failure-Free Tests Conducted According to the Binomial Plan Room 1-217			
11:15 – 12:30	Luncheon			
12:30 – 14:00	**Measurements** Room 1-217	**Measurements** Room 1-211	**Electron Devices and Technology** Room 1-308	**IT in Medicine** Room 1-305
15:30 – 16:00	Coffee Break			
16:00 – 17:30	**Measurements** Room 1-217	**Measurements** Room 1-211	**Electron Devices and Technology** Room 1-308	**IT in Medicine** Room 1-305
17:30 – 20:30	Get Together Party			
March 17, Thuesday				
Social Program				

Organized by

- National Research University Higher School of Economics;
- Russian Section of the Institute of Electrical and Electronics Engineers (IEEE);
- Moscow A.S. Popov's Scientific Technical Society;
- Penza State University;
- The IEEE Tomsk Chapter & Student Branch.

Sponsor

- National Research University Higher School of Economics

Technical Sponsor

- IEEE Russia (Moscow) Central Section.

Research supervisor

Gulyaev Yu.V., Institute of Radio-Engineering and Electronics RAS, Russia

Technical Program Committee

Bugaev A.S., Institute of Radio-engineering and Electronics RAS, Russia (Chair)
Ashikhmin, A. E., Bell Labs/Lucent Technologies, USA
Babur G. P., Omniradar, the Netherlands
Barg A.M., University of Maryland, USA
Caratelli Diego, The Antenna Company Nederland B. V., the Netherlands
Chaplygin Yu. A., MIET, Russia
Dumer I.I., University of California Riverside, USA
Gennaro Conte, Universita degli Studi Roma Tre, Italy
Lubomir Dimitrov, Technical University of Sofia, Bulgaria
Markarian Garegin, Uni Lancaster, UK
Pozhidaev E.D., HSE, Russia
Schultz Egon, Huawei, Germany
Smolskaya N.N., MNTORES, Russia
Stempkovsky A.L., IPPM RAS, Russia
Stukach O.V., HSE, NETI, Russia
Tsvetkov V.Yu., BSUIR, Belarus
Vyatkin V.V., Lulea tekniska Universitet, Sweden
Zhmud V.A., Novosibirsk State Technical University, Russia
Zukowski P.V., Politechnika Lubelska, Poland

Organizing Committee

Krouk E.A., HSE, Russia (Co-Chair)
Petrosyants K.O., HSE, Russia (Co-Chair)
Abrameshin A.E., HSE, Russia,
Aksenov S.A., HSE, Russia
Bondarenko G.G., HSE, Russia
Ivanov I.A., HSE, Russia
Kechiev L.N., HSE, Russia
Kruchkova E.A., HSE, Russia
Litvinova N.L, HSE, Russia
Lvov B.G., HSE, Russia
Saenko V.S., HSE, Russia
Sedova T.L., HSE, Russia

General Information

International Moscow IEEE-workshop on Electronic and Networking Technologies **MWENT-2020** devoted to the issues of electronics development and its integration into the modern network engineering technologies and also modern achievements in the field of creation of control and

communication systems. The **Aim of MWENT** is to provide an international forum for discussion of recent scientific advances in the electronic industry.

Address of Organizing Committee and Correspondence

Contact information:
123458, Moscow, 34 Tallinskaya Str.
E-mail: mwent@hse.ru
General questions:
Ilya Ivanov
Tel.: +7 (495) 7729590*15166, +7(926) 3830740, e-mail: mwent@hse.ru
Papers and special sessions:
Oleg Stukach, e-mail: tomsk@ieee.org

Topics

1. Fundamental problems of radio electronics.
2. Technologies of electronic instrument engineering.
3. Network and telecommunication.

Registration fee

8500 RUB – for IEEE members;
9500 RUB – for students and postgraduate students;
13500 RUB – for all other participants.
Registration fee includes publication in the conference proceedings, luncheon, coffee-breaks and gala-dinner.

Venue

HSE Tikhonov Moscow Institute of Electronics and Mathematics
Penza State University (Special Session)

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 *mwent.hse.ru*

Proceedings

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

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.

Conference Language

The working languages are English and Russian. No simultaneous translation will be provided. All materials concerning the conference should be written in English. According with the RFBR recommendations some events will be fulfills on Russian (see schedule) as one of the working language.

Electronic Copyright Form (eCF)

Each author whose paper has been accpeted for publication will recieve 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

Technical Program

The technical program covers all aspects of electronic and networking: theory, fundamental, and applied studies. It will include plenary session and thematic sessions composed of oral presentations. Contributed papers will be 10 minutes in length, with 5 minutes for discussion. Invited papers will be 25 minutes, with 5 minutes for discussion. Multimedia projector will be available.

Guidelines for Oral Presentations

Please note that the overall time available for your presentation is limited to 10 minutes allowed for the actual presentation and 5 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 and organized 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. Do not use more than 1 slide per minute. Please stay within the time limit allocated for your presentation.

Technical equipment provided in the Conference room are:

- Multimedia video projector;
- Projection screen;
- Standard multimedia PC with USB drive.

The operating system for session computers is Microsoft Windows 10. The available software is Microsoft Office that includes Word, Excel, PowerPoint, Adobe Acrobat Reader, and Windows Media Player. Therefore, all presentations must be compatible with the software.

Schedule and Scientific Program

March 11, Wednesday
National Research University "Higher School of Economics"
Moscow, 34 Tallinskaya Str., MIEM HSE

Fundamental Problems of Electronics I
13:00 – 15:00 Room 403
Chair: Prof. G.G. Bondarenko

f10	Methods of Thermal Processes Modeling in On-board Navigation Devices with Random Variations in Parameters	Grigor A. Sargsyan, Svetlana Y. Sotnikova
f15	The Method of Modeling Thermal Process for High Reliability On-Board Radio-Electronic Systems	Yury N. Kofanov, Ekaterina Yu. Kozlova, Egor Yu. Poluyko, Victoria K. Malievskaya, Lusine E. Mirzoyan, Vladimir A. Avdeyenkov
f20	Method of Digital Counterpart Creation of Physical Processes at Productive Foresight Modeling Of Cyber-Physical Systems	Yury N. Kofanov, Svetlana Y. Sotnikova
f25	To Fundamentals of the Hysteresis Control with Double Synchronization	Yury Kolokolov, Anna Monovskaya
f30	Simulation the Effect of Common-mode Excitation of Electrostatic Discharge on the Shielded Power Supply Bus Conductors	Rustam R. Gazizov, Ruslan R. Gazizov, Timur T. Gazizov
f35	Analysis of a quadrocopter body influence on the absolute direction-finding errors of the radio waves sources by means of on-board three-element circular antenna array	Alexander S. Samodurov, Dmitry A. Yampolskij, Yulia R. Kvasova, Ekaterina A. Shirshikova, Andrey A. Kuzyomkin, Victoria R. Timoshilova
f40	On the development of a digital receiver for registration electromagnetic fields and microseisms in the frequency range 0.1 - 100 Hz	V.S. Potylitsyn, O.A. Maykov, D.S. Kudinov
f45	Design method for non-tunable LC-filters	Egor Gurov, Saygid U. Uvaysov, Aida S. Uvaysova, Ruslan M. Uvaysov

Networks and Telecommunications I
13:00 – 15:00 Room 405
Chair: Prof. A.A Yelizarov

t10	Study of LoRa Performance at 433 MHz and 868 MHz Bands Inside a Multistory Building	Ivan Bobkov, Maria Denisova, Alexey Rolich, Leonid Voskov
t15	Applicability analysis of a single-channel chaotic carrier data transmission system with non-linear parametric modulation	Alexey Mushenko
t20	Multi-criteria synthesis of signal-code sequence based on trellis-coded modulation to adapt wireless communication systems to the action of narrow-band interference	Sergey N. Kirillov, Alexander A. Lisnichuk
t23	The procedure of multi-criteria synthesis of DSSS radio signals to adapt prospective wireless communication systems to the action of narrow-band interference	Sergey N. Kirillov, Alexander A. Lisnichuk
t25	A Multi-code Multi-tone DHA FH OFDMA System with Nonparametric Reception	Dmitry Osipov
t30	A Novel Energy-Efficient Intrabody Communication Technique for Wearable Devices	Igor Khromov
t35	Processing Internet banking applications when integrating iBank and my-BG network services	Marina Ozerova, Ilya Zhigalov, Anna Ovdina

t40	NS-3 Simulation of Poisson-Pareto Burst Process in Multi-Source FANET scenario with Network Coding	Irina A. Kaisina, Danil S.Vasiliev, Albert V. Abilov, Alexey E.Kaisin, Daniil D. Meitis, Anatoli I. Nistyuk
t43	Analysis methods for improving Quality of Service metrics in Flying Ad Hoc Networks	Irina A. Kaisina, Albert V. Abilov, Andrei V. Chunaev, M. Aiman Al Akkad, Vladimir V. Khvorenkov
t99	Simulation-based Research of BATS Code Applied to Flying Ad-hoc Networks	Daniil S. Meitis, Danil S. Vasiliev, Irina Kaysina, Albert Abilov
t95	Location identification and handover in newgeneration mobile networks	Alexey Bogdanov

Satellite Communications		
13:00 – 15:00 Room 406 *Chair: Prof. V.S. Saenko*		
h15	Methods of obtaining geospatial data using satellite communications and their processing using convolutional neural networks (November 2019)	I. I. Tsvetkovskaya, N. V. Tekutieva, E. N. Prokofeva, A.V. Vostrikov
h20	Methods for Radar Atmospheric Sensing Using Radars With Low-Element Antenna Arrays	D.D. Dmitriev, V.N. Ratushniak, V.M. Vladimirov, Y.L. Fateev
h30	Organization of Mutual High-Precision Navigation of Small Spacecraft of Low-Orbit Groups	V.N. Ratushnyak, A.B. Gladyshev, E.N. Garin, N.S. Kremez, M.A. Golubyatnikov
h35	Methods of High-Precision Mutual Navigation of Small Spacecraft	D.D. Dmitriev, V.N. Tyapkin, Yu.L. Fateev, A.B. Gladyshev, P.Yu. Zverev
h40	Simulation of a Multi-Frequency Satellite Communication Channel	A.V. Mishurov, S.P.Panko, A.A. Gorchakovskiy, T.A. Zubov, D.D. Dmitriev, V.N. Tyapkin
h50	Measurement of Spatial Orientation Angles of a Small Spacecraft Using GNSS Signals	V.N. Tyapkin, Yu.L. Fateev, A.B. Gladyshev, V.N. Ratushniak, P.Yu. Zverev
h55	Digital range measurement of telecommunication spacecraft	S.P. Panko, V.V. Sukhotin, A.V. Khnykin, I.Yu. Tikhonenko
q90	Development of the Methodology for Assessing the "Production Quality Factor" for the Failure Rate Model of Artificial Earth Satellites Electronic Means	Pavel Korolev

Fundamental Problems of Electronics II		
15:30 – 17:00 Room 403 *Chair: Prof. G.G. Bondarenko*		
f50	Quasiperiodic Modes in Oscillator Circuits	Mark M. Gourary, Sergey G. Rusakov
f55	Terahertz Electronics: Achievements and Problems	A.D. Grigoriev
f60	The Reactance-Less Two-Memristor based Oscillator for Signal Processing	V.V. Rakitin, S.G. Rusakov
f65	Evaluation Of The Efficiency Of The Metamaterialin The Development Of Microstrip Antennas Based On LTCC Technology	Hamed E.A. Mahyoub, N.N. Kisel
f70	Study Of The Micro-Strip Antenna Characteristics With Controlled Metamaterials	Hamed E.A. Mahyoub, N.N. Kisel, A.I. Panychev
f75	Electromechanical design handset prosthesis	Artem Avdeev, Georgiy Klenevsky, Pavel Kolesnik
f80	Calculation of the Fixed Points of the Desired Dynamic Modes for Cuk Converter	A.I. Andriyanov
f85	Исследование характеристик малошумящего усилителя приемопередатчика	Яновская Дарья, Устименко Вячеслав, Воробьев Олег

	широкополосной системы связи	
f95	An Accurate and Robust Method for Small Moving Target Detection	Guanqing Li, Zhiyong Song, Qiang Fu, Zhaowei Xu
q55	Classification of semiconductor materials by their atomic structure order	Anatoly Popov, Irina Miroshnicova

Networks and Telecommunications II 15:30 – 17:00 Room 405 *Chair: Prof. A.A Yelizarov*		
t45	Analytical Routing Algorithm for Networks-on-Chip with the Three-dimensional Circulant Topology	E.A. Monakhova, O.G. Monakhov, A.Yu. Romanov, E.V. Lezhnev
t50	Event-based Cooperation of Functional Networking Components in Distributed Technological Systems	Valery A. Kokovin, Alexander A. Evsikov, Saygid U. Uvaysov, Svetlana S. Uvaysova
t55	Application of Spreading Spectrum Technology for Power Line Communication Systems	Edgar Dmitriyev, Eugeny Rogozhnikov, Andrey Movchan, Semyon Mukhamadiev, Krukov Yakov
t60	Short Message Compression Scheme for Wireless Sensor Networks	Ilya B. Ginzburg, Sergey N. Padalko, Maxim N. Terentiev
t65	Massive MIMO system capacity analysis in case of banded correlation matrix model application	Aleksey S. Gvozdarev, Tatiana K. Artemova
t70	Statistical Account of the Obstacle Position in a MIMO System Channel Matrix Indoors	A.A. Vaganova, N.N. Kisel, A.I. Panychev
t75	Algorithms, network models and options for implementation of high-speed sensor networks	V.E. Dement'ev, S.V. Elyagin, V.E. Klochkov, A.G. Tashlinsky
t80	Analysis of dynamical queue scheduling algorithm with service loop duration restriction for network switches	Nikolay Konnov, Andrey Semenov, Dmitriy Patunin
t85	Decision support during the projects preparation of network infrastructure elements of a telecom operator	Alexandr Sorokin
t90	Three-Value Simulation of Combinational and Sequential Circuits and its Applications	O. Golubeva

Information Security 15:30 – 17:00 Room 406 *Chair: Prof. O.O. Evsyutin*		
b10	Algebraic geometry codes for special broadcast encryption schemes in telecommunication nets	Denis Zagumennov, Vladimir Deundyak, Alexander Gufan, Vyacheslav Mkrtichan
b20	Review of the algorithms steganography in PDF documents and analysis	Alexander V. Sergeev, Pavel. B. Khorev
b30	The Geospatial Data Mining Concept Using Scrapping Technology	Hlib A. Nekrasov, Denis E. Polivoda, Ekaterina N. Prokofyeva
b40	Analysis of IIR Filters by Interval Response	Vin´ıcius Borges, Erivelton G. Nepomuceno, Aleksandra V. Tutueva, Artur I. Karimov, Carlos Duque, Timur I. Karimov
b50	Improving Chaotic Image Encryption Using Maps with Small Lyapunov Exponents	Thiago A. Santos, Eduardo P. Magalhães, Nayara P. Basílio, Erivelton G. Nepomuceno, Timur I. Karimov, Denis N. Butusov
b60	The use of microelectronics radiation behavior as physical uncloned function to find counterfeit	Leonid N. Kessarinskiy, Alexey O. Shirin, Hrayr A. Hovsepyan
q98	Процессы и метаданные для системы управления технической документацией	И.Н. Бычков, И.Н. Лобанов, А.Д. Кузнецова, И.О. Сомов

March 12, Thursday

National Research University "Higher School of Economics"
Moscow, 34 Tallinskaya Str., MIEM HSE

Electronic Engineering and Technology I 13:00 – 15:00 Room 405 *Chair: Prof. I.A. Kharitonov*		
v01	New Functionality in Mentor Graphics PCB Design Xpedition Platform. System-in-Package Solutions.	A.A. Filippov
q10	Automatization of topological design MOEMS - subsystem matrix IR sensor based on thermocouples	Nikita I. Kuraedov
q14	Local anodic oxidation proceses influence and temterature stability on the memristive ropherties of titanium oxide nanostructures for ReRAM development	Vadim I. Avilov, Roman V. Tominv, Nikita A. Sharapov, Vladimir A. Smirnov, Oleg A. Ageev
q18	Impact Modeling of Single Ionizing Particles on the CMOS Triple Majority Gate	Yuri V. Katunin, Vladimir Ya. Stenin
q22	Increasing DDR4 SDRAM throughput in parallel workloads	Yuri A. Nedbailo, Igor A. Petrov
q24	Elements of location and correction of errors for redundant stand-alone information-measuring systems	Alina A. Merkulova, Andrey A. Antonov, Alexandra G. Prozorova, Andrey A. Krasnyuk
q28	Comparison of Complementary JFET Parameters on Technological Processes of JSC "Integral" (Minsk) and JSC "SPE "Pulsar" (Moscow) at Low Temperatures	Oleg V. Dvornikov, Valentin L. Dziatlau, Vladimir A. Tchekhovski, Nikolay N. Prokopenko, Dmitry G. Drozdov, Eugene M. Savchenko
q30	Floating Complementary JFET Differential Stage with Increased Rejection of input Common Mode Signal and Power-Supply Noises	Nikolay Prokopenko, Alexey Zhuk, Ilya Pakhomov
q12	Investigation by the Method of Images of the Heat Flux Distribution at the Semiconductor-Substrate Interface in Transistor Structure from a Point Heat Source Located at the Passivation-Semiconductor Interface	Valentin O. Turin, Ekaterina N. Pilyaeva, Igor V. Golovin

Electronic Engineering and Technology II 13:00 – 15:00 Room 406 *Chair: Ass. Prof. L.M. Sambursky*		
q32	Early Study of Transistor and Circuit Parameter Variation for 180 nm High-Temperature SOI CMOS Production Technology	Lev M. Sambursky, Mamed R. Ismail-zade, Nina V. Blokhina
q36	Miniaturization of microwave transmit-receive modules, implemented using 3D silicon technology	Mikhail Pyatochkin, Evgeny Kotlyarov, Alexander Tishin
q40	The Effective Dielectric Constant of a Composite with Conductive Nanoparticles	A.E. Abrameshin, V.M. Chetverikov
q42	Simulation of the process of radiation electrization of polystyrene film charging with low energy electrons	D. Abrameshin, S. Tumkovskiy, E. Pozhidaev
q45	Improving the accuracy of the solution of a multidimensional system by differentiating the	T.A. Dobrovolskaya, V.M. Emelyanov, V.V. Emelyanov

	XY probability density equations for the identification of gold nanoparticles on fibers	
q48	Models Analyses for Traveling Wave Tubes Failure Rate Estimating in the Design	Sergey Polesskiy, Pavel Korolev, Juliya Serebryakova, Alena Tseplina, Ilya Ivanov
q52	Hardware/software Implementation of Simulation Modeling in the Tasks of Electronic Equipment Reliability Function Evaluating	Pavel Korolev, Sergey Polesskiy, Roman Mukhametov, Anton Sosnin, Kirill Sedov, Ilya Ivanov
q95	Моделирование метаструктуры на основе сплит-кольцевого резонатора с ферритовым элементом	Вячеслав Лобекин, Александр Татаренко, Мирза Бичурин

Electronic Engineering and Technology III 15:30 – 18:00 Room 405 *Chair: Prof. I.A. Kharitonov*		
q58	Investigation of Doseand Dose Rate Sensitivity of RADFETs in Space Environment	E.V. Mrozovskaya, P.A. Chubunov, G.I. Zebrev
q61	AIIIBV Photoelectric Converters Degradation under ionizing radiation	Konstantin Tapero, Sergey Yurchuk, Marina Orlova, Sergey Sizov, Sergey Didenko
q64	Design of the gas sensor prototype with CNTsbased sensitive element and application of the FFT technique for gas identification	Oleg Il'in, Nikolay Rudyk, Marina Il'ina, Alexander Fedotov, Andrey Guryanov
q67	Hardware Implementation of Convolutional Neural Networks Based on Residue Number System	Roman Soloviev, Dmitry Telpukhov, Ilya Mkrtchan, Alexander Kustov, Alexander Stempkovskiy
q70	A smart workplace concept for microwave products parameters control under small-scale customized manufacturing	Oleg V. Drozd, Denis V. Kapulin
q73	Opto-electronics and scanning system calibration with remote sensing	Kalinkina Mariia, Marusina Mariia, Tkalich Vera, Pirozhnikova Olga, Korobeynikov Anatoliy
q76	Impact of contact material on the resistive switching in nanocrystalline ZnO films for forming-free neuromorphic elements manufacturing	Vladimir Smirnov, Roman Tominov, Vadim Avilov, Vakulov Zakhar, Avakyan Artyom, Oleg Ageev
q79	Pyrolyzed polyacrylonitrile based composite with amorphizing silicon additives	Olesya Kakorina, Irina Zaporotskova, Igor Kakorin, Lev Kozhitov, Tatiana Ermakova
q81	The investigation of circular dielectric filled waveguide with metal ridges	Daria.V. Lonkina, Viacheslav.V. Zemlyakov, Dmitriy. S. Gubsky, Sergey V. Krutiev
q83	Synthesis of band-pass filters on rectangular H-plane cavities	Sergey V. Krutiev, Viacheslav.V. Zemlyakov, Daria.V. Lonkina
q85	Development of a Virtual Device for the Noises Localization of Large-Size Units in the Arctic	Alexey Lagunov, Vladimir Terekhin, Alexey Orlov
q87	Implementation of electronic technical manuals and content management in instrument-making enterprises	Goryunova Valentina, Goryunova Tatyana

Signal Processing 15:30 – 18:00 Room 406 *Chair: Prof. F.I. Ivanov*		
s10	Simplified Wavelet Filter Implementation for Real-Time Signal Recognition	V.E. Ivanov, En Un Chye
s15	Adaptive filtering of non-fluctuation interference when receiving signals with multi-position phase shift keying	Kulikov G.V., Do Trung Tien, Kulagin V.P.
s20	Digital Calibration Method for Time-Interleaved ADCs	Anna Fateeva, Galina Nikonova, Igor Kashchenko

s25	Frequency response analysis in problems of integrated circuits behavioral modeling	Alexei N. Shkolin, Alexandr Y. Drakin, Igor Y. Butarev
s30	Statistical Characteristics of the Signal Distribution at the output of the Linear Filter in the Presence of Fluctuating Modulating Noise	Vladimir Mikhaylovich Artyushenko, Vladimir Ivanovich Volovach, Victor Nikolaevich Budilov
s35	Estimation of the Effect of Multiplicative Noise on Signal Detection against the background of Additive Noise	Vladimir Mikhaylovich Artyushenko, Vladimir Ivanovich Volovach, Ivanov Victor Vasil`evich
s40	Quasi-optimal Algorithm for Receiving Discrete Signals based on Polygaussian Models	Vladimir Mikhaylovich Artyushenko, Vladimir Ivanovich Volovach
s45	A Method for Analyzing Parameter Measurements to Track Dangerous Changes in a Technical Object	Klevtsov S.
s50	Analysis of the Behavior of a Technical Parameter in a Limited Area of Its Time Series for Forecasting Tasks	Klevtsov S.
s55	Experimental Testing the Regulator Mechanisms of Local Climate Evolution	Yury Kolokolov, Anna Monovskaya, Vladimir Bagrov
s60	Analysis of numerical series of moving homogeneous video images	Kupriyanov Ilya, Semenov Anatolij
s65	On the assessment of the image model of 3D models synthesized by optical-software-technical systems	Vladimir Roganov, Mikhail Mikheev, Michail Babich, Mikhail Butaev, Nurzipa Esimova, Olga Kukuchkina
s70	Motion compensation method for video encoding	E.V. Medvedeva, A.P. Metelev, E.C. Kryshkina
s75	Reconfigurable multiplicator over 216, 215 AND 214 for DVB-S2X Standard	T.A. Zubov, V.V. Suhotin, A.V. Khnykin, A.N. Kamyshnikov, V.V. Evstratko

March 16, Monday

Penza State University

Penza, 40 Krasnaya Str., PSU

Measurements		
12:30 – 17:30 Room 1-217		
i10	Application of the Quotient-Difference Algorithm for Measurement Tasks	Boris V. Tsypin, Maria G. Myasnikova
i13	Method of Measuring the Basic Parameters of an Oscillatory System by Means of Eigen Frequency Excitation	Azat M. Nizametdinov, Alexey A. Chertoriyskiy
i16	Piecewise Continuous Test Signals in Measuring Circuits with Time Division Multiplexing	Victor P. Arbuzov, Marina A. Kalinina
i19	Frequency Response of the Transfer Function of the Information-Measuring System for Linear Displacements with Phase Sensor	Vladimir Ya. Goryachev, Dmitry I. Nefedyev, Tatyana Yu. Brostilova, Sergey A. Kislyakov, Valery V. Kozlov, Sergey V. Golobokov
i21	Modelling of electrochemical processes and joulemetric measuring systems	Sergey M. Gerashchenko, Nikolay N. Yankin, Natalya N. Yankina, Sergey L. Zefirov, Evgeniy V. Kuchumov
i24	Unifying Converters of Inductive Sensors Parameters for Devices Measuring the Parameters of Electrophysical Properties of Substances	Andrey V. Grachev, Pyotr P. Churakov, Alexander Yu. Tychkov, Alan K. Alimuradov
i27	Three-dimensional differential XYZ-Y model for processing measurements of Raman spectra in the identification of gold nanoparticles on dielectrics	V.M. Emelyanov, T.A. Dobrovolskaya, V.V. Emelyanov

i30	Approximate methods for solving of one-dimensional amplitude-phase problem	Ilya Boikov, Yana Zelina, Denis Vasyunin
i33	Distributed Processing of Electrical Meters Surveying	Anton Ivaschenko, Arkadiy Krivosheev
i36	Method for Measuring the Acoustic Emission of Developing Microcracks in Machine Parts	Vladimir D. Krevchik, Alexander V. Rudin, Alexander V. Zadera, Mikhail B. Semenov, Ascar K. Aringazin, Ivan M. Semenov
i39	The Manipulation of Bionic Prosthesis Using Neural Network Processing Information Principles	Oleg N. Bodin, Galina A. Solodimova, Andrew N. Spirkin
i42	Semisupervised learning in pattern recognition with concept drift	Mitrokhin M.A., Zaharov S.M., Mitrokhina N.Yu.
i45	Development of decomposition methods for empirical modes based on extremal filtration	NinaV. Myasnikova, Mikhail P. Beresten, Maria G. Myasnikova
i48	Preliminary decomposition into modes in information-measuring and control systems	Boris V. Tsypin, Maria G. Myasnikova, NinaV. Myasnikova
i51	Determination of Electromagnetic Field Strength Taking Into Account the Influence of Reflections	Alexey K. Grishko, Igor I. Kochegarov, Alexey V. Lysenko, Pavel G. Andreev, Nikolay V. Goryachev, Evgeniya A. Danilova
i54	Multiple Criteria Optimization of Radio-Electronic Structures Based on Interval Deviation Analysis of Design Parameters in Heterogeneous Measuring Scales	Alexey K. Grishko, Igor I. Kochegarov, Alexey V. Lysenko, Sergey A. Brostilov, Evgeniya A. Danilova, Dastan S. Ergaliev
i57	Extremum seeking of asynchronous electric drive with Frequency-current regulation	Ermilina O.V., Mikhailov P.G., Semenov A.D., Sokolov A.V.
i60	Construction of Rotational Speed Sensors Based on the Wiegand Module	Alexey A. Trofimov, Nataliya S. Trifomova, Sergey A. Zdobnov, Dmitriy V. Popchenkov, Kirill I. Bastrygin, Alan K. Alimuradov
i66	Estimates of Reliability Indicators for Failure-Free Tests Conducted According to the Binomial Plan	Nikolay K. Yurkov, Viktor S. Mikhaylov
i69	A Technique for Designing a Wide-Band Capacitive Level Gauge for Automated Information and Measurement Petrochemical Accounting Systems	Alexandr G. Godnev, Alexey V. Lysenko, Nikolay K. Yurkov, Igor I. Kochegarov, Ilya M. Rybakov, Denis V. Deryabin
i72	A Recursive Algorithm of Digital Polynomial Filtering	Mikhail. A. Shcherbakov
i75	Measurement of the Dynamic Characteristics of Separate Spectral Bands of the LEDs Electroluminescence Spectra	Viacheslav Sergeev, Ilya Frolov, Oleg Radaev
i78	Problem of laser correction of geomentrical errors for digital machining industry	Teleshevsky Vladimir Ilyich, Sheptunov Sergey Aleksandrovich, Sokolov Vladimir Aleksandrovich
i81	Laser Optical Fiber Systems Prospects Use Evaluation	Elena Badeeva, Tatyana Murashkina, Sergey Bazykin, Nelly Bazykina, Christina Samokhina, Mikhail Gerashchenko
i84	Fiber-optic pressure sensor system for diagnosing anomalies of the oral cavity	Elena Badeeva, Tatyana Murashkina, Yuri Vasiliev, Lyudmila Tereschenko, Tatiana Istomina
i87	Structural and parametric identification of nonlinear dynamic objects	Petr Makarychev

Electron Devices and Technology		
12:30 – 17:30 Room1-308		
u10	Ad-hoc Protocol for Drones Coordination in	Olesia B. Malaschuk, Alexander A. Dymin

	Urban Environment	
u15	Ultrasonic navigation to control the movement of a mobile robot	Boryak Sergey
u20	Influence of Spectral Composition of the Generator Voltage on the Error in the Information-Measuring System for Linear Displacements with Phase Sensor	Vladimir Ya. Goryachev, Dmitry I. Nefedyev, Sergey A. Brostilov, Omirzak K. Abdirashev, Alexsey A. Trofimov, Yuliya A. Shatova
u25	The study of current localization in solar cells during the thermal resistance mesurements	Vitaliy Ivanovich Smirnov, Viacheslav Andreevich Sergeev, Andrey Anatolievich Gavrikov, Alexandr Alexandrovich Kulikov
u30	Assessment of DC Voltages and Currents Ripples Through Waveform Harmonic Factors of Rectified Voltage	Nikolay Lopatkin
u35	On the Assessment of Three-Phase Delta Voltages' Unbalance	Nikolay Lopatkin
u40	Thin piezoelectric films for micromechanical systems	Sergey A. Gurin, Ekaterina A. Pecherskaya, Kseniya Yu. Spitsyna, Andrey V. Fimin, Dmitriy V. Artamonov, Anastasiya E. Shepeleva
u45	The Model of the Relationship of the of Micro-arc Oxidation Process Parameters Based on Graph Theory	Ekaterina A. Pecherskaya, Given Pavel E. Golubkov, Dmitriy V. Artamonov, Anatoliy V. Pecherskiy, Oleg A. Mel'nikov, Anastasiya E. Shepeleva
u50	Wildfire Segmentation on Satellite Images using Deep Learning	Vladimir Khryashchev, Roman Larionov
u55	Application of modern digital processing methods in automated control systems	Nina V. Myasnikova, Natalia V. Lysova
u57	Decentralized Control of Switching Elements in Tntra-Chip NoC Routers	Denis Kutuzov, Dmitriy Starov, Alexey Osovsky
u60	Reliability Test Monitoring System of Digitalto-Analog Converter Microcircuits	Anton S. Ishkov, Galina A. Solodimova, Anatoliy V. Svetlov
u65	Eddy current measuring system for testing conductive objects	Maksim K. Markelov, Anton S. Ishkov, Anatoliy V. Svetlov
u70	Comparison of noise immunity of coherent and autocorrelation demodulators of M-PSK signals in a radio channel with a complex interference situation	Kulikov G.V., Nguyen Van Dung, Kulagin V.P.
u75	Formalization of organization of signaling protocol while making online calls using automata theory	Paschenko D.V., Mitrokhin M.A., Trokoz D.A., Sinev M.P., Savateev M.V., Iskhakov N.V., Rodionov V.S.
u80	Instrumental system of temporal analysis of models of concurrent computing systems constructed using theory of temporary finite state automata	Konnov N.N., Zinkin S.A., Trokoz D.A., Sinev M.P., Boriskin V.V., Puchkova U.N., Martyishkin A.I., Kalashnikov V.A.
u85	Development of a Universal Module for the Collection and Processing of Measurement Data for Decision Support Systems	Anna Kolodenkova, Sergey Novokschenov
u88	Integrated Approach to Processing Diagnostic Data Based on Heterogeneous Cognitive Models	Anna Kolodenkova, Svetlana Vereshchagina, Vladislav Vereshchagin
u96	Presentation of the PaaS system state for planning containers deployment based on ML-algorithms	Mikhail M. Rovnyagin, Alexander S. Hrapov
u99	Непрерывная идентификация пользователя по клавиатурному почерку с использованием представления на основе контекста	Дмирий В. Пащенко, Елена А. Бальзанникова

	состояний	

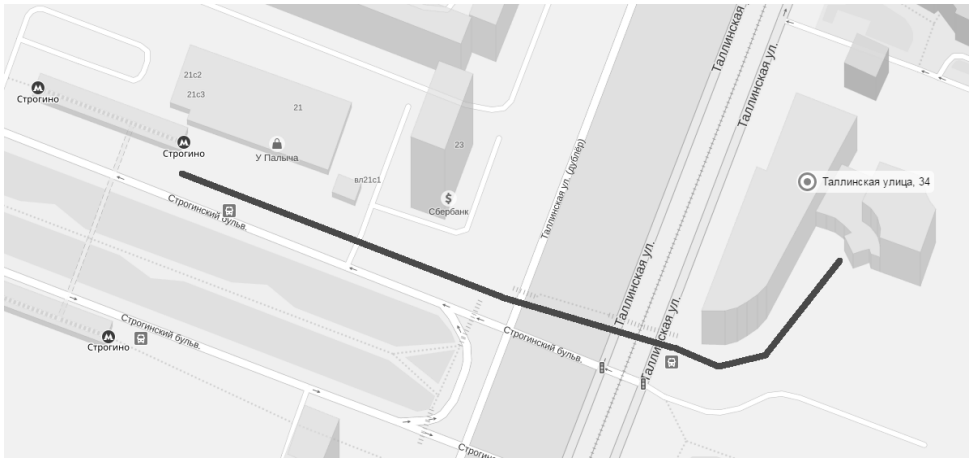
IT in Medicine 12:30 – 17:30 Room 1-305		
m10	Development of a smart bike algorithm for cardiac rehabilitation	Irina Makarova, Eduard Tsybunov, Aleksey Boyko, Ilsur Giniyatullin
m15	Information and measuring mobile complex for managing of medical care in extreme situations	Viktor Istomin, Tatyana Istomina, Nikita Kosenok, Antonina Papko, Valeryi Chulkov
m20	Development of a multi-channel measuring system for EMG recording from prevention muscles	Petr Pestrikov
m25	Intelligent information and measurement system of monitoring results and BFB-trainings	Elena Petrunina, Tatyana Istomina, Viktor Istomin, Natalya Trub, Tatyana Murashkina, Ivan Shubin
m30	Entropy-Parametric Analysis of the Heart Condition based on the Type I and the Type II Errors	Vitaly. G. Polosin, Mikhail S Gerashchenko, Anna O. Mokhova
m35	Algorithm for estimating arterial pressure based on spectral analysis of the pulse wave form	Natalya A.Volkova,Sergey M. Gerashchenko, Vladislav S. Vasiliev
m40	Mathematical Modeling of Morphometric Parameters of Thyroid Gland Structure	O.V. Kalmin, O.O. Kalmin
m45	Method for Forming Mathematical Models of Measured Electrophysiological Signals	M.A. Sidorova, N.A. Serzhantova
m50	Dynamic Model of Pressure Propagation from Artery into Cuff During Monitoring of Cardiovascular System	Sergei I. Gerashchenko, Mikhail S. Gerashchenko, Andrei V. Demidov, Marina V. Markuleva, Vitaly G. Polosin
m60	Principles of Construction, Structure and Features of the ECG and Blood Pressure Monitoring System	Andrey V. Demidov, Dmitry V. Papshev, Leonid Yu. Krivonogov

Conference venue

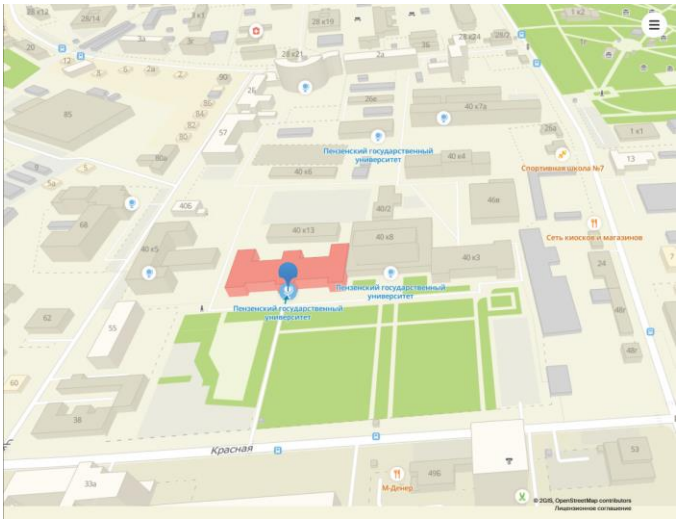
HSE Tikhonov Moscow Institute of Electronics and Mathematics (MIEM HSE):
Moscow, 34 Tallinskaya Str.

How to get there?

Metro station “Strogino”. Last car from the centre. After you pass the glass doors, please turn left and go along the pedestrian subway, than turn right and go upstairs. Please go straight along the Stroginsky avenue to the corner of Tallinskaya street. Please cross the street and you will be at the entrance of university.



March 16–17, 2020
Penza State University
Penza, 40 Krasnaya Str., PSU



КАК ДОБРАТЬСЯ С ЖЕЛЕЗНОДОРОЖНОГО ВОКЗАЛА
Маршрутное такси № 8
Пенза-I, железнодорожный вокзал (Привокзальная площадь)
Пензенский государственный университет (ул. Красная, 40).
Маршрутное такси № 418
Пенза-I, железнодорожный вокзал (Привокзальная площадь)
Выходите после «Гимназия №1» далее пешком до ПГУ
Маршрутное такси № 21
Пенза-I, железнодорожный вокзал (Привокзальная площадь)
Пензенский государственный университет (ул. Красная, 40).
Маршрутное такси № 29
Пенза-I, железнодорожный вокзал (Привокзальная площадь)
Выходите после «Библиотека им. Лермонтова» далее пешком до ПГУ

КАК ДОБРАТЬСЯ С АЭРОПОРТА
Маршрутное такси № 30
Аэропорт г. Пензы им. В.Г. Белинского, Аэропорты (ул. Центральная, 2)
Выходите после «Больница КИМ (ул. Куйбышева)» далее пешком до ПГУ.
Автобус №№ 54, 66, троллейбус № 7
Аэропорт г. Пензы им. В.Г. Белинского, Аэропорты (ул. Центральная, 2)
Выходите после «ОАО Электромеханика (ул. Свердлова)» далее пешком до ПГУ.
Маршрутное такси №№ 10а, 17
Аэропорт г. Пензы им. В.Г. Белинского, Аэропорты (ул. Центральная, 2)
Выходите после «ОАО Электромеханика (ул. Свердлова)» далее пешком до ПГУ.

КАК ДОБРАТЬСЯ С АВТОВОКЗАЛА
Маршрутное такси № 68
Автовокзал (ул. Луначарского, 1)
Пензенский государственный университет (ул. Красная, 40).
Маршрутное такси №№ 5, 75
Автовокзал (ул. Луначарского, 1)
Выходите после «Библиотека им. Лермонтова» далее пешком до Пензенского государственного университета (ул. Красная, 40).