

International Conference Program

**«2022 Systems of Signal Synchronization,
Generating and Processing in
Telecommunications
SYNCHROINFO-2022»**

IEEE Conference Record #55067

June 29 – July 01, 2022

**Arkhangelsk, Russia, Severnaya Dvina Embankment, 88, build. 1
Pur-Navolok Hotel**

ORGANIZERS

Institute of Electrical and Electronics Engineers (IEEE)
Russia Section ED/MTT/AES Joint Chapter
Institute of Radio and Information Systems (IRIS)

TECHNICAL PROGRAM COMMITTEE

Chairman of the Program Committee

Alexander V. Pestryakov: Doctor of Science (Engineering), Professor of Moscow Technical University of Communications and Informatics, Moscow, Russia

Vice-Chairman of the Program Committee

Oleg V. Varlamov: Doctor of Technical Sciences, Professor, Chairman of the Institute of Radio and Information Systems Association (IRIS), (Senior Member, IEEE)

Program Committee Coordinator

Elena R. Khasianova: Scientific Secretary of Russian (Moscow) IEEE Circuits and Systems (CAS04) Chapter (Member, IEEE)

Conference Publication Program Coordinator

Svetlana S. Dymkova: Chair of Russia Section TEM/GRS/ITSS Jt. Chapter, (Member, IEEE)

Secretary of the technical program committee

Anna V. Dolgopyatova: M.Sc., Moscow Technical University of Communications and Informatics, Moscow, Russia

Members of the program committee

Timofey Ya. Shevgunov: PhD., Chair of Russia Section ED/MTT/AES Joint Chapter, (Senior Member, IEEE)

Alexander V. Chenakin: Doctor of Technical Sciences, Director of R & D, Anritsu Company, Morgan Hill, CA (Senior Member, IEEE)

César Herman Castellanos Dominguez: Ph.D., National University of Colombia

Denis S. Chirov: Doctor of Technical Sciences, Professor (Member, IEEE)

Victor N. Kochemasov: Ph.D, General Director of LLC Radiocomp (Member, IEEE)

Andrei V. Grebennikov: Ph.D., Sumitomo Electric Europe, UK (Senior Member, IEEE)

Oleg G. Morozov: Doctor of Technical Sciences, Professor, Head of the Department of Radiophotonics and Microwave Technologies of KNRTU-KAI (Senior Member, IEEE)

Artem S. Adzhemov: Doctor of Technical Sciences, Professor (Member, IEEE)

CONFERENCE REGULATIONS

June 28

PRE-PARTY with welcome drink (*Зал переговоров «Pur-Navolok»*)

20:00 – 21:00

June 29

09:45 – 10:00

REGISTRATION OF PARTICIPANTS

10:00 – 12:50

PLENARY SESSION & SECTION I (*Конференц-зал «Pur-Navolok»*)

12:50 – 13:00

PHOTOGRAPHING (*Конференц-зал «Pur-Navolok»*)

13:00 – 14:00

Обед*

SECTION MEETINGS (*Малый зал*)

14:00 – 16:00 Section 1 (Part II)

16:00 – 18:36 Section 2

19:00 – 22:00

DINNER (*Ресторан отеля «Pur-Navolok»*)

June 30

SECTION MEETINGS (*Малый зал*)

10:00 – 11:48 Section 4

11:48 – 13:48 Section 5

14:00 – 20:00 Section 3

July 1

Excursion program (*Экскурсионная программа*)

**Комплексный обед можно заказать за день на ресепшн отеля*

JUNE 29
PLENARY SESSION & SECTION 1 (PART I)

SECTION CHAIR

Alexander V. Pestryakov, *Doctor of Science (Engineering), Professor,
Moscow Technical University of Communications and Informatics, Moscow, Russia*

10-00 : 10-05

FOREWORD

A.V. Pestryakov, *Chairman of the Organizing Committee, Moscow, Russia*

10-05 : 10-20

S.S. Dymkova, *Conference Publication Program Coordinator (Member, IEEE)*

**PEER REVIEW PROCEDURE AS THE MAIN CRITERION FOR
CONFIRMATION RESEARCHER'S SCIENTIFIC WORK QUALITY**

10-20 : 10-35

V.B. Kreyndelin, E.D. Grigorieva

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

**AN ANALYSIS OF COMPUTATIONAL COMPLEXITY OF VARIOUS
IMPLEMENTATION TECHNIQUES OF MMSE DEMODULATION
ALGORITHM**

10-35 : 10-50

Sergei Melnik

Moscow Technical University of Communications and Informatics, Moscow, Russia

Vasily Vikulin, *LTD KIA, CEO, Moscow, Russia*

Vladimir Babkin, *MTS, Moscow, Russia*

Elena Petrova, *JSC STC KOMTEST, Moscow, Russia*

**TIME AND FREQUENCY SYNCHRONIZATION FOR INTERNET
SERVICE PROVIDER NETWORKS DATA RATES DETERMINATION**

10-50 : 11-05

Tatyana A. Kuzovkova, Olga I. Sharavova

Moscow Technical University of Communications and Informatics, Moscow, Russia

Valery O. Tikhvinsky, Evgeny E. Devyatkin

Radio Research and Development Institute, Moscow, Russia

**MATCHING OF 6G NETWORK CAPABILITIES TO DIGITAL SERVICES
REQUIREMENTS**

11-05 : 11-20

Anatoliy V. Ryzhkov, Vladimir M. Aladin, Mikhail L. Schwartz

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

Andrey V. Isupov, Komset-Service Ltd., Moscow, Russia

EXPERIENCE IN THE DEVELOPMENT AND IMPLEMENTATION OF TIME-FREQUENCY SYNCHRONIZATION SYSTEMS ON TELECOMMUNICATIONS

11-20 : 11-35

Michael Vekselman, MaxNavi LLC, Moscow, Russia

SECURITY OF GNSS-BASED SYNCHRONIZATION SYSTEMS.

Monitoring the quality of navigation systems

11-35 : 11-50

Mikhail L. Schwartz, Vladimir M. Aladin, Anatoliy V. Ryzhkov

Moscow Technical University of communications and Informatics, Moscow, Russia

PERSPECTIVE EQUIPMENT OF PRIMARY REFERENCE TIME AND CLOCK FOR SYNCHRONIZATION SYSTEMS

11-50 : 12-05

S.V. Pavlov, V.V. Maklachkova, V.A. Dokuchaev

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

IMPROVING THE STABILITY OF SATELLITE SYNCHRONIZATION OF SINGLE-FREQUENCY TELEVISION TRANSMITTERS UNDER THE INFLUENCE OF INTERFERENCE

12-05 : 12-20

M.I. Zhodzishsky, F.B. Serkin

Moscow Aviation Institute (National Research University);

Topcon Positioning Systems, Moscow, Russia

R.V. Kurynin, HSE University; Topcon Positioning Systems, Moscow, Russia

SENSITIVITY OF GNSS RECEIVERS

12-20 : 12-35

O.A. Shorin, V.O. Shorin

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

G.O. Bokk, OJSC NIRIT-XINWEI Telecom Technology (NXTT), Moscow, Russia

IMPROVED FBMC (5G) SIGNAL STRUCTURES FOR CRITICAL COMMUNICATIONS SYSTEMS

Increase of noise immunity in conditions of multipath propagation

12-35 : 12-50

Alexander V. Pestryakov

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

HYBRID SYSTEM OF MOVING OBJECTS GLOBAL MONITORING

JUNE 29

SECTION 1 (PART II)
Synchronization Systems and Devices

SECTION CHAIR

Alexander V. Pestryakov, *Doctor of Science (Engineering), Professor,
Moscow Technical University of Communications and Informatics, Moscow, Russia*

14-00 : 14-12

D.B. Frolov, D.D. Makhaev, V.V. Shishkarev

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

**SYNCHRONIZATION OF THE TERM «DEEPPFAKE» AND MODERN
INFORMATION SECURITY ISSUES**

14-12 : 14-24

V.L. Karyakin (*Member IEEE*)

Volga region state university of telecommunications and informatics, Samara, Russia

**ANALYSIS OF TECHNICAL REQUIREMENTS FOR DVB-T2 NETWORK
EQUIPMENT**

14-24 : 14-36

Daniyar R. Mukhametov

Financial University under the Government of the Russian Federation, Moscow, Russia

**HOW ICT-INFRASTRUCTURE DEFINES ECONOMIC COMPLEXITY:
INFORMATION POLICY TO FACILITATE INNOVATIONS**

14-36 : 14-48

Andrey N. Petukhov, Sergey D. Erokhin, Pavel L. Pilyugin

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

ADAPTATION PROCESSES IN ASYMPTOTIC SAFETY MANAGEMENT

14-48 : 15-00

Alexander N. Sak

Moscow state university of civil engineering, Moscow, Russia

**USING VECTOR PROXIMITY FOR NLP ANALYSIS OF SPECIALIZED
TEXTS**

15-00 : 15-12

E.P. Stroganova, S.E. Grychkin

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

**PHASE INFORMATION DESTRUCTION DURING RADIO SIGNAL
PROPAGATION IN FLUCTUATING ATMOSPHERE**

15-12 : 15-24

S.L. Yablochnikov, I.O. Yablochnikova

Moscow technical University of communications and Informatics, Moscow, Russia

V.B. Dzobelova

North Ossetian State University named after Kosta Levanovich Khetagurov, Vladikavkaz, Russia

A.V. Sharopatova

Krasnoyarsk State Agrarian University, Krasnoyarsk, Russia

M.N. Makhaboroda

Academy of the Federal Penitentiary Service of Russia, Ryazan, Russia

**SYNCHRONIZATION OF REAL AND VIRTUAL PROCESSES
IN THE CONTEXT OF THE INDUSTRIAL REVOLUTION 4.0**

15-24 : 15-36

Igor O. Yuskov, Elena P. Stroganova

Moscow Technical University of Telecommunications and Informatics, Moscow, Russia

**CORPORATIVE COMBINED NETWORKS INVESTIGATION WITH
NEURAL NETWORKS METHOD**

15-36 : 16-00

DISCUSSION & QUESTIONS

JUNE 29

SECTION 2

Signal Generating and Shaping Devices

SECTION CHAIR

Oleg V. Varlamov, *Senior Member, IEEE, Doctor of Technical Sciences, Professor, Moscow Technical University of Communications and Informatics, Moscow, Russia*

16-00 : 16-12

Abdulmusavvir A. Karimov

Moscow Polytechnic University, Moscow, Russia

Nuriddini Fayz

Tajik Technical University Named after Academician M.S. Osimi, Dushanbe, Tajikistan

Lolai Husenzoda

Institute of Tourism, Entrepreneurship and Service, Dushanbe, Tajikistan

Rajab Sh. Umaralizoda, Dilshod Ch. Ravshanov (*Member IEEE*)

Tajik Technical University named after Academician M.S. Osimi, Dushanbe, Tajikistan

MICROSTRIP IMPLEMENTATION OF CROSSOVER ON ARTIFICIAL TRANSMISSION LINES

16-12 : 16-24

D.V. Kochemasov

Radiocomp, LLC, Moscow, Russia

N.N. Udalov

National Research University MPEI, Moscow, Russia

PM AND AM NOISE IN THE RING QUADRATURE LC-OSCILLATORS WITH PHASE SHIFTING RC-CIRCUITS

16-24 : 16-36

Andrey V. Lenshin, Vladimir N. Tikhomirov, Evgeny V. Shatalov

G.F. Morozov Voronezh State University of Forestry and Technologies, Voronezh, Russia

Mikhail P. Savchenko, Nikolay M. Tikhmirov

I. Kant Baltic Federal University, Kaliningrad, Russia

MODERNIZATION OF FREQUENCY SYNTHESIZERS VHF RADIOS

16-36 : 16-48

V.V. Logvinov, Phan Tuan Anh

Moscow Technical University of Communications and Informatics, Moscow, Russia

CONTROLLED MICROWAVE AUTOGENERATOR ON A COMPLEMENTARY PAIR OF MOSFET TRANSISTORS

16-48 : 17-00

A.L. Makarevich, D.V. Garaga, S.M. Sokovnich

*Pridnestrovian State University of Taras Shevchenko, Tiraspol, Moldova,
Pridnestrovye*

L.I. Matyna

*Institute of Advanced Materials and Technologies "NRU MIET", Moscow,
Zelenograd*

V.V. Sorochan

Kaluga State University named after K.E. Tsiolkovski, Kaluga, The Russia

**INVESTIGATION OF THE CHARACTERISTICS OF REGULATED
VOLTAGE GENERATORS FOR PLL SYSTEMS AND FREQUENCY
SYNTHESIZERS**

17-00 : 17-12

D.C. Nguyen, O.V. Varlamov (*Senior Member IEEE*)

Moscow Technical University of Communications and Informatics, Moscow, Russia

**SIMULATION MODEL FOR SWITCHING MODE ENVELOPE
ELIMINATION AND RESTORATION RF POWER AMPLIFIERS
RESEARCH**

17-12 : 17-24

I.W. Peshkov, N.A. Fortunova, I.N. Zaitseva

Bunin Yelets State University, Yelets, Russia

**MINIMIZING THE CRAMER-RAO LOWER BOUND FOR ANTENNA
ARRAYS WITH DIRECTIONAL RADIATORS FOR DIRECTION-OF-
ARRIVAL ESTIMATION OF RADIO SIGNALS**

17-24 : 17-36

Chorshanbe B. Ravshanov, Shokhinchon A. Amirshoev,

Dilshod Ch. Ravshanov (*Member IEEE*), **Rahmonali Z. Mahmaddulloev**

Tajik Technical University Named after Academician M.S. Osimi, Dushanbe, Tajikistan

Abdulmusavvir A. Karimov

Moscow Polytechnic University, Moscow, Russia

**SYNTHESIS OF A RING DIVIDER HAVING SMALL DIMENSIONS
AND WEIGHT**

17-36 : 17-48

Dilshod Ch. Ravshanov (*Member IEEE*), **Mirzohasan L. Mirzohasanov,**

Sadi M. Karimov, Faridun B. Holov

Tajik Technical University Named after Academician M.S. Osimi, Dushanbe, Tajikistan

Abdulmusavvir A. Karimov

Moscow Polytechnic University, Moscow, Russia

**REDUCTION OF THE OCCUPIED AREA OF THE BROADBAND
POWER DIVIDER**

17-48 : 18-00

Artem A. Shvidkiy, Anastasiia A. Savelieva, Anton A. Zarubin

*The Bonch-Bruевич Saint-Petersburg State University of Telecommunications,
Saint Petersburg, Russia*

**APPROACHES ANALYSIS TO DETERMINING THE
CHARACTERISTICS OF THE LOAD ON THE DISK SUBSYSTEM
CREATED BY USER APPLICATIONS**

18-00 : 18-12

A.V. Timoshenko (Member IEEE), A.Yu. Perlov, A.M. Kazantsev

National Research University of Electronic Technology, Moscow, Russia

N.A. Khodataev, K.V. Lvov

JSC «Academician A.L. Mints Radiotechnical Institute», Moscow, Russia

**METHODOLOGY FOR THE DEVELOPMENT OF A DIGITAL TWIN OF
RADAR STATIONS OF A FUNCTIONAL BLOCK STRUCTURE**

18-12 : 18-24

Maxim Yu. Zuev, Elena A. Bobina, Sergey S. Loginov

KNRTU-KAI named after A.N.Tupolev, Kazan, Russia

**FPGA IMPLEMENTATION OF A PSEUDO-RANDOM SEQUENCE
GENERATORS BASED ON THE MODIFIED LORENTZ SYSTEM**

18-24 : 18-36

Oleg V. Varlamov (Senior Member IEEE)

Moscow Technical University of Communications and Informatics, Moscow, Russia

Andrei Grebennikov (Senior Member IEEE)

Sumitomo Electric Europe Ltd., Elstree, U.K

**EXPERIMENTAL STUDIES OF ENVELOPE ELIMINATION
AND RESTORATION HF POWER AMPLIFIER CHARACTERISTICS
WITH NARROW-BAND MATCHED LOAD**

JUNE 30

SECTION 4

**«Problems of microwave electronics»
them. V.A. Solntsev**

SECTION CHAIR

Andrey A. Yelizarov, *Member, IEEE, Doctor of Science (Engineering), Professor,
National Research University Higher School of Economics, Moscow, Russia*

10-00 : 10-12

Andrei Yu Baikov

*National Research Nuclear University MEPhI;
Russian University of Transport (MIIT), Moscow, Russia*

Olga A. Baikova

*National Research Nuclear University MEPhI;
FSEEP “Medical College”, Moscow, Russia*

**ON THE POSSIBILITY OF CREATION OF THE MULTI BEAM
BROADBAND IOT**

10-12 : 10-24

N.A. Kovaleva

Moscow Technical University of Communications and Informatics, Moscow, Russia

I.V. Mozgovoy

*Moscow Technical University of Communications and Informatics;
Lomonosov Moscow State University, Moscow, Russia*

**DESIGN AND IMPLEMENTATION OF A COMPACT FOUR-BAND
BANDPASS FILTER ON METAMATERIAL**

10-24 : 10-36

Alexander S. Kukharenko, Ruslan V. Shaymardanov

General Microwave Co. LLC., Russia, Moscow

A.A. Yelizarov (Member IEEE), E.A. Zakirova, A.A. Skuridin

National Research University «Higher School of Economics», Russia, Moscow

**ALGORITHM FOR ANALYZING THE INTEGRITY OF NAVIGATION
INFORMATION OF CONTROL AND CORRECTING STATIONS
NETWORK**

10-36 : 10-48

E.A. Liberman, E.A. Nefedov

Moscow Technical University of Communications and Informatics, Moscow, Russia

**ANALYSIS OF EXISTING TECHNOLOGIES FOR CONSTRUCTING
AN ESPAR ANTENNA SYSTEM. THEORY AND MODELING**

10-48 : 11-00

S.A. Presnyakov, A.D. Kasatkin, N.P. Kravchenko (*Member IEEE*)

HSE University, Moscow, Russia

S.V. Mukhin

Moscow, Russia

**EXPERIMENTAL ANALYSIS OF THE ELECTRODYNAMIC
CHARACTERISTICS OF THE COAXIAL-RADIAL LINE TYPE
SLOW-WAVE STRUCTURES AND ITS MODIFICATIONS**

11-00 : 11-12

K.Y. Sokolov, V.S. Priputin, E.A. Nefedov

Moscow Technical University of Communications and Informatics, Moscow, Russia

**SIMULATION OF A REFLECTIVE ANTENNA ARRAY WITH A LIQUID
CRYSTAL SUBSTRATE**

11-12 : 11-24

A.A. Yelizarov (*Member IEEE*), **A.A. Skuridin, I.V. Nazarov, E.A. Zakirova**

National Research University «Higher School of Economics», Moscow, Russia

**SIMULATION OF A FREQUENCY SELECTIVE SURFACE
WITH FRACTAL JERUSALEM CROSS UNIT CELLS**

11-24 : 11-48

DISCUSSION & QUESTIONS

JUNE 30

SECTION 5

Photonics and mathematics for moving objects

SECTION CHAIR

Marina Yashina, *Member, IEEE, Doctor of Science (Engineering), Professor, Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia*

11-48 : 12-00

A.G. Tatashev

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia;

Moscow Technical University of Communications and Informatics Moscow, Russia

N.P. Susoev

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia

M.V. Yashina (Member IEEE)

Moscow Automobile and Road Construction State Technical University (MADI), Moscow, Russia;

Moscow Technical University of Communications and Informatics Moscow, Russia;

Moscow Aviation Institute (National Research University), Moscow, Russia

**ERGODICITY OF STOCHASTIC COMPONENT FOR DSM –
MULTI-LANE TRAFFIC MODEL**

12-00 : 12-12

M.H. Hasanov, N.A. Atayev

Azerbaijan Technical University, Baku, Azerbaijan

**EARLY CONCEPTUAL MODEL OF NANOSATELLITE WITH LASER
BEAM CONTROL AND ACTIVE TRANSPONDER SYSTEM**

12-12 : 12-24

Marina S. Moseva, Mikhail G. Gorodnichev, Ksenia A. Polyantseva,

Gleb G. Vlasov, Maxim D. Gromov

Moscow Technical University of Communications and Informatics, Moscow, Russia

**DEVELOPMENT OF A SYSTEM FOR FIXING ROAD MARKINGS
IN REAL TIME**

12-24 : 12-36

K.N. Pankov

Moscow Technical University of Communications and Informatics, Moscow, Russia

M.M. Glukhov-jr, MIREA – Russian Technological University, Moscow, Russia

**USING ERROR-CORRECTING CODES TO ENSURE INFORMATION
SECURITY OF UNMANNED VEHICLES AND IOT SYSTEMS**

12-36 : 12-48

**Ksenia A. Polyantseva, Mikhail G. Gorodnichev, Gleb G. Vlasov,
Yuriy B. Mironov**

Moscow Technical University of Communications and Informatics, Moscow, Russia

**DEVELOPMENT OF AN INTELLIGENT SYSTEM FOR ENSURING
THE SAFETY OF EMPLOYEES AT WORK**

12-48 : 13-00

Andrey M. Valuev, Anatoliy A. Solovyev

*Mechanical Engineering Research Institute named after A.A.Blagonravov of RAS,
Moscow, Russia*

**PROBLEMS OF STRUCTURAL AND PARAMETRIC TRAFFIC
CONTROL FOR AN URBAN ROAD NETWORK FRAGMENT**

13-00 : 13-12

Mikhail R. Yakimov

*Moscow automobile and road construction state technical university (MADI),
Moscow, Russia*

**FEATURES OF THE USE OF GEOANALYTICAL DATA IN THE
DEVELOPMENT OF TRANSPORT PLANNING DOCUMENTS**

13-12 : 13-24

Marina V. Yashina (*Member IEEE*)

Moscow Automobile and Road Construction State Technical University, Moscow, Russia;

Moscow Aviation Institute (Research University), Moscow, Russia;

Moscow Technical University of Communications and informatics, Moscow, Russia

Pavel I. Pospelov

Moscow Automobile and Road Construction State Technical University, Moscow, Russia

Daniil V. Lyanguzov

Moscow Automobile and Road Construction State Technical University, Moscow, Russia

Lolita N. Slabkevich

Moscow Automobile and Road Construction State Technical University, Moscow, Russia

**SIMULATION MODEL OF A RAILWAY CROSSING FOR CAPACITY
EVALUATION**

13-24 : 13-48

DISCUSSION & QUESTIONS

JUNE 30

SECTION 3

Signal Processing Devices

SECTION CHAIR

Denis S. Chirov,

Doctor of Science (Engineering), Professor, Moscow Technical University of Communications and Informatics, Moscow, Russia

14-00 : 14-10

A.S. Adzhemov (*Member IEEE*), **A.Y. Kudryashova**, **I.G. Kuskova**

Moscow Technical University of Communications and Informatics, Moscow, Russia

INVESTIGATION OF BIJECTIONS DURING THE CONVERSION OF A DIGITAL SIGNAL INTO A CONTINUOUS SIGNAL AND INVERSE CONVERSION WITH CONVERSIONS CARRIED OUT IN THE MODULATOR AND DEMODULATOR

14-10 : 14-20

Yu.V. Babkin

Academician A. L. Mints Radiotechnical Institute, Moscow, Russia

A.V. Timoshenko (*Member IEEE*)

MIET National Research University of Electronic Technology, Moscow, Russia

E.I. Minakov

Tula State University, Tula, Russia

A.B. Silantyeu, C.A.G. Fernandu

P.G. Demidov Yaroslavl State University, Yaroslavl, Russia

FUNCTIONING OF CHANNELS OF MULTI-SCANNING MONITORING IN RADARS WITH REGULAR OR CONTROLLED SURVEILLANCE

14-20 : 14-30

O.V. Biryukova, I.V. Koretskaya

National Research University "Moscow Power Engineering Institute", Moscow, Russia

INFLUENCE OF ELECTROMAGNETIC INTERFERENCE ON THE OPERATION OF THE MEASURING AND CONTROL UNIT

14-30 : 14-40

**Boris B. Borisenko, Sergey D. Erokhin, Ivan D. Martishin,
Aleksander S. Fadeev**

Moscow Technical University of Communications and Informatics, Moscow, Russia
**HOW THE CSE-CIC-IDS2018 DATASET IS RELATED TO THE MITRE
MATRIX**

14-40 : 14-50

D.S. Chirov (Member IEEE), E.O. Kandaurova, A.A. Kuchumov

Moscow Technical University of Communications and Informatics, Moscow, Russia
**ESTIMATING THE EFFICIENCY OF THE ALGORITHM FOR
SELECTING THE ADAPTIVE SIGNAL DETECTION THRESHOLD
IN COGNITIVE RADIO SYSTEMS**

14-50 : 15-00

A.N. Degtyaryv, A.S. Kozhemyakin, I.L. Afonin, G.V. Slyozkin, A.L. Polyakov

Sevastopol State University, Sevastopol, Russia
TWO-STEP ALGORITHM FOR MATCHED FILTERING OF SIGNALS

15-00 : 15-10

Victor I. Djigan (Member IEEE)

Institute for Design Problems in Microelectronics of RAS, Moscow, Russia
**LOW COMPLEXITY PARTIALLY ADAPTIVE ANTENNA ARRAY
BASED ON RECURSIVE LEAST SQUARE ALGORITHM**

15-10 : 15-20

**Sergey D. Erokhin, Boris B. Borisenko, Ivan D. Martishin,
Aleksander S. Fadeev**

Moscow Technical University of Communications and Informatics, Moscow, Russia
**THE DATASET FEATURES SELECTION FOR DETECTING AND
CLASSIFYING NETWORK ATTACKS**

15-20 : 15-30

**Evgeniy I. Glushankov, Igor A. Boyko, Dmitriy I. Kirik,
Konstantin O. Korovin**

*The Bonch-Bruевич St. Petersburg State University of Telecommunications,
St. Petersburg, Russia*
**CHANNEL VECTOR ESTIMATION USING COVARIANCE MATRICES
REGULARIZATION METHOD**

15-30 : 15-40

O.V. Ilina

Moscow Technical University of Communications and Informatics, Moscow, Russia

M.V. Tereshonok

Moscow Technical University of Communications and Informatics, Moscow, Russia;

Moscow Institute of Physics and Technology (National Research University),

Moscow region, Russia

**STUDY OF DEEP CONVOLUTIONAL NEURAL NETWORK FOR
VEHICLE LOCALIZATION ON BLURRED AERIAL IMAGERY**

15-40 : 15-50

Dmitry Ivanov, Vladimir Ivanov, Natalya Ryabova, Vladimir Ovchinnikov

Volga State University of Technology, Yoshkar-Ola, Russia

**STUDYING THE EFFECT OF CHIRPING OF THE IMPULSE RESPONSE
OF AN ULTRA-WIDEBAND IONOSPHERIC HF CHANNEL UNDER THE
INFLUENCE OF INTRAMODE FREQUENCY DISPERSION**

15-50 : 16-00

Vladimir Ivanov, Dmitry Ivanov, Aleksey Elsuikov

Volga State University of Technology, Yoshkar-Ola, Russia

**VERTICAL SOUNDING OF IONOSPHERIC RADIO CHANNELS
BY MULTICARRIER PHASE-SHIFT KEYING SIGNALS**

16-00 : 16-10

N.A. Kandaurov, V.I. Lipatkin, E.O. Kandaurova, K.Y. Sokolov

Moscow Technical University of Communications and Informatics, Moscow, Russia

**IMPLEMENTATION OF A MULTI-CHANNEL DEMODULATOR OF
DISCRETE-FREQUENCY SIGNALS USING DDC ON A GPU**

16-10 : 16-20

Vladimir Khryashchev, Nikita Kotov, Roman Larionov, Andrey Priorov

P.G. Demidov Yaroslavl State University, Yaroslavl, Russia

**SEMANTIC SEGMENTATION OF SATELLITE SAR-C IMAGES
USING DEEP LEARNING BASED ALGORITHMS**

16-20 : 16-30

A.Y. Kudryashova, A.S. Adzhemov (Member IEEE), I.G. Kuskova

Moscow Technical University of Communications and Informatics, Moscow, Russia

**INVESTIGATION OF MINIMIZING THE PROBABILITY OF ERRORS
ARISING IN THE DEMODULATION OF SIGNALS WITH MULTIPLE
PHASE MODULATION**

16-30 : 16-40

Ilya M. Lerner, A.N. Khairullin, G.I. Il'in

*Kazan National Research Technical University n.a. A.N. Tupolev – KAI
(KNRTU-KAI), Kazan, Russia*

**ON THE ISSUE OF SIGNAL RESOLUTION IN THE PRESENCE
OF INTRASYSTEM INTERFERENCE THROUGH THE USE
OF THE THEORY OF RESOLUTION TIME**

16-40 : 16-50

Vladislav Lesnikov (Member IEEE), Tatiana Naumovich, Alexander Chastikov
Vyatka State University, Kirov, Russia

ALIASING'S STUDY ON BANDPASS SAMPLING

16-50 : 17-00

Nikita Yu. Liberovskiy, Vladimir S. Priputin, Ivan A. Volkov

Moscow Technical University of Communications and Informatics, Moscow, Russia

**BLIND TWO COMPLEX SIGNALS SEPARATION METHOD
BASED ON FOURTH ORDER CUMULANTS**

17-00 : 17-20

DISCUSSION & QUESTIONS

17-20 : 17-30

V.Y. Mikhaylov, R.B. Mazepa

Moscow Aviation Institute (National Research University), Moscow, Russia

**MODELING AND THE EFFECTIVENESS EVALUATION OF SIGNAL-
LIKE INTERFERENCE EXPLOITING THE VULNERABILITIES
OF THE RTS / CTS MECHANISM IN 802.11 NETWORKS**

17-30 : 17-40

N.E. Miroshnikova, A.I. Sattarova

Moscow Technical University of Communications and Informatics, Moscow, Russia

**ANALYSIS OF ERROR-CORRECTION CODES PROPERTIES
FOR UNDERWATER OPTICAL COMMUNICATION SYSTEMS
WITH OCDM MODULATION**

17-40 : 17-50

Grach Mkrтчian, Yury Furletov

Moscow Technical University of Communications and Informatics, Moscow, Russia

**CLASSIFICATION OF ENVIRONMENTAL SOUNDS USING NEURAL
NETWORKS**

17-50 : 18-00

O.G. Morozov (*Senior Member IEEE*), **I.I. Nureev**, **A.Zh. Sakhabutdinov** (*Member IEEE*), **Rin. Sh. Misbakhov**, **A.A. Kuznetsov**

Kazan National Research Technical University n.a. A.N. Tupolev-KAI, Kazan, Russia

ADVANCED MICROWAVE PHOTONICS SENSOR SYSTEMS: ADDRESS FBG SENSORS, INTERROGATION AND CALIBRATION

18-00 : 18-10

O.A. Mukhametzyanov, **T.F. Shcherbakova**, **R.R. Mukhamiev**, **S.S. Sedov**

Kazan National Research Technical University named after A. N. Tupolev – KAI, Kazan, Russia

DEVELOPMENT OF HIGH-RESOLUTION ELECTROCARDIOGRAPHY FOR TELEMEDICINE SYSTEMS

18-10 : 18-20

Rafael R. Mukhamiev, **Oscar A. Mukhametzyanov**, **Tatiana F. Shcherbakova**, **Stanislav S. Sedov**

Kazan National Research Technical University named after A. N. Tupolev – KAI, Kazan, Russia

POWERLINE INTERFERENCE'S FILTERING INFLUENCE ON VENTRICULAR LATE POTENTIALS

18-20 : 18-30

Ksenia I. Nezhivleva, **Artem M. Drebuzhan**, **Anastasia A. Davidova**, **Andrei Balabanov**

Moscow Technical University of Communications and Informatics, Moscow, Russia

Anastasia I. Mozhaeva

The University of Waikato, Hamilton, New Zealand;

Technical University of Communications and Informatics, Moscow, Russia

COMPARING OF MODERN METHODS USED TO ASSESS THE QUALITY OF VIDEO SEQUENCES DURING SIGNAL STREAMING WITH AND WITHOUT HUMAN PERCEPTION

18-30 : 18-40

Natalia E. Poborchaya, **Elizaveta O. Lobova**

Moscow Technical University of Communications and Informatics, Moscow, Russia

ANALYSIS OF THE USE OF THE KALMAN FILTER FOR SIGNAL DETECTION IN A DIRECT CONVERSION RECEIVER IN MIMO

18-40 : 18-50

N.V. Ryabova, **D.V. Ivanov**, **V.A. Ivanov**, **A.A. Kislitsin**

Volga State University of Technology, Yoshkar-Ola, Russia

DEGRADATION PERIOD OF ANOMALOUS DISPERSION PARAMETER OF TRANSIONOSPHERIC WIDEBAND RADIO COMMUNICATION CHANNEL

18-50 : 19-00

V.G. Sannikov, A.V. Alyoshintsev

Moscow Technical University of Communications and Informatics, Moscow, Russia

A.N. Sak, *Moscow state university of civil engineering, Moscow, Russia*

ADVANCED DMT MODEM AS AN ELEMENT OF THE PON / XDSL SYSTEM

19-00 : 19-10

Andrey N. Serov (*Member IEEE*), **Alexander A. Shatokhin, Kirill A. Ivanenko,**

Nikolay A. Serov, *National Research University "MPEI", Moscow, Russia*

Plamen M. Tzvetkov, *New Bulgarian University, Sofia, Republic of Bulgaria*

FEATURES OF THE IMPLEMENTATION OF THE REACTIVE POWER MEASUREMENT METHOD BASED ON THE APPLICATION OF INTEGRATOR AND DIFFERENTIATOR

19-10 : 19-20

Alexander A. Shatokhin, Andrey N. Serov (*Member IEEE*), **Nikolay A. Serov,**

Gennady Antipov, Petr K. Makarychev

National Research University "Moscow Power Engineering Institute", Moscow, Russia

EVALUATION OF THE INFLUENCE OF THE APERTURE TIME AND APERTURE JITTER ON THE RMS MEASUREMENT ERROR

19-20 : 19-30

Egor A. Shilenkov, Dmitry S. Koptev, Evgeny A. Titenko, Aleksei N. Schitov,

Ludmila A. Semenova

Southwest State University, Kursk, Russia

A MATHEMATICAL MODEL FOR ESTIMATING THE EFFECT OF IONOSPHERIC DISTORTIONS ON THE AMPLITUDE - PHASE FREQUENCY RESPONSE (NYQUIST PLOT) OF PHASE-SHIFT SIGNALS RECEIVED FROM SMALL SPACECRAFTS

19-30 : 19-40

A.P. Zhuravlev, T.A. Chadov

Moscow Technical University of Communication and Informatics, Moscow, Russia

QAM SIGNAL DEMODULATION ALGORITHM WITH MINIMUM SAMPLE PER SYMBOL RATE

19-40 : 19-50

V.V. Ziyadinov, M.V. Tereshonok

Moscow Technical University of Communications and Informatics, Moscow, Russia

NEURAL NETWORK IMAGE RECOGNITION ROBUSTNESS WITH DIFFERENT AUGMENTATION METHODS

19-50 : 20-00

DISCUSSION & QUESTIONS