2024 Systems of Signal Synchronization, Generating and Processing in Telecommunications (SYNCHROINFO 2024)

Vyborg, Russia
1-3 July 2024

IEEE Catalog Number: CFP24P67-POD
ISBN: 979-8-3503-7345-5

Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24P67-POD
ISBN (Print-On-Demand):	979-8-3503-7345-5
ISBN (Online):	979-8-3503-7344-8
ISSN:	2832-0506

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings.com

A.S. Adzhemov, S.A. Adzhemov, A.Y. Kudryashova
CONSTRUCTION OF A PRIMARY SOURCE CODE WITH GIVEN CODE DISTANCES BETWEEN ADJACENT CODE COMBINATIONS.....1

S.A. Adzhemov, A.S. Adzhemov, A.Y. Kudryashova
FEATURES OF BIJECTION OF SPACES IN SIGNAL-CODE CONSTRUCTIONS.....5

Adnan F. Alhaj Hasan, Tuan Phuong Dang, Talgat R. Gazizov
SCATTERING FROM A PERFECTLY CONDUCTING PLATE USING WIRE-GRID AND MOM WITH PULSE BASIS FUNCTIONS.....10

N.A. Andriyanov, V.E. Dementyiev, L. Gelifakis
ARCDEF IS LOSS FUNCTION FOR CRACKS CLASSIFICATION.....16

G.M. Aristarkhov, A.V. Markovskiy, A.D. Doronina, V.V. Kuvshinov
WIDEBAND TWO-RESONATOR FILTERS WITH INCREASED WORKING ATTENUATION SLOPE AND EXTENDED STOP BAND.....20

B.A. Ayukov, A.F. Kryachko, A.V. Medzigov, G.M. Revunov
ABOUT SCATTERING PROPERTIES OF CIVIL AVIATION AIRCRAFT ANTENNAS.....25

N.V. Barbasov, A.S. Pshenichkin
ANALYSIS OF THE POSSIBILITY OF IMPROVING THE RELIABILITY OF RADAR STATIONS ON A WHEELED CHASSIS BY INTRODUCING VIBRATION PROTECTION.....30

S.V. Bashkevich, A.A. Yelizarov, I.V. Nazarov, E.A. Zakirova, A.A. Skuridin
RESEARCH OF METAMATERIAL BASED ON T-SQUARE FRACTAL FOR RFID APPLICATIONS.....34

Ben Rejeb Sofien, Vitaly Kreyndelin
INVESTIGATION OF THE NOISE IMMUNITY OF VARIOUS VARIANTS OF THE MMSE ALGORITHM WHEN IMPLEMENTED ON A FIXED-POINT PROCESSOR.....39

B.B. Borisenko, S.D. Erokhin, A.S. Fadeev
ABOUT DETECTION OF COMPUTER ATTACKS USING CHANGE-POINT THEORY.....44

S.E. Buznikov, A.M. Saykin, A.A. Serov
OPTIMIZATION OF DRIVING CONTROL TASKS DISTRIBUTION BETWEEN HIGHLY AUTOMATED VEHICLES AND INTELLIGENT TRANSPORT SYSTEMS.....48

Alexander Chastikov, Tatiana Naumovich, Vladislav Lesnikov
TAXONOMY OF SIGNAL SAMPLING SCHEMES.....52

D.S. Chirov, E.O. Kandaurova
RESEARCH OF BROADBAND SIGNALS FOR THE ORGANIZATION OF A COMMUNICATION CHANNEL WITH UAVS.....57

Tuan Phuong Dang, Adnan F. Alhaj Hasan, Talgat R. Gazizov
MOM SCATTERING ANALYSIS OF DIHEDRAL CORNER REFLECTOR: TALGAT VERIFICATION.....61

T.Z. Dawood, S.N. Stepanov, M.S. Stepanov, M.G. Kanishcheva, M.O. Shishkin
THE ANALYSIS OF HETEROGENEOUS TRAFFIC SERVICING IN THE CELLULAR INTERNET OF THINGS ACCESS NODE.....66

A.E. Denisov, D.P. Danilaev
DYNAMIC RANGE OF A DIGITAL RADIO RECEIVER WITH A MICROWAVE PHOTONIC ELEMENT BASE.....76

A.M. Derakova, D.S. Shapkarin, A.I. Sattarova, K.Yu. Ryumshin, L.M. Kazadaev
ANALYSIS OF NEURAL NETWORKS FOR SOLVING TELECOMMUNICATIONS PROBLEMS.....80

V.I. Djigan
DECISION DIRECTED ADAPTIVE ANTENNA ARRAY FOR OPERATION IN LOW SNR CONDITIONS.....86

V.A. Drogovoz
APPLICATION OF PETRI NETS TO ENSURE INTEROPERABILITY AND SYNCHRONIZATION OF ITS INDICATORS IN NETWORK-CENTRIC CONTROL SYSTEMS.....92

V.V. Dubrouski, H.I. Dulkevich
THE ALGORITHM OF NONLINEAR DATA CODING AND DECODING BY FIXED POINT TRANSFORMATIONS FOR SECURED MOBILE DIGITAL COMMUNICATION SYSTEMS.....98

S.S. Dymkova, O.V. Varlamov
SCIENTIFIC COLLABORATIONS WITHIN THE IEEE THEMATIC AREA "SYSTEMS OF SIGNAL SYNCHRONIZATION, GENERATING AND PROCESSING".....103

Sergey Erokhin, Andrey Petukhov, Pavel Pilyugin, Sergey Litvinyuk
ASYMPTOTIC INFORMATION SECURITY MANAGEMENT FORMAL DESCRIPTION FOR CRITICAL INFORMATION INFRASTRUCTURE.....108

A.S. Fen, D.K. Mazurenko, M.L. Schwartz
USING PREDICTION ALGORITHMS TO ADJUST THE FREQUENCY IN CASE OF AN INTERMITTENT SYNCHRONIZATION SIGNAL OR SWITCHING TO HOLDOVER MODE.....112

V.V. Filatov, I.S. Nefelov, V.-A. V. Badakova, D.A. Yudin
CREATION OF DIGITAL TWINS OF AGRICULTURAL MACHINE PARTS USING ENGINEERING TECHNOLOGY.....116

Grigoriy Fokin, Konstantin Ryutin, Alexander Komissarov, Vladimir Grigoriev
SOFTWARE-DEFINED RADIO NETWORK POSITIONING TECHNOLOGY DESIGN. SYNCHRONIZATION REFINEMENT.....120

A.O. Glazkov, A.V. Kolesnikov, G.G. Nadareishvili, A.A. Predein, S.I. Yudin
CALCULATED AND EXPERIMENTAL ANALYSIS ACOUSTIC EFFICIENCY OF VEHICLE EXHAUST SYSTEMS.....126

Mikhail Gorodnichev, Kamil Kharrasov, Marina Moseva
ON THE COLOR TRANSFORMATION PROBLEM BASED ON GENERATIVE-ADVERSARIAL NETWORKS.....131

S.E. Grychkin, O.V. Varlamov
EXPERIMENTAL STUDIES OF A MULTI-LEVEL GAN FET PWM MODULATOR.....136

N.P. Iampurin, A.A. Krit, E.D. Korablev, V.I. Loginov, I.S. Fedosenko
IMPLEMENTATION OF AN ENCODING SYSTEM WITH DYNAMIC KEY CHANGE BASED ON PSEUDORANDOM SEQUENCE GENERATORS.....141

L.N. Isaeva, A.V. Lobzov
TESTING FEATURES OF THE LTE MOBILE COMMUNICATION RADIO EQUIPMENT UPON THE COMPLIANCE CONFIRMATION.....146

V.A. Ivanov, N.V. Ryabova, R.R. Belgibaev
DEVELOPMENT OF AN ALGORITHM FOR ASSESSMENT OF PSD OF HF RADIO INTERFERENCE INCLUDING ANALYSIS OF DAILY AND SEASONAL VARIATIONS AND THEIR IMPACT ON CHANNEL AVAILABILITY.....150

D.V. Ivanov, V.A. Ivanov, N.V. Ryabova, V.V. Ovchinnikov, R.R. Belgibaev
SENSORY DIAGNOSTICS OF IONOSPHERIC AND TRANSIONOSPHERIC RADIO COMMUNICATION CHANNELS. METHODS AND EQUIPMENT OF VOLGA STATE UNIVERSITY OF TECHNOLOGY.....154

N.A. Kandaurov, V.I. Lipatkin, K.Y. Sokolov, V.O. Varlamov
IMPLEMENTATION OF A TURBO-LIKE ERROR CORRECTION DECODER ON A GPU.....160

A.I. Katsnelson, D.S. Ilyanova, M.M. Kolpakov
APPLICATION OF MIMO ANTENNAS IN WIRELESS ENERGY TRANSFER SYSTEMS FOR INTERNET OF THINGS.....165

L.M. Kazadaev, A.I. Sattarova, K.Yu. Ryumshin
INVESTIGATION OF DIGITAL COMMUNICATION LINES NOISE IMMUNITY IN HYDROACOUSTIC CHANNEL USING VARIOUS TYPES OF PRODUCT TURBO CODE.....170

A.N. Khairullin, I.M. Lerner, I.V. Ryabov, V.I. Il'in, G.A. Garifullina
THE LOWER BOUNDARY CAPACITY ESTIMATION OF FREQUENCY SELECTIVE CHANNEL UTILIZING PAM-N-SIGNAL WITH INDEPENDENT AND IDENTICALLY DISTRIBUTED VALUES CHANNEL SYMBOLS.
PART I. STANDARD PARTIAL SIGNALS.....175

I.N. Kirillov, G.M. Aristarkhov, V.V. Kuvshinov
HIGHLY SELECTIVE MICROSTRIP FILTERS BASED ON THREE-RESONATOR STRUCTURES.....184

A.A. Kislitsin, D.V. Ivanov, N.V. Ryabova
METHOD FOR AUTOMATED CONTROL OF FREQUENCY AND ENERGY RESOURCES IN WIDEBAND COMMUNICATIONS OVER DETERIORATING RADIO CHANNELS UNDER VARYING TRANSIONOSPHERIC PROPAGATION CONDITIONS.....189

D.V. Kochemasov, N.N. Udalov
STUDY OF THE INFLUENCE OF RF FILTERS IN THE SIGNAL CHANNEL OF A I/Q MODULATOR ON THE LEVEL OF SIDE COMPONENTS OF THE OUTPUT OSCILLATION SPECTRUM.....196

K.I. Konov, K.N. Klimov
RADIATION PATTERN OF LAUNCH VEHICLE ONBOARD ANTENNA IN THE ACTIVE PART OF THE TRAJECTORY.....200

S.V. Kozlov, A.N. Kubankov
PROCESS BASES FOR ENSURING INTEROPERABILITY AND SYNCHRONIZATION OF MULTIFUNCTIONAL NETWORK-CENTRIC SYSTEMS.....204

Sergey V. Kozlov, Andrey S. Kuznetsov
DEVELOPMENT OF A METHOD FOR DETERMINING THE SIGNALS ARRIVAL TIMES OF SYSTEMS OPERATING IN THE INFORMATION FIELD.....210

V.B. Kreyndelin, E.D. Grigorieva
AN IMPLEMENTATION OF MMSE DEMODULATION ALGORITHM WITH REDUCED COMPUTATIONAL COMPLEXITY AND WITHOUT PERFORMANCE LOSS.....214

A.F. Kryachko, G.M. Revunov
MICROWAVE DIAGNOSTICS BASED ON AN OPEN RESONATOR.....221

Alexander Kukharenko, Ruslan Shaymardanov, Alexander Ivanov
PATCH ANTENNA FOR NANO SATELLITE PLATFORM.....226

Ivan Kuteynikov, Marina Yashina
COMPUTATIONAL COMPLEXITY OPTIMIZATION OF VEHICLE VIDEO-RECOGNITION ALGORITHM USING THE VIRTUAL DETECTORS METHOD.....230

T.A. Kuzovkova, O.I. Sharavova, V.O. Tikhvinskiy, E.E. Devyatkin, R.Yu. Umansky
SYNERGY OF ARTIFICIAL INTELLIGENCE EFFICIENCY IN 5G MOBILE COMMUNICATION NETWORKS.....236

Maxim Lavrov, E.I. Glushankov, Zahar Kondrashov, Evgenii Rylov
STUDY OF SIGNAL PROCESSING ALGORITHMS IN ANTENNA ARRAYS BASED ON HEURISTIC OPTIMIZATION METHODS.....242

A.V. Len'shin, V.N. Tikhomirov, N.M. Tikhomirov, E.V. Shatalov, N.A. Fortunova
CALCULATION OF INTERFERENCE SPECTRUM IN FREQUENCY SYNTHESIZERS SPLIT MISMATCH CHARGING PUMP CURRENTS.....247

I.M. Lerner, A.N. Khairullin, R.Kh. Rakhimov, Ya.F. Ziatdinova, I.V. Ryabov
THE LOWER BOUNDARY CAPACITY ESTIMATION OF FREQUENCY SELECTIVE CHANNEL UTILIZING PAM-N-SIGNAL WITH INDEPENDENT AND IDENTICALLY DISTRIBUTED VALUES CHANNEL SYMBOLS PART II. HYBRID PARTIAL SIGNALS.....253

Vladislav Lesnikov, Tatiana Naumovich, Alexander Chastikov
ONTOLOGICAL APPROACH TO THE ANALYSIS OF SIGNAL SAMPLING THEOREMS.....261

Anastasiia Lipatova, Mikhail Gorodnichev, Kirill Shishkin, Marina Moseva
ON THE TASK OF DEVELOPING ALGORITHMS FOR GENERATING SYNTHETIC DATA FOR TESTING INTELLIGENT TRANSPORTATION SYSTEMS.....267

E.M. Lobov, A.D. Grigorieva, V.O. Varlamov
ON PROGRESSIVE EDGE GROWTH PARITY CHECK MATRIX GENERATION FOR NB-LDPC CODES IN HF COMMUNICATIONS.....272

A.V. Lobzov, L.N. Isaeva, S.S. Kogan
CHANNEL PERFORMANCE CRITERIA IN OPTICAL TRANSPORT SYSTEMS WITH FORWARD ERROR CORRECTING CODES.....277

V.A. Lokhovin, A.V. Ryzhkov, M.L. Schwartz, V.M. Aladin
COMMUNICATION & SYNCHRONIZATION SYSTEMS OF COMPLEX INFRASTRUCTURE FACILITIES. DIRECTIONS FOR FUTURE DEVELOPMENT.....281

A.L. Makarevich, V.V. Kulachek, Yu.V. Zaharova, S.M. Sokovnich, S.V. Zinchenko
ANALYSIS OF THE STATE OF DEVELOPMENT OF THE COMPONENT BASE FOR QUANTUM DEVICES OF OPTICAL DATA TRANSMISSION SYSTEMS.....286

G.G. Makarushkin, K.N. Klimov
USING THE ANSYS HFSS SOFTWARE PACKAGE FOR 3D NUMERICAL ELECTROMAGNETIC MODELING OF A FOUR-CHANNEL ANTENNA.....293

I.V. Manonina, V.V. Shestakov
USING WAVELET ANALYSIS FOR SIGNAL PROCESSING OF INFORMATION TRANSMISSION SYSTEMS.....297

E.O. Melikhov, E.P. Stroganova
INTELLIGENT MANAGEMENT OF COMBINED TRAFFIC IN PROMISING MOBILE COMMUNICATION NETWORKS.....306

Sergei Melnik, Vasily Vikulin
DATA SYNCHRONIZATION FOR IMPLEMENTATION NEW TECHNOLOGY 5G/6G.....311

A.E. Mikenin, A.V. Pestryakov
NOISE COMPENSATION LIMITS OF A LINEAR FREQUENCY SYNTHESIZER MODEL WITH A PLL SYSTEM WITH A FREQUENCY FEEDBACK LOOP.....315

V.Y. Mikhaylov, E.V. Vitomsky, R.B. Mazepa
PROBLEMS OF SYNDROME DECODING OF BLOCK ERROR CORRECTION CODES.....320

M.G. Minkovsky, S.L. Portnoy, S. E. Nikitin, N.S. Klyuev, Sh. R. Sakhautdinov
MODELLING APPROACH TO CONVERGENCE TRACKSIDE RAILWAY NETWORKS.....324

O.G. Morozov, R.M. Shagvaliev, D.S. Grabovetcky, T.R. Shagvaliev, L.M. Sarvarova
REFERENCE SENSOR OF ADDRESSABLE TYPE FOR QUALITATIVE AND QUANTITATIVE AIR MONITORING PHYSICAL PRINCIPLES OF DESIGN AND MATHEMATICAL ANALYSIS.....331

O.A. Mukhametzyanov, A.A. Veselova, S.R. Chukhanova
PARABOLICAL INTEGRATION AS PARAMETER TO DETECT INFORMATIVE COMPONENTS OF ELECTRICAL HEART SIGNALS.....335

Said Muratchaev, Alexander Bakhtin, Sergey Grigo, Damir Shaymardanov, Aleksandr Gorelik
DEVELOPMENT OF A DEVICE-BASED LAYOUT OF A MOBILE DECENTRALIZED NETWORK.....340

I.S. Nefelov, V.V. Filatov, V.-A. V. Badakova, A.S. Eremin
COMPARATIVE ANALYSIS OF ERRORS IN 3D SCANNING OF GAUGE BLOCKS DEPENDING ON THE MATTING LAYER AND TOOLS FOR PROCESSING POLYGONAL MODELS.....345

Manh Tuan Nguyen, Adnan F. Alhaj Hasan, Talgat R. Gazizov
COMPARATIVE ANALYSIS OF 5G PATCH ANTENNA SPARSE STRUCTURES CHARACTERISTICS AT DIFFERENT FREQUENCIES.....349

S.E. Nikitin, S.L. Portnoy, G.D. Antoshkin
METHODS OF WIRELESS CHANNEL MODELING BETWEEN BASE STATION AND MOVING TRAIN.....357

A.V. Nikonenko, A.A. Frolov
OPERATING MODES OF MULTI-BEAM RADAR WITH POLARIZED RECEPTION FOR DETECTING SMALL UAVS.....361

A.V. Ostroukh, C.B. Pronin, A.A. Podberezkin, J.V. Podberezkina, A.M. Volkov
ENHANCING CORPORATE NETWORK SECURITY AND PERFORMANCE: A COMPREHENSIVE EVALUATION OF WIREGUARD AS A NEXT-GENERATION VPN SOLUTION.....366

Vladimir Ovchinnikov, Dmitry Ivanov, Vladimir Ivanov
ENHANCING COVERTNESS AND NOISE IMMUNITY OF NVIS HF COMMUNICATION SYSTEMS THROUGH ADAPTIVE DISPERSION CORRECTION USING CHANNEL SENSOR DATA.....371

Siarhei Palavenia, Aliaksei Salauyou, Anzhalika Karneyeva, Vadim Zahariev
RESEARCH ON THE ATMOSPHERIC CHANNEL FOR TRANSMITTING INFORMATION USING VISIBLE LIGHT.....376

D.A. Paltsin, A.S. Fen, D.K. Mazurenko, A.V. Fedorov
SIMULATION MODELING OF OUTPUT CLOCKING SIGNAL PHASE DEVIATION DEPENDING ON THE POWER OF THE REFERENCE SYNC SIGNAL.....383

K.A. Panteleeva, A.A. Pervukhina, S.V. Shevelev, D.V. Gadasin
ACCIDENT PROCESS MANAGEMENT SYSTEM IN THE IT-LANDSCAPE AS A MEANS OF ENSURING THE STRUCTURAL RELIABILITY OF THE ORGANIZATION.....387

Alexander Pastukh, Olga Mironova, Valery Tikhvinskiy, Vladislav Akhmediarov
ANALYSIS OF THE POSSIBILITY TO USE HYBRID SATELLITE-TERRESTRIAL SYSTEMS (DIRECT-TO-DEVICE) IN THE IMT BANDS OF TERRESTRIAL CELLULAR NETWORKS.....394

N.V. Pchelkina, D.D. Zhukovsky, A.K. Nanidzhanyan, E.Y. Bushuev, D.D. Chizhin
INVESTIGATION OF THE ATMOSPHERIC OPTICAL DISTURBANCES IMPACT ON THE FREE SPACE OPTICS QUANTUM KEY DISTRIBUTION.....400

Ilia Peshkov
SIMULATION OF A TWO-ELEMENT LOW-COMPLEXITY HYBRID ANTENNA ARRAY FOR DOA-ESTIMATION WITH INCREASED ACCURACY.....407

I.A. Pestova, M.I. Kharitonov
SUPPRESSIONS WI-FI SIGNALS AND WAYS TO COUNTER-ACT THEM.....412

N.E. Poborchaya, S.A. Zharkikh
SYNTHESIS OF AN ALGORITHM OF M-QAM SIGNAL ESTIMATION WITH LOGNORMAL NOISE.....416

S.A. Podobuev, A.A. Krylovich, A.N. Serov
APPLICATION OF LEAST-SQUARES FOR FREQUENCY MEASUREMENT ERROR REDUCING FOR THE ZERO-CROSSING TECHNIQUE.....422

A.V. Pomogalova, E.A. Donskov, V.S. Elagin, A.G. Vladyko
ASPECTS OF DATA TRANSFER AND SYNCHRONIZATION FOR VULNERABLE ROAD USERS EMERGENCY SCENARIOS BASED ON BLOCKCHAIN TECHNOLOGY IN ITS.....428

O.B. Popov, T.V. Chernysheva, D.A. Volchkov, K.V. Orlov
RESEARCH AND CORRECTION OF DISTORTIONS WHEN CHANGING THE SAMPLING FREQUENCY IN THE RANGE OF TRANSMITTED LEVELS.....434

Sergey Portnoy, Nikitin Sergey, Andrey Tikhonyuk, Andrey Voloshin
PERFORMANCE EVALUATION OF LDPC CODES IN 5G NR.....439

S.A. Presnyakov, A.D. Kasatkin, N.P. Kravchenko
INVESTIGATION OF ELECTRODYNAMIC CHARACTERISTICS OF THE G- AND W-BANDS FOLDED WAVEGUIDE SLOW-WAVE STRUCTURE.....448

G.A. Prokurat, A.E. Mikenin, A.V. Pestryakov
MODULAR MODELING SOFTWARE IN THE RESEARCH AND DEVELOPMENT OF DIGITAL COMMUNICATION DEVICES.....454

A.S. Pshenichkin, A.E. Krupskaya, K.N. Klimov
DIGITAL PHASE CORRECTION SYSTEM OF SOLID-STATE MULTI-CHANNEL X-BAND RADAR TRANSMITTER THAT INCREASES POWER SUMMATION EFFICIENCY.....458

J. Rabenandrasana, O.V. Kolesnikov, D.V. Bolotov, O.S. Belova, A.G. Temnikov
THE EFFECT OF PULSED ELECTROMAGNETIC FIELDS ON THE TRANSMISSION OF INFORMATION OVER AN OPTICAL CABLE.....466

Andrey Reznev
FASTER-THAN-NYQUIST SIGNALS FOR MODERN COMMUNICATION SYSTEMS.....473

M.M. Ryabchitsky, D.Ch. Tsoi, A.I. Sattarova, K.Yu. Ryumshin, L.M. Kazadaev
ANALYSIS OF MULTIPLE ACCESS SYSTEMS NOISE IMMUNITY WITH VARIOUS TYPES OF MODULATION IN HYDROOPTICAL CHANNEL.....477

I.V. Ryabov, A.E. Makarov, N.O. Alekseev, T.S. Bukanova
HARDWARE-SOFTWARE RADIO COMPLEX FOR REMOTE SENSING OF THE EARTH'S ATMOSPHERE.....484

V.G. Sannikov, V.P. Volchkov
IMPROVING THE QUALITY OF SPEECH SYNTHESIS BASED ON THE PHASE ROOTS OF THE PREDICTOR FILTER SYSTEM FUNCTION.....488

M.L. Schwartz, A.V. Ryzhkov, E.A. Bogdanov, V.M. Aladin
FEATURES OF TIME SCALES SYNCHRONIZATION IN ELECTRIC POWER COMMUNICATION NETWORKS.....494

A.B. Sergienko, P.V. Apalina, A.D. Lebedinskaya
FOURTH MOMENT-ASSISTED DEEP LEARNING-BASED CHANNEL STATE ESTIMATION FOR OFDM SYSTEMS.....499

A.N. Serov, K.A. Ivanenko, A.E. Evsenkina
THE REACTIVE POWER MEASUREMENT METHOD OF HARMONICS BASED ON THE APPLICATION OF IIR FILTERS.....505

R.M. Shagvaliev, O.G. Morozov, D.S. Grabovetcky, T.R. Shagvaliev, L.M. Sarvarova
REFERENCE SENSOR OF ADDRESSABLE TYPE FOR QUALITATIVE AND QUANTITATIVE AIR MONITORING. SENSOR COMPONENTS DESIGN.....513

O.I. Sheluhin, S.Y. Rybakov
CHARACTERISTICS ASSESSMENT OF MULTIFRACTAL SPECTRUM OF FRACTAL DIMENSION IOT-TRAFFIC.....517

V.B. Shershenkov
HIGH-QUALITY GENERAL METHOD OF SUB-NYQUIST BANDPASS SAMPLING WITH SELECTED MINIMAL IN-BAND DISTORTION.....523

V.A. Shevtsov, A.Yu. Perlov, A.M. Kazantsev, S.V. Matseevich
A METHOD FOR DESIGNING A HETEROGENEOUS NETWORK OF A MONITORING SYSTEM BASED ON PREDICTIVE MODELING OF THE FUNCTIONING PROCESSES OF ITS SUBSYSTEMS.....531

F.D. Shusterman, O.V. Varlamov
USE OF PANEL ANTENNAS WITH REDUCED REFLECTORS AND SLANT POLARIZATION AT VHF BROADCAST SITES.....535

Sergey Simonov, Marina Moseva, Mikhail Gorodnichev
A MATHEMATICAL SOFTWARE OF THE ELECTRIC MOTOR OPERATION OF DATA GENERATION ABOUT CONDITION.....540

V.A. Skryabina, A.A.Yelizarov, S.V. Bashkevich, V.N. Karavashkina, M.A. Mashkova
SIMULATION OF A FRACTAL KOCH ANTENNA WITH A METAMATERIAL SURFACE.....545

Elena Suvorova, Alexey Vinogradov
THE ARCHITECTURE OF SPACEFIBRE BRIDGES, WHICH PROVIDES THE ABILITY TO SYNCHRONIZE TIME BETWEEN DIFFERENT STANDARDS.....550

Dmitry Syrovetnik, Yevgeniy Glushankov, Zahar Kondrashov
STATIC COORDINATEOMETRY OF NEARBY SIGNAL SOURCES USING THE SUPER-RESOLUTION ALGORITHM MUSIC.....555

A.V. Timoshenko, A.Yu. Perlov, A.S. Zakharov, M.F. Bulatov, I.V. Tyutin
INCREASING THE ACCURACY CHARACTERISTICS OF THE SPACE MONITORING SYSTEM BASED ON INTELLIGENT CALIBRATION OF THE APAA RADIO INFORMATION SYSTEM.....561

I.A. Tolkachev, E.V. Kontrosh, V.S. Kalinovsky, K.K. Prudchenko, G.V. Klimko
GENERATION OF BIPOLAR SUB-NANOSECOND PULSES BY A MODULE OF ALGAAS/GAAS P-I-N DIODES IN PHOTOVOLTAIC MODE.....565

M.A. Trapeznikova, A.A. Chechina, N.G. Churbanova
NUMERICAL INVESTIGATION OF TRAFFIC ON A HIGHWAY WITH VARYING NUMBER OF LANES.....569

O.V. Vakulchik, V.Y. Mikhaylov, R.B. Mazepa
DETECTION AND MONITORING OF PROCESSES THAT EXPLOIT THE CURSOR MECHANISM, PROVOKING LOCKS IN INFORMATION AND INFORMATION SEARCH SYSTEMS.....574

A.M. Valuev
MODEL OF STOCHASTIC TRAFFIC FLOW THROUGH AN INTERSECTION WITH REPRESENTATION OF CLUSTER INTERACTION.....580

V.O. Varlamov, E.O. Lobova, E.M. Lobov
ALGORITHM OF IONOSPHERIC CHANNEL DISPERSION CHARACTERISTIC SLOPE AND TRANSMISSION COEFFICIENTS JOINT OPTIMAL FILTERING.....590

V.P. Volchkov, V.G. Sannikov
PARAMETRIC SPECTRAL ANALYSIS BASED ON THE APPLICATION OF A TWO-WAY RECURSIVE MODEL WITH CONTROL.....595

Dmitriy Volgushev, Grigoriy Fokin
INTEGRATED COMMUNICATION, LOCALIZATION, SENSING AND SYNCHRONIZATION IN 6G COGNITIVE WIRELESS NETWORKS.....602

I.A. Volkov, V.S. Priputin, E.A. Liberman
SUPPRESSION OF BANDPASS INTERFERENCE IN DIGITAL COMMUNICATION SYSTEMS WITH AN A PRIORI UNKNOWN TYPE OF MODULATION.....608

Alexey Volkov, Igor Sviridov
CONSTRUCTION OF ALGEBRAIC CONVOLUTIONAL CODES BASED ON REED-SOLOMON GENERATOR POLYNOMIALS.....613

E.I. Voronova, A.A. Yelizarov, S.V. Bashkevich, V.N. Karavashkina, M.A. Mashkova
SIMULATION OF A FRACTAL PEANO ANTENNA WITH A METAMATERIAL SURFACE.....619

S.D. Vu, A.V. Ermakova, S.F. Gorgadze
FAST SPECTRAL TRANSFORMATIONS IN THE TRUNCATED WALSH-HADAMARD BASIC AND SYNCHRONIZATION OF M-LIKE SEQUENCES.....623

S.L. Yablochnikov, V.B. Dzobelova, I.O. Yablochnikova, L.V. Medvedeva
ASPECTS OF ASSESSING THE ABSOLUTE STABILITY OF CONTROL SYSTEMS CONTAINING NONLINEAR COMPONENTS.....629

I.O. Yablochnikova, S.L. Yablochnikov, V.B. Dzobelova, S.D. Savostin
ENSURING A GIVEN LEVEL OF CONTROL ACCURACY FOR SYSTEMS OF VARIOUS NATURE.....635

M.V. Yashina, V.B. Yashin, V.V. Evgrafov, A.G. Tatashev
QUEUEING SYSTEM WITH PRIORITY BANDWIDTH SHARING DISCIPLINE FOR V2X TECHNOLOGY.....640

Sergei Zuev, Dmitry Prokhorov, Ruslan Maleev, Artem Timoshenko, Anatoly Ermoshin
ANALYSIS OF FREQUENCY-CONTROLLED ASYNCHRONOUS MOTOR PARAMETERS IN ELECTRIC VEHICLE ELECTRIC DRIVE CONTROL SYSTEMS.....645