
TABLES OF CONTENTS

TELECOMMUNICATIONS AND RADIO ENGINEERING

Volume 60, Numbers 1–12, 2003

Volume 60, Number 1&2, 2003

WAVE PROPAGATION AND SCATTERING

Yu.F. Logvinov Sea Surface Statistics in the Case of Radio Wave Backscattering at Low Grazing Angles	1
V. A. Komyak and S. A. Shilo Effect of a Rough Sea Anisotropy on Angular Dependences of the Ocean Microwave Radiation	12

MICROWAVE ELECTRODYNAMICS

A.A. Kirilenko, D.Y. Kulik, and V.I. Tkachenko General Scheme of the Mode-Matching Technique as a Basis for Generalized Solutions to the Internal Boundary-Value Problems ...	23
S.F. Kulishenko, A.A. Kirilenko, and S.L. Senkevich Waveguide Band Matched by the Stepped Miter	34
V.A. Doroshenko and E.K. Semenova Field Behaviour Near the Vertex of a Cone with Longitudinal Slots	38
V.S. Miroshnichenko and Ye.B. Senkevich Experimental Determination of Equivalent Circuit Parameters of an Open Resonator Coupled to Transmission Lines	45
Z.E. Eremenko and E.M. Ganapolskii Hemispherical Cavity Resonator for Measuring of Permittivity of Strongly Absorbing Liquid in Small Volume	61

MICROWAVE AND QUANTUM ELECTRONICS

M.A. Kopot, A.N. Nikitenko, and G.I. Churyumov Investigations into the Dispersion Characteristics of the Electrodynamic Systems with Resonators of Complex Shape	75
V.B. Baiburin, A.V. Sysyev, V.A. Sysyev, and A.A. Terentiev Interaction of Axial and Cyclotron Electronic Oscillations in M-Type Devices	81
A.V. Vasyanovich, A.V. Gritsunov, A.N. Nikitenko, and M.O. Horunzhii General Principles of Spectral Modeling of Microwave Devices	88
G.P. Ermak, V.P. Kochergin, and P.V. Kupriyanov Millimeter-Wave Planar Frequency Multiplier	100
V.M. Kuzmichov and S.V. Pogorelov Improving the Accuracy of Temperature Dependence Measurements for the Absorption Efficiency Factor in Platinum Bolometers	104

SOLID-STATE RADIO PHYSICS AND PLASMAS

N.N. Beletskii and S.A. Borisenco The Spectrum of Nonlinear Surface Polaritons in Semimagnetic Semiconductors in an External Static Magnetic Field	108
---	-----

ANTENNAS AND FEEDER SYSTEMS

U.R. Liyepin' and O.N. Stavitsky	Algorithmic Reconstruction of the Radiation-Pattern Characteristics of a Partially Unexcited Antenna Array	116
V.V. Ovsyanikov and Ye.D. Romanenko	Radiation Characteristics of Circularly Polarized Dipole Antenna Arrays	120
V.A. Katrlich and M.V. Nesterenko	The Near-Zone Field and Resonant Frequencies of Narrow Longitudinal Slots in the Broad Face of a Rectangular Waveguide	125

RADAR REMOTE SENSING

O.V. Sytnik, Ye.I. Myroshnychenko, and Yu.A. Kopylov	Estimation of Implementation Errors Effect on Characteristics of Pseudorandom Radar Signal	132
A.V. Sokolov, and V.V. Lukin	Local Recognition of Radar Images by Three-Layer Neural Network Using Spatial Features	141

SIGNAL PROCESSING

V.A. Pismenetski, N.I. Sliptchenko, and P.I. Platonov	The Dispersion-Spectral Method for Identification of Pulsed Radio Signals	151
--	--	-----

Volume 60, Numbers 3&4, 2003

MICROWAVE ELECTRODYNAMICS

L.P. Yatsuk	Potential Functions in the Problem of Excitation of a Waveguide Filled with a Three-Layered Dielectric by a Longitudinal Magnetic Current	1
L.B. Minakova and L.A. Rud	Algorithms of Analysis and Synthesis of Rejection Cells Based on the Partially Filled H-Plane Stubs in Rectangular Waveguide	10
Ye.M. Ganapolskii	Broadband Echo-Box of Millimeter Wave Band for a Long-Time Delay of a Microwave Pulse Signal	18
V.S. Litvinenko, Yu.V. Prokopenko, and Yu.F. Filipov	Surface Electromagnetic Oscillations in a Semiconductor Sphere	24

ANTENNAS AND FEEDER SYSTEMS

N.N. Gorobetz and N.P. Yeliseyeva	Radiation Characteristics of an Electric Dipole of Arbitrary Orientation Placed Above a Plane Screen	30
Yu.V. Kornienko	Construction of Non-Redundant Antenna Configurations on a Hexagonal Mesh by a Random Search	48
Y.Y. Volkolupov, M.A. Krasnogolovets, O.G. Lebedev, M.A. Ostrizhnoy, and V.I. Chumakov	On the Determination of Time Characteristics of Radiating Antennas	61
P.A. Melyanovsky and I.V. Popov	Helical Antenna with Transversal Radiation	66
V.V. Popovskiy and Yu.Yu. Kolyadenko	Adaptive Interference Compensators: Problems and	

Methods of Their Solution	71
I.D. Gladkoskok and V.A. Nazarenko Field of Fresnel Zone-Focused Linear Antenna Array with Random Errors of Excitation and Element Position	78

PHYSICAL PROCESSES IN ELECTRON DEVICES

V.D. Naumenko, A.N. Suvorov, and A.R. Syrov Investigating the Temperature Regime of the Starter Cathode in a Millimeter Wave Magnetron	89
K.A. Lukin and P.P. Maksymov Electrostatic Fields in Reverse-Biased <i>pn-i-pn</i> Structures	93
D.V. Snezhko and N.N. Roshytsky Optochemotronic Sensors: New Elements for Biomedical Diagnostic Systems. 1. Basic Concepts, Theoretical Description, Physical and Mathematical Models of the Processes in Optochemotronic Sensors	103

QUANTUM ELECTRONICS

V.V. Shevchenko Electrical and Spectral Matching in Lamp Pumping System of Pulsed Lasers ...	112
V.V. Shevchenko Holographic Interferometry of a Lateral Surface of KDP Crystals and Modulation of a Laser Radiation at Resonance Frequencies	126

APPLIED RADIO PHYSICS AND INDUSTRIAL ELECTRONICS

P.K. Nesterov Quasi-Optical Interferometers with Enhanced Phase Sensitivity	137
V.I. Borsch, V.V. Koval, and B.Ya. Kostik. Oscillations in Optimal-High-Speed Radioautomatics Systems	146
N.D. Koshevoy, V.A. Gordienko, O.N. Koshevoy, and T.G. Rozhnova Comparative Analysis of Pressure Sensors with Digital Output	154

Volume 60, Number 5&6, 2003

MICROWAVE ELECTRODYNAMICS

D.Yu. Kulik, V.I. Tkachenko, and S.L. Senkevich <i>TEM</i> -Field Calculation for Waveguides with Complicated Cross-Sections	1
T.L. Zinenko E- and H-Polarized Plane Waves: Scattering and Absorption by an Impedance Strip Grating	15
A.V. Gribovsky Properties of Reflection Grating Composed of Short-Circuit Rectangular Waveguides in Autocollimation Regime	24
Yu.V. Svischchev The Vertical Electric Dipole Field in Presence of a Sphere with Circular Hole	31
L.P. Yatsuk and T.G. Nazarenko Scattering from the Slots in a Waveguide Filled with an Imperfect Dielectric	41
V.D. Sakhatsky and A.R. Korsunov New Principles of Development of Corner Filters	52

ANTENNAS AND FEEDER SYSTEMS

T.N. Ogurtsova, G.P. Pochanin and P.V. Kholod A Receiving Loop Antenna for Super-Broadband Pulsed Signals	58
N.N. Gorobets, V.I. Chebotaryov, and G.M. Chekalin Synthesis of the Specified State of Electromagnetic Wave Polarization in the Arbitrary Elliptically Polarized Basis	71
V.V. Ovsyanikov On the Principles of Calculating Radiating Devices with Impedance Elements ...	82

TELECOMMUNICATION AND SIGNAL PROCESSING

N.M. Kalyuzhny, S.V. Pshenichnykh, I.V. Puziy, and A.A. Asanov Maintenance of the Continuity of a Phase When Forming Pulse Radio Signals with LFM Transformation	88
V.N. Zaharchenko, V.V Korchinsky, and A.A. Grin' The Efficiency of Data Transmission Systems with the Decision Feedback and Variable Parameters of the Correcting Code	93
Y.P. Kunchenko and T.V. Prokopenko Application of the Polynomial Maximization Method for Estimation of Signal Parameters Received by the Antenna Arrays	103

SOLID-STATE RADIO PHYSICS AND PLASMAS

Ye.L. Cherkashina Selectivity Characteristics of the First and Second-Order Bragg Diffraction Components During Interaction of Light with a Transverse Ultrasonic Wave in Single-Axis Crystals	110
S.Yu. Karel'lin Parameters Measurements of Semimagnetic Semiconductors by Means of the Electron Paramagnetic Resonance Method	117
A.A. Barannik, S.A. Bunyaev, and N.T. Cherpak Accuracy and Sensitivity of Surface Resistance Measurements of High-Temperature Superconductor Films Using Quasioptical Dielectric Resonators	127
D.L. Grekov, N.A. Azarenkov, A.A. Bizukov and V.P. Olefir An Optimized Antenna for Plasma Generation in the IIP-1 Facility	134

PHYSICAL PROCESSES IN ELECTRON DEVICES

O.V. Botsula and E.D. Prokhorov Joint Operation of Two-Level Resonant Tunnelling and Gunn Diodes	140
V.I. Afanas'iev Magnetostatic System for Electron Beam Control	148
M.I. Ayzatsky, I.V. Khodak, V.A. Kushnir, V.V. Mitrochenko, and V.F. Zhiglo Ultra-High Frequency Intense Pulse Electron Sources	153

Volume 60, Number 7, 8, and 9 2003

MICROWAVE ELECTRODYNAMICS

A.E. Svezhentsev Modeling a Periodic Array of Radiators on a Cylindrical Surface	1
A.I. Kozar Electromagnetic Wave Scattering in a Waveguide Containing Homogeneous Magnetodielectric Spheres	11
Yu.V. Prokopenko and Yu.F. Filippov Influence of the Finite Conductivity of the End Walls on the Spectrum and Power Characteristics of the Anisotropic Dielectric Circular-Disk Resonator	23
N.I. Ayzatsky and Ye.Yu. Kramarenko Coupled Oscillator Model in Theory of Layered Dielectric	30
I.Yu. Vorgul and A.V. Vorgul Solving Electrodynamics Problems in Time-Varying Media: Different Approaches Based on the Integral Equation	40
A.A. Barannik, Yu.V. Prokopenko, T.A. Smirnova, Yu.F. Filipov, and N.T. Cherpak A Quasi-Optical Dielectric Ring-Resonator With Conducting Endplates	48
V.K. Kiseliov and S.V. Mizrakhi Quasi-Optical Sectional Waveguide Taper for Submillimeter Wave Band	55

ANTENNAS AND FEEDER SYSTEMS

V.I. Gomozov, A.V. Gomozov and S.V. Titov Space-, Phase- and Frequency-Based Control of Signal Focusing in Planar Phased Arrays with a Discrete V-Shaped Distribution of Carrier Frequencies	60
V.A. Doroshenko and Y.K. Semenova Electromagnetic Wave Diffraction by a Cone with Longitudinal Slots and a Solid Conic Screen Inside	69
V.V. Ovsyanikov, A.V. Reuta, and Ye.P. Beznosova Analysis and Optimization of a Two-Frequency Turnstile Radiator with Impedance Elements in the Branches	76

TELECOMMUNICATIONS AND SIGNAL PROCESSING

V.Yu. Murashev, A.V. Kublik, I.A. Sukhoivanov Calculation of Four-Wave Mixing Power Arising in Fiber-Optic Communication Lines with Wavelength-Division Multiplexing	80
A.I. Filipenko Determining of Refractive Index Profile of Optical Fibers from Measured Intensity in Near-Field Zone	86
G.V. Pevtsov and D.A. Kolisnichenko Quality Indexes for Optimization of the Multifunction Wireless Devices	92
V.A. Omel'chenko, V.V. Balabanov and B.M. Bezruk Multicriterion Problem on Detection of Unknown Random Signals Using the Spectral Method	102
D.V. Bondar, A.N. Zelenin, and A.I. Kostromitsky The Analysis of the Active Corrector of Frequency Characteristics	112

SOLID-STATE RADIO PHYSICS AND PLASMAS

V.A. Abdulkadyrov, E.M. Khutoryan, and A.I. Tsvyk	Interaction of a Plane Electromagnetic Wave with a Semiconductor-Dielectric Structure Containing a Diffraction Grating	117
Yu.O. Averkov and V.M. Yakovenko	Excitation of Surface Electromagnetic Wave Pulses by Electron Bunches Intersecting a Metal-Dielectric-Semiconductor Structure	125

PHYSICAL PROCESS IN ELECTRON DEVICES

O.V. Zemlyaniy and K.A. Lukin	Correlation-Spectral Properties of Chaos in the Nonlinear Dynamical System with Delayed Feedback and Asymmetric Nonlinear Map	137
A.A. Manko	Measurement of the Frequency Switching Time of Microwave Oscillators	150

MEASUREMENT SYSTEMS

A.F. Velichko, D.A. Velichko, and V.M. Shokalo	Spatial-Temporal Filtering in Precision Radio-Engineering Systems of Technical Diagnostics	155
O.A. Remayeva, Ye.V. Remayev, and G.K. Snurnikova	Error Estimate in Refraction Corrections for the Space Object Coordinates determined by Electromagnetic Waves	166
Yu.Ye. Gordienko and A.Yu. Panchenko	Modulation Conversions of Information Signals in Resonance Gauges of Parameters of Objects and Mediums	170

Volume 60, Numbers 10, 11, and 12 2003

WAVE PROPAGATION AND SCATTERING

V.I. Lutsenko, Ye.N. Belov, I.V. Lutsenko, and S.I. Khomenko	The Troposphere Refraction Estimation by Attenuation Factor of Radiowave beyond-the-Horizon Propagation	1
I.M. Mytsenko and S.I. Khomenko	Diagnostics of Microwave Propagation Conditions Through the use of Signal Reflection from Sea Surface	15

STATISTICAL RADIO PHYSICS

O.V. Sytnik	Invariant Transformation in Identification Theory	20
--------------------	---	----

TELECOMMUNICATIONS AND SIGNAL PROCESSING

B.M. Bulgakov, S.A. Kravchuk, T.N. Narytnik, V.V. Popovsky, and S.I. Tatarchuk	The Concept of Application of Millimeter and Submillimeter Electromagnetic Waves in Telecommunication Information Systems	34
I.P. Panfilov and A.A. Scopa	Reliability of the Communication Link Consisting of Primary and Reserve Channels	47

RADAR SYSTEMS

A.O. Puzanov	Some Properties of Videopulse Soil-Layer Scattering with Continuous Variation in
---------------------	--

Frequency-Dependent Electrical Characteristics	54
V.B. Razskazovsky and Yu.A. Pedenko Comparison of Elevation Angle Measurement Techniques over the Sea	67
V.N. Gorobets, V.G. Gutnik, and F.V. Kivva Experimental Doppler Spectra of Radiolocation Signal Reflections from Fallen Ship Waves	85

APPLIED RADIO PHYSICS: SPACE, ATMOSPHERE AND EARTH SURFACE RESEARCH

A.A. Minakov Space Lenses	94
V.G. Galushko and G.V. Lytvynenko Application of the Frequency-and-Angular Sounding Technique to Recovering the Three-Dimensional Electron Density Distribution in the Ionosphere	113
A.P. Nickolaenko, L.M. Rabinowicz, A.V. Shvets and, A.Yu. Schekotov Detection of Splitting of Shumann Resonance Eigenfrequencies	123
A.M. Gokov Development of the Method of Determining the Electron Molecule Collision Frequencies in the Ionospheric D-Region by the Partial Reflection Technique	139
A.M. Gokov Simultaneous Determination of Electron Density and Electron-Neutral Molecule Collision Frequencys in the Ionospheric D-Region by a Partial Reflection Technique	145
A.M. Gokov and O.F. Tyrnov Peculiarities of the Middle Latitude Ionospheric D-Region Dynamics, Caused by the Solar Terminator	159
I.G. Zakharov and M.V. Lyashenko Comparison of the Experimental and Model Values of Total Electron Content in the Ionosphere above Eastern Europe	173