

**2009 19th International Crimean  
Conference Microwave &  
Telecommunication Technology  
(CriMiCo 2009)**

**Sevastopol, Ukraine  
14-18 September 2009**

**Volume 1  
Pages 1-390**



**IEEE Catalog Number: CFP09788-PRT  
ISBN: 978-1-4244-4796-1**

# Contents — Volume 1

## INVITED PAPERS

INV.1	SATELLITE CNS FOR MARITIME TRANSPORTATION AUGMENTATION SYSTEM (MTAS) Ilcev St. D. ....	3
INV.2	SCATTERING CROSS-SECTION OF SEA TARGETS IN NONHOMOGENEOUS INCIDENT FIELD Shtager Ye. A. ....	*
INV.3	ANENNAS OF 3G BASE STATION Voskresenskiy D. I., Ovchinnikova E. V., Tay Zar Oo .....	9
INV.4	GAN SOLID-STATE MICROWAVE POWER AMPLIFIERS – STATE-OF-THE-ART AND FUTURE TRENDS Kistchinsky A. A. ....	11
INV.5	SOLID STATE TRANSCEIVER MODULES FOR ADVANCED MILLIMETER-WAVE RADAR TECHNOLOGY Karushkin N. F., Maltsev S. B., Mozhar M. K., Rukin V. P., Khitrovski V. A. ....	17

## SESSION H: HISTORY OF RADIOENGINEERING RESEARCH (READINGS FROM FEDOTOV)

H.1	A. S. POPOV AND THE BLACK SEA FLEET (to the 150-th Anniversary) Yermolov P. P., Vorobyov V. V. ....	23
H.2	SCIENTOMETRIC ANALYSIS OF ARTICLES SUBMITTED TO INTERNATIONAL CRIMEAN CONFERENCE “MICROWAVE AND TELECOMMUNICATION TECHNOLOGY” IN GLOBAL ELECTRONIC DATABASES Gryshchenko T. B., Nikitenko O. M. ....	30
H.3	THE ROLE OF BELARUS IN CriMiCo ORGANIZATION (1992—2008) Yermolov P. P., Rzhhevtsava N. L. ....	32
H.4	SEVASTOPOL RANGE FOR MEASURING RADAR, THERMAL AND LASER PROPERTIES OF SURFACE SHIPS (1979-1991) Yermolov P. P., Pustovoytenko V. V. ....	36
H.5	THE HISTORY OF SPECIAL DESIGN BUREAU OF TELEVISION EQUIPMENT AT SIMFEROPOL PC «FOTON» (end of sixties — nineties) Yermolov P. P., Voychenko V. G. ....	40

## SESSION 1/1: MICROWAVE AMPLIFIERS

1.1	3 mm LOW-NOISE AMPLIFIER AND RADIOMETRIC MODULE ON ITS BASIS Kuzmin S. E., Narytnic T. N., Radzikhovskiy V. N. ....	45
1.2	27-31 GHz MMIC LOW NOISE AMPLIFIER WITH FILTERING FUNCTIONS FOR SPACE COMMUNICATION SYSTEM Armengaud V., Laporte C., Jarry B., Babak L. I., Cherkashin M. V., Lintignat J., Barelaud B. ....	47
1.3	MICROWAVE MODULES OF LOW NOISE AMPLIFIERS Osipov A. M., Semyonova L. M. ....	49
1.4	DESIGN OF L-, S- AND C-BAND LOW NOISE AMPLIFIERS WITH INPUT STAGES PROTECTION Platonov S. V., Osipov A. M. ....	51
1.5	2 WATT X-Ku BAND QUASI-MMIC TRANSISTOR AMPLIFIER Kistchinsky A. A., Radchenko A. V. ....	53
1.6	WIDEBAND L-S BAND SIC POWER AMPLIFIERS Baranov V. V., Zimin R. A., Matveev A. D., Kistchinsky A. A., Sukhanov D. A. ....	55

1.7	10 W C-BAND WIDEBAND POWER AMPLIFIER Garmash S. V., Kistchinsky A. A., Markinov E. G. ....	57
1.8	1 KW POWER AMPLIFIER FOR 30...180 MHZ BANDWIDTH Laktionov A. I., Gorbanov N. A., Tarasov M. A., Kurochkin L. B., Zayanchukovsky V. V. ....	59
1.9	UHF POWER AMPLIFIERS WITH WIDE-GAP MESFET Makarov D. G., Krizhanovski V. G., Kistchinsky A. A. ....	61
1.10	UHF DUAL CLASS E POWER AMPLIFIER WITH CAPACITOR IN SERIES TO SWITCH Baranov A. V. ....	63
1.11	UHF DUAL CLASS E POWER AMPLIFIER WITH LOAD NETWORK IN SERIES TO SWITCH Baranov A. V. ....	65
1.12p	LINEARIZATION OF POWER AMPLIFIER WITH BALANCING CASCADES Korotayev V. M., Shein D. Ya. ....	67
1.13p	2-4 GHz 50 W and 100 W WIDEBAND GaAs TRANSISTOR POWER AMPLIFIER UNITS Bochkarev D. V., Kistchinsky A. A., Nikityn D. V., Radchenko A. V. ....	69
1.14p	DESIGN OF SOLID STATE 0.5/1 kW C-BAND TRANSMITTER WITH 1:1 REDUNDANCY AND COMBINING CONFIGURATION Yushin A. I., Perelstein M. P. ....	71
1.15p	COMPLEX TWO-LEVEL TRANSISTOR FOR MICROWAVE POWER AMPLIFIERS Iovdalsky V. A., Pchelin V. A., Lapin V. G. ....	74

## SESSION 1/2: OSCILLATOR & RECEIVE DEVICES

1.16	RECEIVER MODULE FOR PASSIVE IMAGING SYSTEM IN 3 MM WAVES BAND Zakamov V. R., Kuzmin Z. E., Radzikhovsky V. N., Khaikin V. B. ....	79
1.17	TRANSCIVING MODULE FOR 60 GHz BANDWIDTH Sunduchkov I. K. ....	81
1.18	DIELECTRIC CAVITY ANTENNA-ACTIVE OSCILLATOR Prudyus I. N., Holynskyy V. D., Storozh V. G. ....	83
1.19	MM-WAVE LINEAR TUNING OSCILLATOR ON THE BASIS OF DDS TECHNOLOGY Kosov A. S., Zotov V. A. ....	85
1.20	POWERFUL PULSE MICROWAVE OSCILLATING MODULE Pushkarev V. P., Titov A. A., Avdocherenko B. I., Yurchenko V. I. ....	87
1.21	CALCULATION-EXPERIMENTAL TECHNIQUE FOR MICROWAVE DIODE LIMITERS DESIGN Gudkova N. B., Zabirnaya L. I., Shnitnikov A. S., Korenkov I. V. ....	89
1.22	FREQUENCY MULTIPLICATION IN TED DIODES WITH IMPACT IONIZATION ON InN, GaN, AlN Prokhorov E. D., Botsula O. V., Grischenko I. A. ....	91
1.23	DIODE WITH CATHODE STATIC DOMAIN AS THE SOURCE OF HF-NOISE Prokhorov E. D., Botsula O. V. ....	93
1.24	COMPUTER-AIDED MEASUREMENTS AND REJECTION OF HIGH POWER MICROWAVE TRANSISTORS ON A WAFER Galdetskiy A. V., Vorobiev A. A. ....	95
1.25	A 2 GS/s 450 MHz BANDPASS $\Delta\Sigma$ MODULATOR FOR SWITCH-MODE POWER AMPLIFIER Ostrovskyy P., Gustat H., Scheytt Ch. ....	97

## SESSION 1a: SOLID STATE DEVICES CAD/CAM

1a.1	DARWIN SOLVER – A SYSTEM OF EVOLUTIONARY ANALOG CIRCUIT DESIGN INTEGRATED WITH MICROWAVE OFFICE Loshchilov I. G. ....	101
1a.2	VIRTUAL NONLINEAR IMPULSE NETWORK ANALYZER FOR MICROWAVE OFFICE Semyonov E. V., Maljutin N. D., Loschilov A. G. ....	103
1a.3	APPLIED SOFTWARE FOR ELECTROMAGNETIC SIMULATION OF PLANAR MICROWAVE DEVICE PERFORMANCES Radchenko V. V. ....	105
1a.4	DEVELOPMENT OF MMIC ELEMENT MODEL LIBRARIES FOR MICROWAVE OFFICE DESIGN ENVIRONMENT Sheyerman F. I., Babak L. I. ....	107

1a.5	PASSIVE COMPONENTS EQUIVALENT NETWORK IN MICROWAVE CAD Babun'ko S. A. ....	109
1a.6	EFFICIENT SIMULATION OF NUMERICAL MODELS FOR SEMICONDUCTOR DEVICES Pavlenko D. V., Prokhorov E. D., Beletsky N. I. ....	111
1a.7	CLASS-F POWER AMPLIFIER DESIGN FOR 5,8 GHz FREQUENCY BAND USING META-MATERIALS Isnyuk T. V., Osipchuk S. A., Shelkovnikov B. N. ....	113
1a.8	DISTORTION COMPONENTS ITERATIVE INJECTION TECHNIQUE FOR LINEARIZATION OF POWER AMPLIFIERS Bondar D., Budimir D., Shelkovnikov B. ....	115
1a.9	DESIGN OF TABLE-BASED NONLINEAR MODEL FOR PHEMT Dmitrienko K. S., Babak L. I. ....	119
1a.10	CONDUCTION ERROR REDUCING AT POWER FET's LINEAR MODEL EXTRACTION Kapralova A. A., Manchenko L. V., Pchelin V. A. ....	121
1a.11p	COMPOSITE BASE ELEMENT IN THE SYS-TEM OF MATHEMATICAL MODELLING AND DESIGNING OF MICROWAVE DE-VICES AND PHASED ARRAYS – "Lamb-daMDS" Dobrozhanskaya O. L., Drozhzhina N. V., Kalashnik I. E., Feoktistov V. G. ....	123
1a.12p	DIODES WITH INTERVALLEY TRANSFER ON THE BASIS OF A <sub>3</sub> B <sub>5</sub> NITRIDE SEMICONDUCTORS Storozhenko I. P., Arkusha Yu. V. ....	125
1a.13p	SUBSTRATE DESIGN ENABLING TO INCREASE HEMTS OPEN CHANNEL BREAKDOWN VOLTAGE Martynov Y. B., Pogorelova E. V. ....	127

## SESSION 2/1: PHYSICAL FUNDAMENTALS OF MICROWAVE ELECTRONICS

2.1	EVEN AND ODD SAMPLING FOR SIMULATION OF ELECTRON DEVICES WITH IRREGULAR ELECTRODYNAMIC SYSTEMS Batura M. P., Popkova T. L., Rak A. O. ....	131
2.2	EXCITATION EQUATIONS FOR THE ARBITRARILY-IRREGULAR COAXIAL WAVEGUIDE Kolosov S. V., Kurayev A. A., Rak A. O. ....	133
2.3	THE HIGH-POWER GYROTON ON CORRUGATED CAVITY Kolosov S. V., Kurayev A. A., Kharseyev A. P., Senko A. V. ....	135
2.4	CALCULATION OF THE DEVICE COMPEN-SATING REFLECTION OF H <sub>01</sub> -WAVES OF ROUND WAVE GUIDE FROM DIELECTRIC WINDOW Kurayev A. A., Naranovich O. I., Sinitsyn A. K. ....	137
2.5	NONLINEAR FIGURE OF MERIT FOR REENTRANT CYLINDRICAL CAVITIES Tsarev V. A., Miroshnichenko A. Y., Smirnov S. V. ....	139
2.6	BAND-PASS CHARACTERISTICS OF COUPLED SECTOR DOUBLE-GAPS CAVITIES SYSTEM Muchkaev V. Y., Tsarev V. A. ....	141
2.7	INFLUENCE OF SUPERLUMINALITY IN GAUSSIAN BEAM ON Q-FACTOR OF THE OPEN RESONATOR MODES Miroshnichenko V. S., Melezhik P. N. ....	143
2.8	PARAMETRIZATION OF QUASI-OPTICAL IRREGULAR WAVEGUIDES WITH QUADRATIC CORRECTION Vorobjov G. S., Zhurba V. O., Petrovsky M. V., Rybalko A. A., Shulga Y. V. ....	145
2.9	UPDATING OF MM-WAVE NON-REGULAR WAVEGUIDE QUASIOPTICAL SYSTEMS Vorobyov G. S., Zhurba V. O., Petrovsky M. V., Rybalko A. A., Shulga Y. V. ....	147
2.10	FOCUSING FIELDS SIMULATION IN DIODE ELECTRON-OPTICAL SYSTEM Vorobjov G. S., Drozdenko A. A., Barsuk I. V. ....	149
2.11p	ELECTRON-OPTICAL SYSTEM FOR OROTRON WITH PERMANENT MAGNETS Galdetskiy A. V., Golenitskij I. I., Dukhina N. G., Saprynskaya L. A., Myasin E. A. ....	151
2.12p	ADAPTATION OF CONDITIONAL OPTIMIZATION ALGORITHM USING MODIFIED COMPLEX BOX METHOD FOR SYNTHESIS IN ELECTRODYNAMICS ON THE BASIS OF DISTRIBUTED AND PARALLEL CALCULATIONS SYSTEMS Savin A. N., Zhnichkov R. Yu., Timofeeva N. E. ....	153
2.13p	EXPERIMENTAL RESEARCH OF CASUAL DISCONTINUITIES HAVING EFFECT ON ATTENUATION IN SLOW WAVE STRUCTURE SUCH AS SLOTTED-RIDGE WAVEGUIDE Nakrap I. A., Savin A. N. ....	155

2.14p	<b>SURFACE QUALITY INFLUENCE ON ATTENUATION IN SLOW WAVE STRUCTURE SUCH AS SLOTTED-RIDGE WAVEGUIDE. EXPERIMENTAL RESEARCH</b> Nakrap I. A., Savin A. N. ....	157
-------	---	-----

## **SESSION 2/2: O-TYPE & DRO MICROWAVE DEVICES**

2.15	<b>CHERENKOV'S RELATIVISTIC HIGH-CURRENT OSCILLATORS WITH IRREGULAR CORRUGATION</b> Gourinovitch A. B., Kurayev A. A., Sinitsyn A. K. ....	161
2.16	<b>METHOD OF SLOWING AUTOREGULATION FOR OPTIMIZATION OF DISTRIBUTION PHASE VELOCITY IN A HELIX TWT</b> Kurayev A. A., Navrotsky A. A., Sinitsyn A. K. ....	163
2.17	<b>HELIX TWT WITH DIELECTRIC CORRECTION OF SLOWING</b> Kurayev A. A., Navrotsky A. A., Sinitsyn A. K. ....	165
2.18	<b>TWT FREQUENCY CHARACTERISTICS IN SUBMILLIMETER RANGE</b> Aksenychuk A. V., Kuraev A. A., Kirinovich I. F. ....	167
2.19	<b>SUBTERAHERTZ DOUBLE-MODE O-TYPE OSCILLATION SOURCE</b> Odarenko E. N., Shmat'ko A. A., Udintsev P. V. ....	169
2.20	<b>POSSIBILITY OF BROADENING CONTINUOUS ELECTRICAL FREQUENCY TUNING IN MM-WAVELENGTH CLINOTRON: EXPERIMENTAL INVESTIGATION</b> Chumak V. G., Pankov S. V. ....	171
2.21	<b>THICK-ELECTRON BEAM KLINOORBOTRON</b> Gurevich A. V., Kurayev A. A., Sinitsyn A. K., Yeryomka V. D. ....	173
2.22	<b>ELECTRON BEAM FORMING AND STRUCTURE IN DIFFRACTION RADIATION OSCILLATOR</b> Tsvyk A. I., Belousov Je. V., Nesterenko A. V., Zheltov V. N. ....	176
2.23	<b>OPEN RESONATOR WITH TRAPEZOIDAL MIRROR FOR TERAHERTZ DRO</b> Miroshnichenko V. S., Dudka V. G., Yudintsev D. V. ....	178
2.24	<b>TWO-CASCADE DRO OF 1.5 mm WAVE RANGE ON SECOND SPACE HARMONIC</b> Miroshnichenko V. S., Senkevich Ye. B., Demchenko M. Yu. ....	180
2.25	<b>THE INFLUENCE OF ELECTRODYNAMIC SYSTEM OHMIC LOSSES IN 1 mm WAVELENGTH OROTRON ON ITS EFFICIENCY AND OUTPUT POWER</b> Solovyov A. N., Myasin Ye. A. ....	182
2.26p	<b>OROTRONS WITH DOUBLE-ROW PERIODIC STRUCTURE AND SPHEROCYLINDRICAL AND MULTIFOCAL MIRRORS</b> Myasin Ye. A., Il'yin A. Yu., Evdokimov V. V. ....	184
2.27p	<b>OPPORTUNITY OF WIDEBAND AMPLIFICATION IN DEVICES WITH SECONDARY EMISSION</b> Galdetskiy A. V. ....	186

## **SESSION 2/3: M-TYPE DEVICES & GYRODEVICES**

2.28	<b>A PRINCIPLE OF MILLIMETER-WAVE MAGNETRONS DESIGN</b> Gurko A. A., Yeryomka V. D. ....	191
2.29	<b>CERTAIN CAUSE OF HIDDEN DETERIORATION OF MAGNETRON EFFICIENCY</b> Gurko A. A., Yeryomka V. D. ....	194
2.30	<b>COLD STARTING OF A MAGNETRON WITH COLD SECONDARY-EMISSION CATHODE USING EXTERNAL UHF SIGNAL</b> Avtomonov N. I., Vavriv D. M., Sosnytsky S. V. ....	196
2.31	<b>RESEARCH OF COLD START PROCESSES IN MAGNETRON WITH COLD SECONDARY-EMISSION CATHODE</b> Avtomonov N. I., Vavriv D. M., Sosnytsky S. V. ....	199
2.32	<b>OSCILLATIONS INTERACTION IN CROSS-FIELD SYSTEMS</b> Volovenko M. V., Zinkovski V. M., Nikitenko O. M. ....	203
2.33	<b>OPTIMAL PARAMETERS FOR KA-BAND LOW-VOLTAGE MAGNETRON WITH SECONDARY-EMISSION CATHODE</b> Yeryomka V. D., Kulagin O. P., Kopot' M. A. ....	205
2.34	<b>INFLUENCE OF WAVEFRONT STEEPNESS ON CURRENT EXCITATIONS IN MAGNETRONS WITH SECOND EMISSION CATHODES</b> Naumenko V. D., Suvorov A. N., Markov V. A. ....	208

2.35	GYROKLINOTRON EFFICIENCY OPTIMIZATION AT THE FIRST AND THE THIRD HARMONICS OF CYCLOTRON FREQUENCY Kurayev A. A., Lukashonok D. V., Sinitsyn A. K. ....	210
2.36	PENIOTRON AND LARGE-ORBIT GYROTRON AT H <sub>41</sub> -MODE: EFFICIENCY BENCHMARKING Kolosov S. V., Kurayev A. A. ....	212
2.37	POWER PULSED TERAHERTZ RANGE GYROTRONS Glyavin M. Yu., Bratman V. L., Kalynov Yu. K., Luchinin A. G., Manuilov V. N. ....	214
2.38p	COMPUTER-AIDED INVESTIGATION OF COAXIAL GYRO-BWO EFFICIENCY DEPENDING ON INJECTION BEAM ENERGY Khoruzhiy V. M. ....	216
2.39p	NONLINEAR ANALYTICAL THEORY OF PLANAR FREE-ELECTRON MASER WITH AXIAL MAGNETIC FIELD Goryashko V. A., Slipchenko T. M. ....	218
2.40p	INFLUENCE OF POWER SUPPLY ON FREQUENCY DISTORTIONS IN MAGNETRON Churymov G. I., Ivantsov V. P., Starchevskiy Yu. L., Ekezli A. I., Sivokon' K. V. ....	220

### SESSION 3/1: WIRELESS ACCESS NETWORKS

INV.6	INTEGRAL EFFICIENCY OF TELECOMMUNICATION NETWORK Ilchenko M. E., Sunduchkov K. S. ....	225
INV.7	PLANNING OF 3-d GENERATION MOBILE COMMUNICATION NETWORKS Bezruk V. M., Bondar I. V. ....	229
3.1	ORGANIZATION OF DYNAMIC GROUP MICROCELL FOR MM-WAVE BROADBAND RADIO ACCESS NETWORKS Kravchuk S. A. ....	231
3.2	QUALITY INDICATORS OPTIMIZATION IN TRANSCIVING DEVICE OF WIRELESS COMMUNICATION SYSTEM Iashchuk A. S., Shelkovnykov B. N. ....	233
3.3	FEATURES OF LONG TERM EVOLUTION TECHNOLOGY AND COMPARATIVE ANALYSIS OF NOISE STABILITY FOR DIFFERENT KINDS OF MODULATION Kovalenko A. I., Zhukov R. V., Shelkovnikov B. N. ....	235
3.4	CALCULATION OF LOADING COEFFICIENT IN DIRECT AND REVERSE CHANNELS. ANALYSIS OF UMTS SYSTEM SPECTRAL EFFICIENCY Oliynuk O. P., Ladyk O. I. ....	237
3.5	PARAMETERS OF CDMA-BASED RADIO INTERFACES WITH SPECTRUM EXTENSION. ADVANTAGES OF MC DS-CDMA Nyzhnyk D. Y., Ladik A. I. ....	239
3.6	OPTIMIZATION OF WIRELESS BACKBONE NETWORK ACCESS STRUCTURE Gaivoronska G. S. ....	241
3.7	INCREASING OF JAMMING RESISTANCE FOR SIGNALS WITH QUADRATURE PHASE-SHIFT KEYING Mandzij B. A., Bondarev A. P., Maksymiv I. P. ....	244
3.8	SEAMLESS SERVICE TRANSFER IN MM-WAVE BAND RADIOACCESS NETWORK WITH DISTRIBUTED MICROCELLULAR ARCHITECTURE Kravchuk S. A. ....	246
3.9p	RADIO RELAY LINK WITH UNIVERSAL PRECISE TIME SYSTEM Tatarinsky S. N., Shapovalov D. O., Nosov A. S., Britkov A. V., Nosov O. S., Sviridenko V. I., Gorbanov N. A., Bulgakov V. A. ....	248
3.10p	TECHNICAL AND ECONOMIC OPTIMIZATION OF CONSTRUCTION AND OPERATION OF MOBILE WIMAX NETWORKS Botsman I. V. ....	251
3.11p	NON-REGULARITY IN SPACE TOPOLOGY OF CELLULAR NETWORKS WITH CODE DIVISION IMPACTING THE COVERAGE QUALITY Yatsynovich M. N., Litvinko P. A. ....	253
3.12p	NEW METHOD OF NETWORK CAPACITY INCREASING Sunduchkov A. K. ....	255
3.13p	ANALYSIS OF WIRELESS NETWORK EFFICIENCY Bobrov S. I. ....	257

3.14p	COMMUNICATION SYSTEMS ON THE BASIS OF UNMANNED AIRCRAFTS (UA). PROSPECTS AND PROBLEMS Lysenko A. I., Valuyskiy S. V. ....	259
-------	---	-----

## SESSION 3/2: TELECOMMUNICATION SYSTEMS

INV.8	MULTIPLE ACCESS AND BROADCASTING IN SELF-ORGANIZING RADIO NETWORKS WITH ULTRA WIDE BAND PULSE SIGNALS Bunin S. G. ....	263
INV.9	WIRELESS COVERT COMMUNICATIONS WITH LIMITATION OF UWB NOISE SIGNALS SPECTRUM Kalinin V. I. ....	265
3.15	DETERMINATION OF PULSE SIGNAL RADIATION SOURCES WITH KNOWN COORDINATES IN THE RADIO ETHER Kolodchak I. L., Zahakaylo V. B. ....	267
3.16	EXPERIMENTAL ESTIMATION FOR INTERFERENCE ACTION OF FIXED SERVICE TRANSMITTING EQUIPMENT ON RECEIVING EQUIPMENT OF TERRESTRIAL MOBILE SERVICE AT FREQUENCY BAND SHARING Gorbachev K. L., Kavaleou K. A., Kozel V. M. ....	269
3.17	MICROWAVE MULTIPOLAR MODEL OF BRANCHING CORRIDOR RADIO CHANNELS WITH OPERATING Wi-Fi SYSTEM INSIDE A BUILDING Strelnytskyi A. A., Tsopa A. I., Shokalo V. M. ....	271
3.18	MOVING IMAGE SEGMENTATION USING INTERFRAME WEIGHTING PROCESSING Gelesev V. A., Yakornov E. A. ....	273
3.19	SPATIAL STRUCTURE EFFECT ON MIMO COMMUNICATION SYSTEM CAPACITY Parshin Yu. N., Komissarov A. V. ....	275
3.20	INTELLECTUAL ROUTING IN MOBILE AD-HOC NETWORKS Minochkin A. I., Romanjuk V. A., Sova O. Y. ....	277
3.21	TOPOLOGY CONTROL PROCESS IN WIRELESS SENSOR NETWORKS Zuk A. V., Romanjuk V. A., Sova O. Y. ....	279
3.22	PRIORITY SERVICE AT COMPETITIVE RADIO CHANNEL ACCESS Bunin S. G., Voiter A. P. ....	281
3.23p	EVOLUTION IN BUS AND TRANSPORT NETWORKS OF MOBILE COMMUNICATION Savochkin A. A., Dubinin G. V., Nudga A. A. ....	283
3.24p	FEATURES OF TUNNELING IN IP/MPLS TRANSPORT NETWORKS Savochkin A. A., Gorokhovtsev N. E. ....	285
3.25p	SPACE-DIVERSITY RECEPTION AS QUEUEING SYSTEM WITH MIXED PRIORITY Marigodov V. K. ....	287
3.26p	ANALYSIS OF TIME SYNCHRONIZATION PROTOCOLS FOR NGN Vakas V. I., Chernyak I. P. ....	289
3.27p	INHIBITION OF PHYSICAL JITTER IN OPTICAL COMMUNICATION SYSTEMS Tsurcanu D. N., Nistiriuk P. V., Alexei A. S., Andronic S. M., Smokin D. I., Finciuk S. I., Tsurcan A. G., Tsurcanu T. P. ....	291
3.28p	OPTICAL FIBER DELAY LINE FOR RADIOSIGNALS OVER 1,5-2 GHz BAND Krasjuk E. A., Nosov A. S., Torubarov Y. V., Malyuta A. A. ....	294
3.29p	SIGNALS GENERATION AND TRANSMISSION USING HETEROGENEOUS TELECOMMUNICATION SYSTEM (IHTS) Kuzyava M. A. ....	296
3.30p	QAM64 MODEM WITH 155 MBIT/SEC TRANSMISSION SPEED Britkov A. V., Nosov O. S., Dementenko S. A., Kondratenko G. G., Strybizh I. S., Cherevatenko A. A., Borodina G. N. ....	298
3.31p	DEVELOPMENT OF UP-TO-DATE LABORATORY BASE FOR MICROPROCESSOR SYSTEMS INVESTIGATION Avrudin O. G., Sakalo S. N., Semenetc V. V. ....	301

## SESSION 3/3: SATELLITE COMMUNICATION & DIGITAL TV

INV.10	DIGITAL DVB-T BROADCASTING: SUBSCRIBER RECEIVERS Ilchenko M. Ye., Narytnik T. N., Voytenko A. G., Zalevsky A. P., Arshinnikov V. V., Volkov V. V., Maryenko A. V., Protsenko V. O. ....	305
--------	---	-----

INV.11	MULTIMEDIA DATA TRANSMISSION SYSTEM FOR 9,8 TO 12,2 GHZ BAND Belonozhko M. A., Omelchenko A. A., Sviridenko V. I., Konoh I. F., Polyakov S. V., Makeenko I. V., Kurochkin L. B. ....	308
3.32	IMPLEMENTATION SPECIFICITY FOR WiMAX WIRELESS BROADBAND ACCESS TECHNOLOGY IN THE SHARED BANDS WITH SATELLITE SERVICE Kozel V. M., Kavaleou K. A., Gorbachev K. L. ....	310
3.33	TECHNICAL-ORGANIZATIONAL MEASURES ENSURING ELECTROMAGNETIC COMPATIBILITY WHILE INTRODUCING BROADBAND WIRELESS NETWORKS IN 3400-3900 MHz FREQUENCY BAND Kavaleou K. A., Gorbachev K. L., Kozel V. M. ....	312
3.34	DIGITAL IMAGES PROCESSING IN TELE-COMMUNICA-TION AND MICROWAVE COMMUNICATION SYSTEMS Belyaev R. V., Kolesov V. V., Popov A. M., Ryabekov V. I. ....	314
3.35	AUTOMATION AND THE FEATURES REGARDING SATELLITE COMMUNICATION NETWORK COORDINATION Kolomytsev M. A., Lipatov A. A. ....	316
3.36	TRAINING OF ITS NTUU "KPI" STUDENTS ON SATELLITE TELECOMMUNICATION SYSTEMS Kolomytsev M. A., Lipatov A. A., Mogilchenko N. A. ....	318
3.37	ANALYSIS OF EFFICIENCY OF DIGITAL IMAGE RESTORATION METHODS USING MATLAB CAD Mickhayluck Y. P., Nacharov D. V. ....	320
3.38	RASTR — WIRELESS SYSTEM FOR DIGITAL TV BROADCASTING WITHIN 6.17...6.425 GHz Omelchenko A. A., Belonozhko M. A., Sviridenko V. I., Gorbanov N. A., Makeenko I. V., Torubarov Y. V. ....	322
3.39	USING TWO-LEVEL MODULATION TECHNIQUE QAM-FM FOR RADIO LINK DIGITAL UPDATING Narytnik T. N., Voytenko A. G., Volkov V. V., Ibragimov O. M. ....	324
3.40p	MICROWAVE SYSTEM OF MULTISERVICE WIRELESS ACCESS Ilchenko M. Y., Kazimirenko V. Ya., Naritnik T. M. ....	326
3.41p	PECULIARITIES OF RELAY LINES MODERNIZATION IN UKRAINE Ilchenko M. Y., Kazimirenko V. Ya., Naritnik T. M., Volkov V. V. ....	327
3.42p	SINGLE-FREQUENCY TV NETWORK. BROADCASTING USING "BETA TV COM" EQUIPMENT Tarasov M. A., Laktionov A. I., Zayanchkovsky V. V., Gorbanov N. A. ....	328
3.43p	DIGITAL TV SIGNAL TRANSMITTER FOR MMDS SYSTEM Sviridenko V. I., Zayanchukovsky V. V., Gorbanov N. A. ....	330
3.44p	CENTRAL TELEPORT AS A COMPONENT OF TERRESTRIAL INFRASTRUCTURE OF NATIONAL SATELLITE COMMUNICATION SYSTEM Baluchev U. G., Pizuyk D. L. ....	332
3.45p	DIGITAL IMAGES PROCESSING AND TRANSMISSION IN THE UNIVERSITY MICROSATELLITE Bodyan D. G., Bodyan G. K., Sorokin G. F., Shestakova T. V. ....	334

## SESSIONS 3/4—3/5: INFORMATION TECHNOLOGIES IN TELECOMMUNICATIONS

INV.12	THE PROCESS OF INFORMATION PUBLICATION ON SCIENTIFIC ONLINE RESOURCES Alexeyev N. A., Utlik A. V. ....	339
INV.13	TOWARDS DEVELOPMENT OF WEB APPLICATIONS BASED ON USER INTERFACE SERVICES – A REQUIREMENT ANALYSIS Liebing Ch., Braun I., Pietschmann S., Schill A. ....	341
INV.14	FUNCTIONALITY OF WIRELESS NETWORK DESIGN TOOLS Luntovskyy A., Schill A. ....	343
INV.15	HARDWARE AND SOFTWARE METHODS APPLIED FOR HIGH-SPEED DIGITAL RECEIVERS DESIGN Putilin V. N., Zdorovtsev S. V. ....	346
3.46	THE MODEL OF DATASTREAM MANAGEMENT IN THE NETWORKS WITH PSEUDOWIRE EDGE-TO-EDGE SERVICES (PWE3) Skulysh M. A., Globa L. S. ....	348
3.47	INCREASING SAAS POSSIBILITIES BY USING COMPUTATION CLOUDS Caceres A., Alexeyev N. A., Donchenko U. P. ....	352
3.48	SOFTWARE FOR THE PLATFORM OF COMMUNICATION SERVICES PROVIDING. ENGINEERING APPROACH Lysenko D. S., Iermakova K. A. ....	354



<b>3.49</b>	<b>MOBILE TRANSACTIONS ORGANIZATION IN MOBILE SDR SYSTEM</b> Kurdecha V. V. ....	<b>356</b>
<b>3.50</b>	<b>APPROACH TO DATA PROCESSING IN INFORMATION-TELECOMMUNICATION ENVIRONMENT OF COMPLEX ADMINISTRATIVE SYSTEMS</b> Ternovoy M. Y., Shtogrina O. S. ....	<b>358</b>
<b>3.51</b>	<b>SERVICE ORIENTATION IN MIDDLEWARE COMPONENTS FOR SCALABLE SERVICE MARKETPLACES</b> Spillner J. ....	<b>360</b>
<b>3.52</b>	<b>OVERVIEW OF A MODEL-TO-CODE TRANSFORMATION APPROACH FOR GENERATING SERVICE-BASED INTERACTIVE APPLICATIONS FOR GOOGLE ANDROID</b> Feldmann M., Oleniuk V., Globa L., Schill A. ....	<b>362</b>
<b>3.53p</b>	<b>CHARGING PROBLEMS IN MOBILE NETWORKS</b> Dyadenko A. N., Reverchuk A. V., Popova I. M. ....	<b>365</b>
<b>3.54p</b>	<b>BUSINESS PROCESSES DEVELOPMENT IN DISTRIBUTED SYSTEMS</b> Iermolchev A. V., Oleniuk V. N. ....	<b>367</b>
<b>3.55p</b>	<b>COMPARATIVE ANALYSIS OF WEB-SITE CONTENT MANAGEMENT SYSTEMS</b> Alekshev N. A., Bondarenko V. Y. ....	<b>369</b>
<b>3.56</b>	<b>AN ANNOTATION TOOL FOR ENHANCING THE USER INTERFACE GENERATION PROCESS FOR SERVICES</b> Izquierdo P., Janeiro J., Hübsch G., Springer T., Schill A. ....	<b>372</b>
<b>3.57</b>	<b>BUSINESS PROCESSES MODELLING, TRANSFORMATION AND REALIZATION</b> Globa L., Kot T., Schill A., Strunk A. ....	<b>375</b>
<b>3.58</b>	<b>COMPARING EFFICIENCY OF PARALLEL CALCULATIONS IN MATLAB AND OPENMP</b> Alekshev N. A., Iermakova K. A., Kushnir V. V., Pingina N. V. ....	<b>377</b>
<b>3.59</b>	<b>P-CYCLE - METHOD APPLICATION FOR RESERVATION IN BUS NETWORKS OF MOBILE COMMUNICATION</b> Savochkin A. A., Evstigneev I. A., Voronkov A. A. ....	<b>380</b>
<b>3.60</b>	<b>INTELLIGENT SYSTEM FOR INFORMATION RECOGNITION SUPPORTING WIRELESS STANDARDS</b> Koleshko V. M., Sunka V. Y., Polynkova E. V., Vedmich V. V. ....	<b>382</b>
<b>3.61</b>	<b>NUMERICAL ALGORITHMS FOR LOCALLY-OPTIMAL PROCESSING OF SIGNALS AND SENSITIVITY CHARACTERISTIC</b> Ermolaev V. A., Kropotov Y. A., Proskuryakov A. Yu. ....	<b>384</b>
<b>3.62</b>	<b>LOCALLY-OPTIMAL PROCESSING OF DIGITAL SIGNALS</b> Bykov A. A., Ermolaev V. A., Kropotov Y. A. ....	<b>387</b>

# Contents — Volume 2

## SESSION 4/1: ANTENNA ARRAYS & ELEMENTS

INV.16	ANTENNA SYSTEMS FOR MOBILE SATELLITE APPLICATIONS Ilcev St. D. ....	393
4.1	DIGITAL MICROWAVE ANTENNA ARRAYS DESIGN FOR RADAR PURPOSES Shmachilin P. A. ....	399
4.2	DIGITAL ANTENNA ARRAY CALIBRAITION Bratchikov A. N., Dobychina E. M. ....	401
4.3	MULTIPATH SIGNALS BEARING IN HF WAVE BAND Ponomarev L. I., Vasin A. A. ....	403
4.4	ELECTROMAGNETIC WAVES SCATTERING ON A LATTICE OF DIELECTRIC RESONATORS Trubin A. A. ....	405
4.5	MICROWAVE SLOT ANTENNA ON DIELECTRIC RESONATORS Trubin A. A. ....	408
4.6p	MICROSTRIP PATCH ANTENNA WITH METALLODIELECTRIC ELECTROMAGNETIC CRYSTALS AS A SUBSTRATE Ustyantsev M. A., Churyumov G. I. ....	411
4.7p	ERRORS OF TARGET DETECTING USING TRIANGULATION METHOD IN RADAR WITH PHASED ANTENNA ARRAY Kondratieva S. G. ....	413
4.8p	SPACE-TIME PROCESSING FOR INTERFERENCE REJECTION IN ANTENNA SYSTEMS WITH WIDE RADIATION PATTERN Avdeyenko G. L., Yakornov E. A. ....	415
4.9p	DIGITAL BEAMFORMING MULTIBEAM ANTENNA ARRAY DESIGN Lyalin K. S., Chistuhin V. V., Oreshkin V. I., Chirkunova J. V. ....	417
4.10p	BROADBAND LOOP ANTENNA Golovin V. V., Tyschuk U. N., Luk'yunchikov A. V. ....	419
4.11p	STATISTICAL ANALYSIS OF RESONANCE FREQUENCY ERROR IN RECTANGULAR MICROSTRIP EMITTER Gorbach I. V., Duma M. G., Gorbach R. I. ....	421
4.12p	CIRCULAR GROOVE-TYPE ANTENNA WITH ROTARY POLARIZATION Mishoostin B. A., Slyozkin V. G. ....	423
4.13p	UNIPOLE RADIATION IN MAGNETIC CRYSTALS Sautbekov S. S., Kanymgazieva I. A. ....	425
4.14p	SELF-OSCILLATIONS IN THE ACTIVE ELECTRICAL VIBRATOR Zaitsev V. V., Karlov A. V., Hlopkov S. P. ....	427

## SESSION 4/2: ANTENNAS & ANTENNA ELEMENTS ANALYSIS

4.15	ANTENNA SYNTHESIS ON THE BASIS OF ANT OPTIMIZATION ALGORITHMS Ermolaev S. Y., Slyusar V. I. ....	431
4.16	ANTENNAS ON THE BASIS OF THE IRREGULAR STRUCTURES WITH DIFFERENT FRACTAL DIMENSION Kolesov V. V., Krupenin C. V., Belyaev R. V., Popov A. M. ....	433
4.17	PROBLEMS OF WIDEBAND WAVEGUIDE-SLOT ANTENNAS DESIGN Sekretarov S. S., Vavriv D. M. ....	435

4.18	NUMERICAL RESEARCHES OF RADIATING AND MATCHING PROPERTIES OF MICROSTRIP MULTIELEMENT PHASED ARRAY WITH ADEQUATE SIMULATION OF COAXIAL FEED LINES Kasyanov A. O., Obukhovets V. A. ....	437
4.19	EM-WAVES DISPERSION BY FLAT MICROSTRIP REFLECT ARRAY INCLUDING COMBINED RADIATORS. RESULTS OF NUMERICAL RESEARCH Kasyanov A. O., Kitayskiy M. S. ....	440
4.20	NEAR FIELDS OF COMBINED WAVEGUIDE-SLOT RADIATORS IN MATTER Berdnik S. L., Katrich V. A., Nesterenko M. V., Pshenichnaya S. V. ....	442
4.21	DESIGN AND REALIZATION OF PRINTED ANTENNA ARRAYS FOR RADIO LINK POINT-MULTIPOINT X-BAND Olleik Charif, Rammal Mohammad, Fadlallah Najib .....	444
4.22p	COLD PLASMA BASED LOOP ANTENNA Ovsyanikov V. V., Jakimenko S. V. ....	448
4.23p	CIRCULARLY POLARIZED HORN ANTENNA WITH MINIMIZED EFFECTIVE SCATTERING AREA Manoilov V. P., Pavluk V. V., Sidorchuk O. L. ....	450
4.24p	INVESTIGATION OF CHARACTERISTICS OF MICROWAVE ELECTROMAGNETIC WAVES HORN RADIATOR WITH CURVILINEAR GENERATING SHAPE Lepikh Ya. I., Karpenko A. A., Snegur P. A. ....	452
4.25p	5 GHz WIDEBAND MICROSTRIP ANTENNA DESIGN Ssorin V. N., Sevastyanov A. G., Maslennikov R. O., Artemenko A. A. ....	454
4.26p	RADIATION FIELD OF H-PLANE SECTORIAL HORN Ilnitsky L. Y., Sak V. S. ....	456
4.27p	ANALYSIS OF TECHNOLOGICAL ERRORS AT PRODUCTION OF RECTANGULAR RESONANCE MICROSTRIP ANTENNA Gorbach I. V. ....	458
4.28p	SPATIALLY-FREQUENCY COHERENCE OF RADIATION FIELD IN APERTURE ANTENNAS Lobkova L. M., Golovin V. V., Troitsky A. V. ....	460
4.29p	INTEGRAL EQUATION METHOD FOR ANALYZING WIRE ANTENNAS COATED BY A LAYER OF IDEAL MAGNETIC Demidchik V. I., Kornev R. V. ....	462
4.30p	FIELD AMPLITUDE DISTRIBUTION IMPACTING THE EXTENTION OF NEAR-FIELD REACTIVE REGION IN APERTURE RADIATORS Gorobets N. N., Ovsyannikova E. V., Shishkova A. V. ....	464
4.31p	INFLUENCE OF CONDUCTOR CURVATURE UPON ITS DIRECTIONAL CHARACTERISTICS IN THE FAR- AND NEAR-FIELD ZONES Gorobets N. N., Trivaylo A. V. ....	466

## SESSION 5/1: PASSIVE DEVICES

INV.17	MULTI-OCTAVE DEVICES FOR INCIDENT AND REFLECTED MICROWAVES SEPARATION Andronov E. V., Goshin G. G., Morozov O. J., Fateev A. V. ....	471
5.1	DESIGN OF SMALL-SIZE BANDPASS FILTERS ON MAGNETOSTATIC SPIN WAVES IN UHF BAND Popina S. M., Simanchuk B. P., Spirin L. A., Chechetin A. V. ....	473
5.2	METHOD FOR DUAL-BAND SPMT SWITCHES CALCULATION Oborzhytskiy V. I. ....	475
5.3	COMPLEX ANALYSIS OF Ku-BAND DIELECTRIC RESONATOR FILTERS FOR 50-100 W APPLICATIONS Bunin A. V., Vishnyakov S. V., Gevorkyan V. M., Kazantsev J. A., Mikhailin S. N., Polukarov V. I. ....	477
5.4	DESIGN OF MONOLITHIC W-BAND SPST DIODE SWITCH, MOUNTED IN E-PLANE OF THE WAVEGUIDE WITH "DUMBBELL" CROSS-SECTION Sychev A. N., Putilov V. N. ....	479
5.5	MODE SELECTION OF "WHISPERING GALLERY" KIND IN DIELECTRIC CIRCULAR DISK RESONATOR Belous O. I., Sukhoruchko O. N., Fisun A. I. ....	482
5.6	WAVEGUIDE T-BRANCHING WITH MATCHING RESONATOR Mizernik V. N., Shmat'ko A. A. ....	484

5.7	THE STUDY OF MATCHED COAXIAL MICROWAVE ADAPTER OF INSTRUMENTAL GRADE Andronov E. V., Glazov Gen. N., Goshin G. G., Morozov O. J., Fateev A. V. ....	486
5.8	DISCRETE ATTENUATOR WITH PARALLEL CONNECTION OF CELLS – THE WAY FOR DYNAMIC RANGE EXPANSION WITHOUT DETERIORATION OF RADAR-TRACKING RECEIVER SENSITIVITY Prinin A. V. ....	488
5.9	EXCITATION OF $TE_{01}$ WAVE MODE IN THE FRAGMENT OF COAXIAL LINE BEING A PART OF OPEN RESONATOR Popkov A. Yu. ....	490
5.10p	MICROWAVE SIGNAL PARAMETRIC TRANSFER VIA RADIO CHANNEL USING RUNNING WAVE RESONATOR Rjabchij V. D., Safonov V. V., Taran E. A. ....	492
5.11p	COMPARING COMPUTED AND EXPERIMENTAL CHARACTERISTICS OF WAVEGUIDE-DIELECTRIC RESONATOR Bilous I. O., Motornenko A. P., Skuratovskiy I. G., Hazov O. I. ....	494
5.12p	KALEIDOSCOPIIC TYPE WAVE SPLITTER INVARIANTS Rudnitsky A. S. ....	496

## SESSION 5/2: MICROSTRIP DEVICES

INV.18	NEW DESIGNS OF MICROWAVE BSF STRUCTURE Babushkina O. A., Golovkov A. A., Pivovarov I. U. ....	501
5.13	NARROWBAND STRIPLINE FILTER ON SUSPENDED SUBSTRATE Belyaev B. A., Izotov A. V., Leksikov A. A., Serzhantov A. M., Sukhin F. G. ....	503
5.14	WAVEGUIDE-MICROSTRIP TRANSITION FOR 60 GHz FREQUENCY BAND Artemenko A. A., Maslennikov R. O., Sevastyanov A. G., Ssorin V. N. ....	505
5.15	MICROSTRIP FREQUENCY-SEPARATING DEVICE ON TRAVELLING-WAVE RING RESONATORS Glushechenko E. N. ....	507
5.16	ANALYSIS OF U-SHAPED SLOT RESONATORS IN MICROSTRIP LINE GROUND PLANE Rassokhina Yu. V., Krizhanovski V. G. ....	509
5.17	MICROSTRIP PROTECTOR Belyaev B. A., Leksikov A. A., Serzhantov A. M., Govorun I. V. ....	511
5.18	RESONANT IRIS WITH THE SLOT ARBITRARY ORIENTED IN RECTANGULAR WAVEGUIDE Nesterenko M. V., Katrich V. A., Dumin A. N., Kiiiko V. I. ....	513
5.19	INVERTED STRIP DIELECTRIC GUIDE WITH METAL PLANE Mayboroda D. V., Pogarsky S. A., Saprykin I. I., Sukhov V. N., Phenichnaya S. V. ....	515
5.20	INVESTIGATION OF COUPLING COEFFICIENTS OF STRIPLINE RESONATORS IN THE FILTER BASED ON SUSPENDED SUBSTRATE Bal'va Y. F., Serzhantov A. M., Voloshin A. S. ....	517

## SESSION 5/3: SHF-DEVICES BASED ON NEW PHYSICAL PRINCIPLES

5.21	MICROWAVE PHOTONIC CRYSTALS WITH TRANSMITTANCE CONTROLLED BY PIN-DIODES Usanov D. A., Skripal A. V., Abramov A. V., Bogolubov A. S., Skvortsov V. S., Merdanov M. K. ....	521
5.22	TUNABLE MICROWAVE FILTERS WITH UNCOUPLED DIELECTRIC RESONATORS Pratsiuk B. B., Prokopenko Y. V., Poplavko Yu. M. ....	523
5.23	FORCED OSCILLATIONS IN DIELECTRIC SPHERE AT EXCITATION BY RING MODULATED CURRENT Dormidontov A. V., Prokopenko Yu. V., Filipov Yu. F. ....	525
5.24	ANALOG PIN-ATTENUATORS UPDATE Soskov Yu. A., Parlikov V. I. ....	527
5.25	ELECTRICALLY-TUNABLE MICROWAVE ATTENUATOR ON THE BASIS OF FERRITE-PIEZOELECTRIC LAYERED STRUCTURE Tatarenko A. S., Srinivasan G., Bichurin M. I. ....	529
5.26	SURFACE MAGNETOSTATIC WAVES IN BOUNDED ONE-DIMENSIONAL FERRITE STRUCTURES Beginin E. N., Morozova M. A. ....	531

## SESSION 5a/1: SEMICONDUCTOR MATERIALS TECHNOLOGY

5a.1	INVESTIGATION OF CIRCUIT DIAGRAM IN METAL-SEMICONDUCTOR CONTACTS WITH SCHOTTKI BARRIER USING THE METHOD OF ATOMIC FORCE Bozhkov V. G., Torkhov N. A., Novikov V. A., Ivonin I. V. ....	535
5a.2	NEGATIVE TEMPERATURE COEFFICIENT OF BREAKDOWN VOLTAGE IN THE Au-Ti-n-n <sup>+</sup> 6H SiC SCHOTTKY-BARRIER DIODES Belyaev A. E., Boltovets N. S., Konakova R. V., Krivutsa V. A., Kudryk Ya. Ya., Lebedev A. A., Abramov P. L., Lebedev S. P., Milenin V. V. ....	537
5a.3	INFLUENCE OF SEMICONDUCTOR SURFACE POTENTIAL ON THE EFFICIENCY OF CONDUCTING CAPACITY IN ME/N-GaAs CONTACTS WITH SHOTTKY BARRIER Torkhov N. A., Bozhkov V. G. ....	540
5a.4	INFLUENCE OF INTERFACE FRACTAL GEOMETRY ON ANOMALOUS BEHAVIOUR OF CAPACITY-VOLTAGE CHARACTERISTIC OF METAL-SEMI-CONDUCTOR CONTACTS WITH SHOTTKY BARRIER Torkhov N. A. ....	542
5a.5	INFLUENCE OF INTERFACE FRACTAL GEOMETRY ON ANOMALOUS BEHAVIOUR OF VOLT-AMPERE CHARACTERISTIC OF METAL-SEMICON-DUCTOR CONTACTS WITH SHOTTKY BARRIER Torkhov N. A. ....	544
5a.6	SIMULATION OF NOISE FACTOR IN GaN FIELD TRANSISTORS USING MONTE CARLO TECHNIQUE Murav'ev V. V., Tamelo A. A., Mishenko V. N., Molodkin D. F. ....	546
5a.7	THE INFLUENCE OF INVERSION CHANNEL DEFECT ON SILICON MOS-STRUCTURE CURRENT PARAMETERS Smyntyna V. A., Kulinich O. A., Yatsunskiy I. R., Glauberman M. A., Sviridova O. V. ....	548
5a.8	FRACTAL GEOMETRY OF RELIEFS AND SURFACE POTENTIALS IN EPITAXIAL GALLIUM ARSENIDE AND BARRIER METALLIZATION Torkhov N. A., Bozhkov V. G., Novikov V. A., Ivonin I. V. ....	550
5a.9	SIMULATION OF CARRY PROCESSES AND ELECTRONIC PROPERTIES OF INDIUM ANTIMONIDE SEMICONDUCTORS Murav'ev V. V., Tamelo A. A., Mishenko V. N., Molodkin D. F. ....	552
5a.10	DEVELOPMENT OF ETCH LIQUID PROCESSES OF COMPLEX PROFILE SILICON ELEMENTS FOR VHF-DEVICES Timoshenkov S. P., Kalugin V. V., Klochko A. V., Kalugina I. V. ....	554

## SESSION 5a/2: MICROWAVE MICROSCOPY

5a.11	SCANNERS FOR NEAR-FIELD MICROWAVE MICROSCOPY Derkach V. N., Golovashchenko R. V., Goroshko O. V., Korzh V. G., Anbinderis T., Laurinavicius A. ....	559
5a.12	RADIATING LOSSES INFLUENCE ON CHARACTERISTICS OF MICROWAVE RESONATOR MEASURING CONVERTERS WITH COAXIAL APERTURE Gordienko Yu. Ye., Good Yu. I., Poletaev D. A. ....	561
5a.13	SYSTEMS OF INFORMATION SIGNALS SHAPING IN CAVITY MICROWAVE MICROSCOPY Bondarenko I. N., Gordienko U. E., Larkin S. J. ....	563
5a.14	NEAR-FIELD MICROWAVE PROBE ON THE BASIS OF CONE COAXIAL RESONATOR Gordienko Y. E., Slipchenko N. I., Yatskiv A. M. ....	565
5a.15	TRANSFORMATION OF GAUSSIAN BEAM POLARIZATION BY METAMATERIAL LAYER Odarenko E. N., Svich V. A., Smat'ko A. A. ....	567

## SESSION 5a/3: MATERIALS INVESTIGATION

5a.16	ALUMINUM OXIDE TECHNOLOGY FOR CREATION OF MM-BAND DEVICES ON THE BASIS OF NANOPOROUS OXIDE Sokol V. A., Parkun V. M., Tamelo A. A., Molodkin D. F. ....	571
5a.17	ALUMINUM BASED MICROSTRIP TRANSMISSION LINES Sokol V. A., Demchenko A. I., Vecher D. V., Bez'yazychnaya A. V. ....	573
5a.18	LTCC AND LCP TECHNOLOGY APPLICATION IN DESIGN OF MICROWAVE DEVICES ON THE BASIS OF METAMATERIALS Osyphchuk S. O., Isnyuk T. V., Shelkovnikov B. N. ....	575

5a.19	HIGH CONDUCTIVE COMPOSITES (DIAMOND-SILICON CARBIDE) FOR HEAT SINKING IN MICROWAVE ELECTRONICS Gordeev S. K., Korchagina S. B. ....	577
5a.20	EFFECTIVE PARAMETERS OF COMPOSITE MATERIALS ON THE BASIS OF CONDUCTIVE FIBERS OF ARBITRARY SHAPE Demidchik V. I., Kornev R. V., Semenchik V. G. ....	579
5a.21	RESEARCH OF THE VOLT-WATT SENSITIVITY OF METAL-SEMIMETAL BiSb CONTACT DETECTORS OF MICROWAVE RADIATION, DEPENDING ON CONTACT GEOMETRY Plaksey V. T., Arkhipov A. V., Prokhorov E. D., Dyadchenko A. V., Chuyeshkov D. P. ....	581
5a.22	INVESTIGATION OF PHASE TRANSITION NATURE IN ZnS CRYSTALS Kovalenko A. V., Omelchenko S. A., Bulanyi M. F. ....	583
5a.23	FERRITE PEROVSKITE COMPOSITE MATERIALS FOR CORRECTION OF RADIATING SYSTEMS' PARAMETERS Demyanchuk B. A., Savin S. N., Volyuvach O. V. ....	585
5a.24	RESONATOR FOR MM-BAND TUNABLE FILTER WITH MEMORY EFFECT Chamor T. G., Chevnyuk L. V., Danilov V. V., Kostenko V. I., Mykhailyuk V. G., Nechyporuk A. Y., Sorochak A. M. ....	587
5a.25	INFLUENCE OF STRONG ELECTROLYTE ON CHARACTERISTICS OF DOUBLE-LAYERED ELECTROMAGNETIC SHIELDS WITH GEL-POWDER FILLERS Golovataya S. V., Kovaltchouk N. V., Kolbun N. V., Poznyak A. A. ....	589
5a.26p	EM WAVE DIFFRACTION ON A FLAT SLAB OF BIISOTROPIC MATERIAL Erofeenko V. T., Maly S. V. ....	591
5a.27p	ENHANCEMENT OF ELECTRICAL AND CHEMICAL SURFACE PROPERTIES OF TITANIUM AND IRON-CARBON ALLOYS IRRADIATED WITH A LOW-ENERGY INTENSE PULSED ELECTRON BEAM Markov A. B., Reuther H., Shevchenko N., Kolitsch A. ....	593
5a.28p	CALCULATION OF MASS CHANGE OF CARBON-FIBER REINFORCED PLASTIC ELEMENTS OF ANTENNAE AND MF DEVICES IN SPACECRAFTS BY PRODUCING THEIR OWN DISTURBANCES Shatikhin V. E., Semenov L. P., Ol'shevs'kiy O. L., Khoroshilov V. S., Popel' P. V. ....	595

## SESSION 5b/1: NANOTECHNOLOGY & NANOMATERIALS

INV.19	MATRIXES OF FIELD EMISSION CATHODES BASED ON CARBON NANOTUBES IN POROUS ANODIC ALUMINA Solovei D. V., Sakharuk V. N., Navitski A. M., Gorokh G. G., Mueller G. ....	601
5b.1	SUPERCONDUCTING QUANTUM ELEC-TRONICS BASED ON STOCHASTIC RESONANCE SYSTEMS Turutanov O. G., Shnyrkov V. I., Melnik S. I., Slipchenko N. I., Larkin S. J. ....	605
5b.2	TERBIUM PHOTOLUMINESCENCE IN BARIUM-STRONTIUM TITANATE FABRICATED IN POROUS ANODIC ALUMINIUM OXIDE Kim ThaeK Won, Gaponenko N. V. ....	607
5b.3	FORMING OF POROUS ALUMINA WITH TUBULAR STRUCTURE BY ANODIZING IN MENISCAL REGION Sasinovich D. A., Orekhovskaya T. I., Kupreyeva O. V., Lazarouk S. K., Borisenko V. E. ....	609
5b.4	NANOSTRUCTURED POROUS SILICON FORMATION FOR COMBUSTION AND EXPLOSION PROCESSES Lazarouk S. K., Dolbik A. V., Labunov V. A. ....	611
5b.5	PHOTOLUMINESCENCE OF POROUS ANODIC ALUMINA FILMS WITH TERBIUM INCORPORATED BY DIPPING Gaponenko N. V., Prislowski S. Y., Molchan I. S., Thompson G. E. ....	613
5b.6	NANOTECHNOLOGY OF Mn <sub>4</sub> Si <sub>7</sub> EPITAXIAL FILM FORMATION ON MONOCRYSTALLINE SILICON Makogon Yu. N., Pavlova E. P., Sidorenko S. I., Beddies G. ....	615
5b.7	INVESTIGATION OF PHASE TRANSITION IN GERMANIUM-SILICATE GLASSES FORMED AS THE RESULT OF OXIDATION OF GE-DOPED POLYCRYSTALLINE SILICON Kovalevsky A. A., Strogova A. S., Plyakin D. V., Strogova N. S. ....	617
5b.8	PIEZORESISTANCE EFFECT IN CARBON NANOTUBES Lyapkosova O. S., Lebedev N. G. ....	619

5b.9	INJECTED CHARGE DISTRIBUTION IN THIN FILMS OF POLYMETHYLMETHACRYLATE Smolar V. A., Sitnikov A. S. ....	621
5b.10	LOCALIZED STATES OF NANODIMENSIONAL SEMICONDUCTOR STRUCTURES Mazinov A. C., Bahov V. A., Nazderkin E. A. ....	623
5b.11p	STRUCTURE OF FILMS OBTAINED AS THE RESULT OF OXIDATION AND THERMAL TREATMENT OF NANOSTRUCTURED POLYCRYSTALLINE SILICON DOPED BY GERMANIUM Kovalevsky A. A., Strogova A. S., Plyakin D. V. ....	625
5b.12	FORMING OF GERMANIUM NANOCLUSTERS IN THE FILMS OF GERMANOSILICATE GLASS Kovalevsky A. A., Strogova A. S., Plyakin D. V. ....	627
5b.13p	TECHNOLOGICAL MICROWAVE PLASMA MODULE FOR REACTIVE-ION ETCHING OF ELECTRONIC DEVICES IN DUAL-FREQUENCY DISCHARGE Bordusov S. V., Dostanko A. P. ....	629
5b.14p	QUANTUM NANOSENSOR FOR COSMIC MICROPARTICLES CONTROL Koleshko V. M., Gulay A. V., Gulay V. A. ....	631

## SESSION 5b/2: NANOELECTRONICS & QUANTUM DEVICES APPLICATION

INV.20	NONEQUILIBRIUM BOUNDARY EFFECTS IN QUANTUM DEVICES Obukhov I. A., Kvjatkevich I. I. ....	635
5b.15	ACCOUNTING OF SPATIAL QUANTIZATION AT SIMULATION OF METALLIC AND SEMICONDUCTOR SINGLE-ELECTRON TRANSISTORS Abramov I. I., Baranoff A. L. ....	640
5b.16	THE INFLUENCE OF X-VALLEY BARRIER HEIGHT AT CALCULATION OF IV-CHARACTERISTICS OF GaAs/AIAs BASED RTD Abramov I. I., Goncharenko I. A., Kolomejtseva N. V., Bely Y. L. ....	642
5b.17	CALCULATION OF MICROWAVE POWER, RADIATED BY MAGNETIC NANOSTRUCTURES INTO FREE SPACE, WAVEGUIDES, AND RESONATORS Prokopenko A. V., Melkov G. A., Tiberkevich V. S., Slavin A. N. ....	644
5b.18	ELECTRON CURRENT DENSITIES AT TRANSITION THROUGH NON-STATIONARY MAGNETIC TUNNEL JUNCTION Abdulkadyrov D. V., Beletskii N. N. ....	646
5b.19	ELECTRON TRANSPORT IN GaAs/AIAs QUANTUM WIRE TRANSISTOR STRUCTURE IN PERIODICAL ELECTRIC FIELD Borzdov A. V., Pozdnyakov D. V., Borzdov V. M. ....	648
5b.20	SIMULATION OF ELECTRON TRANSPORT IN SINGLE-WALL METALLIC CARBON NANOTUBES IN MICROWAVE FIELD Pozdnyakov D. V., Borzdov V. M. ....	650
5b.21	HIGH FREQUENCY CHARACTERISTICS OF MIM CAPACITORS WITH NANOSTRUCTURED ANODIC OXIDE DIELECTRICS Mozalev A. M., Plihaika A. N., Luferov A. N., Popichev E. L. ....	653
5b.22	HIGH EFFICIENT MSM-PHOTODETECTORS Collin St., Pardo F., Averin S., Bardou N., Pelouard J.-L. ....	655
5b.23	INTERMODULATION PARAMETERS FOR THE MIXER WITH RESONANT-TUNNELING DIODE Ivanov U. A., Meshkov S. A., Fedorkova N. V., Fedorenko I. A. ....	657
5b.24	SOLUTION OF SELF CONSISTENT SCHRÖDINGER AND POISSON EQUATIONS FOR DOUBLE PHOTON TRANSITION IN TRIPLE-BARRIER STRUCTURES Pashkovskii A. B. ....	659
5b.25p	CALCULATION OF METALLIC SINGLE-WALL CARBON NANOTUBES CONDUCTIVITY Pozdnyakov D. V. ....	661
5b.26p	SAFETY PROBLEMS IN NANOTECHNOLOGY Lomonosov D. B., Shnitnikov A. S. ....	663
5b.27p	PARTICLES DELOCALIZATION IN NANOSTRUCTURES WITH COMPLEX ENERGY PROFILE UNDER THE ACTION OF EXTERNAL PERTURBATION Pashchenko A. G. ....	665
5b.28p	CALCULATION OF POST-SOLID STATE ELECTRONS ENERGY SPECTRUM USING MONTE CARLO METHOD Erin A. I., Smolyar V. A. ....	667

5b.29p	NUMERICAL INVESTIGATION OF DIPOLE-EXCHANGE SPIN EXCITATIONS IN NICKEL NANOWIRES Zavislyak I. V., Popov M. A. ....	669
5b.30p	GALLIUM NITRIDE RESONANT TUNNELLING DIODE Goncharuk N. M., Karushkin N. F. ....	671

## SESSION 6/1: PHYSICAL PHENOMENA IN VERY HIGH POWER MICROWAVE ELECTRONICS

6.1	PARAMETRIC INSTABILITY IN OSCILLATOR WITH DELAYED LOAD REFLECTION Novozhilova Yu. V., Sergeev A. S. ....	675
6.2	THE THEORY OF PLASMA-BEAM SUPERHETERODYNE FREE ELECTRON LASER WITH H-UBITRON PUMPING Kulish V. V., Lysenko A. V., Koval V. V. ....	677
6.3	PULSE POWER SOURCES FOR SUBRELATIVISTIC MAGNETRON Berdin S. A., Zagvozdkin B. V., Karelin S. Yu., Mukhin V. S., Magda I. I., Naboka A. M., Soshenko V. A. ....	679
6.4	TERAHERTZ BAND FEL WITH ADVANCED BRAGG REFLECTORS Gimzburg N. S., Zaslavsky V. Yu., Zotova I. V., Malkin A. M., Peskov N. Yu., Sergeev A. S. ....	682
6.5	DISTRIBUTED COMPUTATION OF SPACE CHARGE FIELD OF RELATIVISTIC ELECTRON BEAM Zaharchenko S. V., Shein A. G. ....	684
6.6	LEADER DISCHARGE AS AN INITIATOR OF LONG-LIVING PLASMA FORMATION Khorunzhiy M. O., Yefimov B. P., Kuleshov A. N. ....	686
6.7	TRANSITION RADIATION SPECTRA CONTROL Bolotov V. N. ....	688

## SESSION 6/2: CHAOTIC OSCILLATIONS & CHAOS GENERATORS

6.8	DIAGNOSTICS OF GENERALIZED SYNCHRONIZATION IN MICROWAVE RANGE Koronovskii A. A., Hramov A. E., Starodubov A. V. ....	695
6.9	TIME-DELAYED GENERATORS APPLICATION FOR SECURE INFORMATION TRANSMISSION ON THE BASIS OF GENERALIZED SYNCHRONIZATION Koronovskii A. A., Moskalenko O. I., Ponomarenko V. I., Prokhorov M. D., Hramov A. E. ....	697
6.10	INFLUENCE OF ELECTRON TEMPERATURE VELOCITY DISTRIBUTION ON CHAOTIC DYNAMICS OF ELECTRON BEAM WITH VIRTUAL CATHODE Kurkin S. A., Koronovskii A. A., Hramov A. E., Lyovin Yu. I. ....	699
6.11	WIDE-BAND CHAOTIC OSCILLATIONS CONTROL IN ELECTRON BEAM WITH VIRTUAL CATHODE IN NON-UNIFORM MAGNETIC FIELD Kurkin S. A., Koronovskii A. A., Magda I. I., Hramov A. E. ....	701
6.12	INITIATION AND SUPPRESSION OF CHAOTIC GENERATION IN THE CHAIN OF GYRO-BACKWARD WAVE TUBE Hanenko M. V., Koronovskii A. A., Hramov A. E. ....	703
6.13	THEORETICAL AND NUMERICAL INVESTIGATION OF EXTERNAL NOISES INFLUENCING BACKWARD WAVE TUBE DYNAMICS Hanenko M. V., Hramov A. E., Koronovskii A. A. ....	705
6.14	INVESTIGATION OF ULTRA BROADBAND CHAOTIC SIGNALS GENERATED BY MICROWAVE OSCILLATOR BASED ON VIRTUAL CATHODE WITH ELECTRONIC FEEDBACK Kalinin Yu. A., Starodubov A. V. ....	707
6.15	LEGITIMATE SIGNAL SEPARATION USING STOCHASTIC RESONANCE METHOD Kharchenko O. I., Chumakov V. I. ....	709
6.16	RESEARCH OF EXTERNAL NOISE EFFECTING UPON OSCILLATIONS OF KLYSTRON ACTIVE OSCILLATOR Dmitriev B. S., Zharkov Yu. D., Skorokhodov V. N., Stepanov A. O. ....	711
6.17	CHAOTIC MW PULSE GENERATOR ON THE BASIS OF AMPLIFIER KLYSTRON AND NONLINEAR MAGNETOSTATIC WAVE DELAY LINE Grishin S. V., Dmitriev B. S., Zharkov Yu. D., Skorokhodov V. N., Sharaevsky Yu. P. ....	713



## SESSION 6a: EM AND RADIATION RESISTANCE OF MATERIALS & ELECTRONIC COMPONENT BASE

INV.21	SHEMATIC METHODS OF ENHANCING RADIATION HARDNESS OF CMOS LSI Shwedov S. V. ....	717
INV.22	HARDNESS OF MICROWAVE AMPLIFIERS BASED ON SILICON-GERMANIUM HETEROSTRUCTURES Gromov D. V., Elesin V. V., Chukov G. V., Repin V. V. ....	719
6a.1	PREDICTION OF RADIATION RESISTANCE OF CMOS INTEGRATED MICROCIRCUITS Korshunov F. P., Bogatyrev Yu. V., Belous A. I., Shwedov S. V., Lastovsky S. B., Karas V. I., Kulgachev V. I. ....	721
6a.2	INFLUENCE OF DESIGN AND TECHNOLOGICAL FACTORS ON RADIATION STABILITY OF BIPOLAR AND MDS INTEGRATION CHIPS Aleksyev V. F., Piskun G. A. ....	724
6a.3	RADIATION EFFECTS IN BIPOLAR TRANSISTORS BASED ON SILICON-GERMANIUM HETEROSTRUCTURES Gromov D. V., Elesin V. V., Chukov G. V., Repin V. V. ....	726
6a.4	INVESTIGATION OF RADIATION-STABLE ELEMENTS OF CMOS VLSI ON SOI SUBSTRATES Demchenko A. I., Syakersky V. S., Shvedov S. V., Bondarenko V. P., Dolgyi L. N., Bogatyrev Yu. V. ....	728
6a.5	TEST AND MEASUREMENT SYSTEM FOR MICROWAVE SEMICONDUCTOR DEVICES AND IC INVESTIGATION ON RADIATION HARDNESS Gromov D. V., Polevich S. A., Elesin V. V. ....	730
6a.6	ESTIMATION OF SYNCHRONIZATION INFLUENCE ON VHF OSCILLATORS SUSCEPTIBILITY TO EXTERNAL EFFECTS Ashames A. O., Brigidin A. M. ....	732
6a.7	THE INFLUENCE OF INTERELECTRODE CAPACITY ON MESFET STABILITY AT THE IMPACT OF PULSED EM-FIELD Unzhakov D. A., Zuyev S. A., Gribskij M. P., Starostenko V. V., Glumova M. V. ....	734
6a.8	FORECASTING IC STABILITY AT THE EFFECT OF POWER PULSE ELECTROMAGNETIC FIELD Glumova M. V., Gribskij M. P., Grigorev E. V., Starostenko V. V., Taran E. P., Unzhakov D. A. ....	736

## SESSION 7/1: MEASUREMENT OF MICROWAVE DEVICES & SIGNALS

7.1	NEW MEASURING CAPABILITIES OF CK-BELAN 240/280 SPECTRUM ANALYZER Belchikov S. A., Dzisiak A. B. ....	741
7.2	ULTRA LOW PHASE NOISE IN CK4-BELAN 240 SPECTRUM ANALYZER Belchikov S. A., Dzisiak A. B. ....	744
7.3	INCREASING OF PHASE SHIFT MEASURING ACCURACY BY SIGNAL PROCESSING AT HIGH INTERMEDIATE FREQUENCY Avdeyenko G. L., Veselova A. P., Voytko Y. N., Mazurenko A. V., Yakornov E. A. ....	746
7.4	MEASURING DEVICE OF COMPLEX VSWR OF MILLIMETER WAVES BY THE EXAMPLE OF 8-PORTS CIRCUIT Trushkin A. N. ....	748
7.5	FREQUENCY COUNTERS FOR MILLIMETER AND SUBMILLIMETER WAVELENGTHS Nosov V. I. ....	750
7.6	METROLOGICAL CHARACTERISTICS OF MICROWAVE MULTIPROBE MULTIMETER Volkov V. M., Zaichenko O. B. ....	752
7.7	INSTRUMENTATION FOR NONLINEAR DISTORTION MEASUREMENTS UNDER WIDEBAND PULSE PROBING Loschilov A. G., Semyonov E. V., Maljutin N. D., Bombizov A. A., Pavlov A. P., Bibikov T. H., Iljin A. A., Gubkov A. A., Maljutina A. N. ....	754
7.8	TWO-PORT NETWORKS COMPLEX PARAMETERS MEASURER ON THE BASIS OF TRAVELING WAVES RESONATOR Salamatin V. V., Lemeshko G. V., Lukyanchuk G. A. ....	756
7.9p	PHASE NOISE DECREASING IN CK4-BELAN 32 SPECTRUM ANALYZER Belchikov S. A., Dzisiak A. B. ....	758

7.10p	POWER TRANSDUCERS FOR SLOTTED-GUIDE CONVERTERS OF MICROWAVE BAND Lashchenko I. V., Noskovich V. I., Ovcharov P. P. ....	760
7.11p	FAULTY ELEMENT DETERMINATION IN MICROWAVE PATH OF RADIO SYSTEM Afonin I. L., Bugayov P. A. ....	762

## SESSION 7/2: MEASUREMENT OF MATERIALS & SUBSTANCES

7.12	MICROWAVE COMPLEX FOR THE MEASUREMENT OF ANISOTROPIC DIELECTRICS' PARAMETERS Strizhachenko A. V., Chizhov V. V., Ivanov A. I., Andreyev V. B., Zvyagintsev A. A. ....	767
7.13	MEASUREMENT OF DIELECTRIC FILMS' MICROWAVE PARAMETERS Pashkov V. M., Bovtun V. P., Prokopenko Y. V., Kempa M., Molchanov V. I., Eremenko A. V., Poplavko Yu. M. ....	769
7.14	RADIALLY TWO-LAYERED SPHERE AS PERMITTIVITY SENSOR OF THE SURROUNDINGS Kirichenko A. Ya., Prokopenko Yu. V., Suvorova O. A., Filipov Yu. F. ....	771
7.15	PECULIARITIES OF SWITCHING FREQUENCY ALLOCATION IN MEASURING CHANNEL OF SWITCHED RADIOMETER Yanenko A. F., Krasiuk A. D., Kolisnychenko M. V., Peregudov S. M., Skrynnyk S. A. ....	773
7.16	SENSORS WITH BICONICAL MICROWAVE CAVITY FOR DIELECTRIC CHARACTERIZATION Drobakhin O. O., Zabolotny P. I., Saltikov D. Y., Gorev N. B. ....	775
7.17	MODELING OF AEROIONS SENSOR FIELD Korenovskaya O. L., Manoylov V. F., Martinchuk P. P. ....	777

## SESSION 7/3: MEASUREMENT APPLICATIONS

7.18	MEASUREMENT OF MICROWAVE DEVICE NOISE FIGURE Belchikov S. A., Dzisiak A. B. ....	781
7.19	VARIABLE-TEMPERATURE MICROWAVE CRYOGENIC NOISE SOURCE Skulachev D. P. ....	784
7.20	BAND-PASS FILTER WITH MAGNETIC CONTROL BASED ON WAVEGUIDE PHOTONIC STRUCTURE Launets V. L., Oliynyk V. V. ....	787
7.21	TRACE CONTAMINANT DETECTION IN AQUEOUS SOLUTIONS USING THE METHOD OF CAPILLARY-WAVEGUIDE RESONANCE Kirichenko A. Ya., Krivenko H. V., Lutsenko V. I. ....	789
7.22	AUTOMATED SYSTEM OF QUASIOPTICAL POLARIMETRIC MICRO-COMPACT RANGE Kiseliov V. K., Mizrakhi S. V. ....	791
7.23	DESIGN OF NONELECTRODE MICROWAVE-BIASED RADIATION DETECTORS Gordienko Y. E., Borodin B. G., Soroka A. S. ....	793
7.24	COMPENSATORY PROPERTIES OF TRAVELING-WAVE RESONATORS WITH ACTIVE ELEMENTS Bondarenko I. N., Tkachenko O. N. ....	795
7.25	RESONATOR MEASUREMENTS OF SUPERCONDUCTOR SURFACE IMPEDANCE PROVIDED OSCILLATIONS DEGENERATION REMOVAL Barannik A. A., Glamazdin V. V., Skresanov V. N., Cherpak N. T. ....	797
7.26p	TWO CHANNEL AC AMPLIFIER WITH ANTIPHASE CONTROL OF TRANSFER FACTOR Prokopenko N. N., Konev D. N., Serebriakov A. I. ....	799
7.27p	A WELL-POSED MATHEMATICAL MODEL OF RADIOMETER AND ITS EXPERIMENTAL EMBODIMENT WITH NOISE HETERODYNE Sergienko S. P. ....	801

## SESSION 8/1: RADAR SYSTEMS & APPLICATIONS

8.1	THERMAL PROCESSES EFFECTING UPON WAVEFORM SHAPING IN AUTODYNE GUNN DIODE OSCILLATORS Noskov V. Ya., Smolskiy S. M. ....	805
8.2	DEVICES FOR AUTODYNE SIGNALS REGISTRATION IN GUNN DIODE OSCILLATORS Noskov V. Ya., Smolskiy S. M. ....	809

8.3	<b>OPERATION PRINCIPLE OF INTRO-PULSE AUTODYNE FM SRR</b> Noskov V. Ya., Smolskiy S. M. ....	813
8.4	<b>DIOUBLE-CHANNEL RADIO-PULSE SHORT-RANGE RADAR ON GUNN DIODE</b> Ivanov V. A., Noskov V. Ya., Smolskiy S. M. ....	817
8.5	<b>MILLIMETER BAND SURVEILLANCE AUTODYNE RADAR</b> Ermak G. P., Varavin A. V., Vasilev A. S., Popov I. V., Usov L. S., Evdokimov A. P., Kryzanovsky V. V. ....	821
8.6	<b>RADAR SENSOR FOR REMOTE CONTROL OF TRACK OCCUPANCY AND RAILWAY CARS SPEED</b> Ermak G. P., Popov I. V., Varavin A. V., Vasilev A. S. ....	823
8.7	<b>TRANSCIVING MODULES WITH LUNEBERG LENS FOR RADAR SYSTEMS</b> Yurchenko V. I., Solovyov Y. L., Rudakov A. V. ....	825
8.8	<b>USING RADIOCOMMUNICATION IN ORDER TO INCREASE EFFICIENCY OF SEARCH AND RESCUE OPERATIONS AT SEA</b> Afonin I. L., Bokov G. V. ....	826
8.9	<b>INCREASING OF OPERATIONAL CAPABILITIES FOR DEFINITION BOUNDARIES OF EMERGENCY SITUATIONS ZONES USING GLOBAL SATELLITE SYSTEMS OF RADIO NAVIGATION</b> Yakornov E. A., Lipchevskaya I. L. ....	828
8.10	<b>SIMULATION OF PHASE NOISE INFLUENCE ON OSCILLATORS SYNCHRONIZATION SYSTEM OPERATION</b> Shirokov I. B., Serdyuk I. V. ....	830

## **SESSION 8/2: TECHNOLOGICAL PROCESSES CONTROL & NON-DESTRUCTIVE TESTING**

8.11	<b>TWO-AERIAL MODULATION RADIOMETER</b> Kutsenko V. P., Skripnik U. A., Tregubov N. F., Shevchenko K. L. ....	835
8.12	<b>INVESTIGATION OF WINE AND WORT PERMITTIVITY IN THE MICROWAVE RANGE</b> Belyaev V. I., Golubnichaya G. V., Gorobchenko O. A., Zhylyakova T. A., Kirichenko A. Ya., Nikolov O. T., Psuturi D. I. ....	837
8.13	<b>ON-LINE MICROWAVE MEASUREMENT OF CRUDE OIL WATER CONTENT</b> Makeev Y. V., Lifanov A. P., Sovlukov A. S. ....	839
8.14	<b>MICROWAVE SENSOR APPLICATION FOR DEFINITION OF LEATHER MATERIALS' PROPERTIES</b> Kazakova T. A., Ilyuschenko A. V., Smelkov D. V. ....	841
8.15	<b>CORRELATION OF COMPLEX PERMITTIVITY AND PHYSICO-CHEMICAL PARAMETERS OF TABLE WINES</b> Eremenko Z. E., Scresanov V. N., Gerzhikova V. G., Zhilyakova T. A., Anikina N. S. ....	843
8.16	<b>MICROSTRIP PHOTONIC CRYSTALS AND THEIR APPLICATION FOR POLAR LIQUIDS MEASUREMENT</b> Usanov D. A., Skripal A. V., Abramov A. V., Bogolubov A. S., Kulikov M. Yu., Ponomarev D. V. ....	845
8.17	<b>HOMODYNE MICROWAVE GAUGE FOR MEASUREMENT OF MULTICOMPONENT MIXTURE HUMIDITY</b> Shirokov I. B., Polivkin S. N., Isachenko M. ....	847
8.18	<b>SIMULATION OF MICROWAVE DRYING IN PYRAMIDAL CHAMBER</b> Kiglay I. N., Sinitsyn A. K. ....	849
8.19	<b>THE INFLUENCE OF MICROWAVE PROCESSING ON SOWING PROPERTIES OF PICEA EXCELSA SEEDS</b> Vojnov G. M., Golovach A. A. ....	851
8.20p	<b>MICROWAVE DISCHARGE IN ARGON-SULPHUR MIXTURE IN HIGHLY EFFECTIVE LIGHT SOURCE WITH LOW FEEDING POWER</b> Didenko A. N., Prokopenko A. V., Shchukin A. Ju. ....	853
8.21	<b>KIMBERLITE FRACTURE BY PROMPT MICROWAVE-HEATING</b> Didenko A. N., Prokopenko A. V., Smirnov K. D. ....	855
8.22p	<b>NUMERICAL SIMULATION OF MICROWAVE HEATING OF OIL STRATUM</b> Sysoev S. M., Zavodovsky A. G., Kislitsin A. A. ....	857
8.23p	<b>EXPERIMENTAL INVESTIGATION OF MICROWAVE RADIATION IMPACTING WATER-OIL EMULSIONS</b> Kalinin Yu. A., Starodubov A. V., Berezin S. I. ....	859

8.24p	REGULATION OF MOMENTARY OUTPUT POWER OF MAGNETRON OPERATING IN CONTINUOUS MODE (M-105, M-112 TYPE) BEING A PART OF TECHNOLOGICAL PLASMA UNIT Bordusov S. V., Madveyko C. I. ....	861
8.25p	INTELLIGENT SYSTEM FOR ANALYZING INFORMATION PATTERNS OF GASEOUS, LIQUID AND HETEROGENEOUS MATTERS Koleshko V. M., Gulay A. V., Varabei Y. A., Polynkova E. V. ....	863

## SESSIONS 8a/1—8a/2: MEDICAL & ECOLOGICAL APPLICATIONS

8a.1	NON-FARADAIC IMPEDANCE SENSORS FOR BACTERIES DETECTION Drapeza A. I., Loban V. A., Sudnik Y. M., Labunov V. A., Orechovskaya T. I., Parkun M. V. ....	867
8a.2	POSSIBILITY OF USING TESLA'S TRANSFORMER IN GAS-DISCHARGE VISUALIZATION DEVICES Kolomiyets R. A. ....	869
8a.3	HATCHING OF EGGS OF ARTEMIA AND CHANGE OF CHROMATIN STATE UNDER THE INFLUENCE OF ELECTROMAGNETIC FIELDS Shckorbatov Y. G., Rudneva I. I., Pasiuga V. N., Kolchigin N. N., Grabina V. A., Ivanchenko D. D., Kazanskiy O. V., Shaيدا V. G. ....	871
8a.4	CONTROL ACTION OF MM-WAVES ON SPACE STATIONS INDEMNIFICATION Lykholat Y. V., Vinnichenko A. N., Drobakhin O. O., Pyrshen B. L., Pokataev V. N., Shirokopoyas L. L., Fateev D. N., Elanskij Y. A. ....	873
8a.5	REACTION OF BLOOD-VASCULAR SYSTEM AND HORMONE LEVEL IN BLOOD SERUM OF RATS SUBJECTED TO ELECTROMAGNETIC FIELD OF CELL PHONE (900 MHz) Konoplya E. F., Vereschhako G. G., Goroch G. A., Andronova E. V., Gunkova N. V., Yakuchev D. L. ....	875
8a.6	SOME QUESTIONS OF DOSIMETRY IN STUDYING BIOLOGICAL EFFECTS OF EHF ELECTROMAGNETIC RADIATION Gapeyev A. B., Chemeris N. K. ....	877
8a.7	COMFORT ESTIMATION FOR TEXTILE MATERIALS APPLIED AT MEDICAL UNIFORM PRODUCTION USING RADIOMETRIC METHOD Suprun N. P., Skripnik Yu. A., Ostrovetskaya Yu. I., Shevchenko K. L., Yanenko A. Ph. ....	880
8a.8	SOME APPROACHES TO ESTIMATION OF FUNCTIONAL CONDITION OF VISUAL TYPE OPERATORS USING HARDWARE-SOFTWARE COMPLEX Kochina M. L., Kalimanov V. G., Saikovskaya L. F., Firsov A. G., Shelest O. N. ....	883
8a.9	POSSIBILITY OF BIOACTIVE SUBSTANCE STERILIZATION USING LOW POWER ELECTROMAGNETIC FIELDS Ivanyuta A. N., Prokopenko A. V. ....	885
8a.10	THE EFFECT OF LOW-INTENSITY MICROWAVE RADIATION ON GERMINATING AND GROWTH INTENSITY OF WHEAT GRAINS. EXPERIMENTAL RESEARCH Nikulin R. N., Kovalev I. A., Lyu Huen Chang ....	887
8a.11	COHERENT ELECTROMAGNETIC FIELDS HAVING THERAPEUTIC INFLUENCE ON BIOLOGICAL STRUCTURES Klotchko T. R. ....	889
8a.12	SIMULATION OF RESULTS OF TERAHERTZ WAVE-BIOOBJECT INTERACTION Stoyanov Yu. N., Yavorsky B. I. ....	891
8a.13	STANDING WAVE MAGNETIC PATTERNS OF WATER EXPOSED TO UHF SINUSOIDAL ELECTROMAGNETIC RADIATION Shalatonin V. ....	893
8a.14	FEASIBLE APPLICATION OF EHF DIELECTROMETRY IN BIOLOGICAL AND MEDICAL INVESTIGATIONS Arkhipova E. A., Krasov P. S., Fisun A. I. ....	895
8a.15	ELECTROMAGNETIC WAVES INFLUENCE ON LIQUID PASSING THROUGH A CAPILLARY Harlanov A. V. ....	897
8a.16	LASER DIFFRACTION DIAGNOSTICS OF LIQUID BIOLOGICAL ENVIRONMENTS (FRAUNGOFFER'S LIGHT DIFFRACTION ON THE PARTICLE OF BLOOD) Moskvin P. P., Chukhov V., Manojlov V. F., Olchowik G., Olchowik J. ....	899

8a.17	USING OF HILBERT TRANSFORM FOR ANALYZING NONSTATIONARY PROCESSES OF ELECTROENCEPHALOGRAPHM TYPE Kharchenko O. I., Chumakov V. I. ....	901
8a.18	INVESTIGATION OF 2-CHLOROVINYLDICHLOROARSINE DECOMPOSITION PRODUCTS BY METHODS OF NONSTATIONARY SPECTROSCOPY OF SUBTHZ FREQUENCY RANGE Vaks V. L., Domracheva E. G., Sobakinskaya E. A., Chernyaeva M. B. ....	903
8a.19	TRANSFORMED OPTICAL AND ELECTRONIC EQUIPMENT KIT FOR NEW-BORN BABIES AND SUCKLING INFANTS Bezyazychnaya A. V., Demchenko A. I., Emelyanov V. A., Kirilov A. V., Sayan N. I., Shishko G. A., Artsiyshevskaya M. V., Kachan S. E., Sapatnitski A. V. ....	905
8a.20	WIDE-BAND ANTENNA FOR ON-BODY RFID APPLICATION Lvova L. A. ....	907
8a.21	LONG-TERM CONSEQUENCES OF BIOINFORMATICS EFFECTS OF EMP EHF ON MAMMALS REPRODUCTION Lennikov R. V., Subbotina T. I., Yashin S. A. ....	909

## SESSION 9/1: RADIOASTRONOMY & ATMOSPHERE RESEARCH

9.1	HIGHLY STABLE 8 MM-WAVES NOISE SIGNAL SOURCE FOR ADJUSTMENT OF RATAN-600 Khaikn V. B., Kuzmin S. E., Narytnic T. N., Radzikhovsky V. N. ....	913
9.2	OPTIMIZED CALIBRATION SYSTEM OF TOTAL POWER SPECTRORADIOMETER FOR OZONE LINE OBSERVATION Nosov V. I., Shkelev E. I. ....	915
9.3	RADIO TELESCOPE RT-2 FOR SOLAR SERVICE IN SRI CrAO Tsvetkov L. I., Poygina M. I., Syreyshchikov V. P., Pozdnyakov M. M., Generalov I. S., Alyesin A. M., Fedorenko L. I. ....	917
9.4	DIAGNOSTICS AND FORECASTING OF SCR PROTONS FLUX USING RADIO BURSTS PARAMETERS Isaeva E. A., Tsvetkov L. I. ....	920
9.5	WAVE INTERFERENCE EFFECT ON THE SHAPE OF SOLAR MICROWAVE BURSTS Yurovsky Yu. F. ....	922
9.6	LOCAL RADIO SOURCES NEAR POLAR REGION OF THE SUN OBSERVED DURING THE ECLIPSE ON AUGUST 1, 2008 Tsvetkov L. I., Yurovsky Yu. F. ....	924
9.7	THE FEATURES OF PARTIAL REFLECTION SIGNALS, RADIONOISES AND ELECTRON DENSITY VARIATIONS IN THE REGIONAL MIDDLE LATITUDE D-REGION DURING FIVE SOLAR ECLIPSES Gokov A. M., Tyrnov O. F. ....	927
9.8	DANGEROUS METEOROLOGICAL PHENOMENA DETECTION BY RECEIVING THE SIGNALS FROM GLOBAL POSITIONING NAVIGATION SATELLITES Gudkov V. N., Lutsenko V. I., Lutsenko I. V., Ahn N. S. ....	929
9.9	DETERMINATION OF TROPOSPHERE REFRACTION AND REFLECTING LAYERS BY VARIATION OF SATELLITE SIGNAL LEVEL USING SPECTRAL ESTIMATION METHODS Gudkov V. N., Lutsenko V. I., Lutsenko I. V., Ahn N. S. ....	931
9.10	INCREASING OF DATA COMPLEXING EFFICIENCY IN MULTISPECTRAL LOCATION SYSTEM Prudyus I. N., Laz'ko L. V., Semenov S. O. ....	933
9.11p	ENTROPIC-METRIC CHARACTERISTICS OF ASTROPHYSICAL SIGNALS Zhanabaev Z. Zh., Alimgazinova N. Sh., Beisebayeva A. S., Naurzabayeva A. Zh. ....	935
9.12p	BISTATIC RADAR SYSTEM USING RADIO SIGNALS OF GEOSTATIONARY SATELLITES FOR HYDROMETEORS PARAMETERS DETERMINATION Mytsenko I. M., Khalameyda D. D. ....	937
9.13p	COMPARING SIMULATION METHODS FOR MILLIMETER WAVES SCATTERING BY NONSPHERICAL SCATTERERS Afonin A. A. ....	939

## SESSION 9/2: REMOTE SENSING & RADAR SYSTEMS THEORY

9.14	SPACE RESEARCH IN KHARKIV RADIOPHYSICAL OBSERVATORY OF V. N. KARAZIN NATIONAL UNIVERSITY Garmash K. P., Gritchin A. I., Martynenko S. I., Podnos V. A., Rozumenko V. T., Tyrnov O. F., Fedorenko V. N., Fedorenko Yu. P., Tsymbal A. M., Chernogor L. F. ....	943
------	--	-----

9.15	<b>SCATTERING PROPERTIES OF VEGETATIVE ENVIRONMENT IN UHF RANGE</b> Bagdasaryan E. A., Timofeev V. A. ....	945
9.16	<b>SPECTRA OF UHF SIGNALS BACK SCATTERED BY WATER SURFACE IN THE PRESENCE OF SOLUBLE SUPERFICIALLY-ACTIVE SUBSTANCE. EXPERIMENTAL RESEARCH</b> Uzlenkov A. V. ....	947
9.17	<b>IMPROVED METHOD FOR BLIND MIXED NOISE VARIANCE EVALUATION ON IMAGES</b> Abramov S. K., Zabrodina V. V., Lukin V. V. ....	949
9.18	<b>ANALYSIS OF SAR INSTRUMENT RESPONSE IN TRANSCEIVER NETWORK AND TRM PROTOTYPE TESTS</b> Lepehina T. A., Nikolaev V. I. ....	951
9.19	<b>IMAGE RECONSTRUCTION USING SYNCHRONOUS APERTURE SCANNING</b> Semenchik V. G., Deminchik V. I., Pahomov V. A. ....	953
9.20	<b>USING CIRCULARLY POLARIZED WAVES FOR SMALL ELONGATED OBJECTS DETECTION IN MICROWAVE IMAGING</b> Semenchik V. G., Deminchik V. I., Pahomov V. A. ....	955
9.21	<b>OBJECT CLASSIFICATION METHOD BASED ON SCATTERED FIELD CORRELATION ANALYSIS</b> Artyomova T. K., Gvozdaryev A. S. ....	957
9.22	<b>ANALYSIS OF INTERFERENCE RE-REFLECTIONS IN MIMO RADAR AT MULTIPLICATIVE PROCESSING</b> Chapursky V. V. ....	959
9.23	<b>POTENTIAL ACCURACY OF MATRIX PENCIL METHOD FOR 2-D SIGNALS</b> Verstakov E. V., Zakharchenko V. D. ....	961
9.24p	<b>AMBIGUITY BODIES ANALYSIS FOR SIMPLE SOUNDINGS SIGNALS OF RADIOACOUSTIC SYSTEMS</b> Kartashov V. M., Voloh A. V., Pashchenko S. V., Mankov E. J. ....	963
9.25p	<b>BROADBAND MICROWAVE SIGNAL TRANSFORMATION IN STROBOSCOPIC SYSTEMS UNDER COHERENT PROBING</b> Zakharchenko V. D. ....	965
9.26p	<b>ESTIMATION OF SAR SIGNALS COMPRESSION TIME USING DIFFERENT PROCESSING METHODS</b> Starkov N. E., Tarasenko A. M. ....	967
9.27p	<b>GAME-THEORETICAL SYNTHESIS OF ANTIJAMMING SYSTEM OF NONLINEAR RADIOLOCATION</b> Kashyryn A. G., Baburov E. F. ....	969

5 i h cf bXYI

\* Paper is not received at time of publication