2016 13th International Conference on Modern Problems of Radio Engineering, Telecommunications and Computer Science (TCSET 2016)

Lviv, Ukraine
23-26 February 2016

IEEE Catalog Number: CFP1638R-POD
ISBN: 978-1-1-4673-8284-7

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

IEEE Catalog Number: CFP1638R-POD
ISBN (Print-On-Demand): 978-1-4673-8284-7
ISBN (Online): 978-617-607-807-4

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

C O N T E N T S

SECTION 1
THEORY OF ELECTRONIC CIRCUITS AND SIGNALS

1. **THE ADEQUACY OF ANALYSIS OF LINEAR PERIODICALLY-TIME-VARIABLE CIRCUITS BY THE FREQUENCY SYMBOLIC METHOD IN THE TIME DOMAIN** 25
YURIY SHAPOVALOV, BOHDAN MANDZIY, DARIYA BACHYK, MARIAN TURYK
2. **WAVE-PARTICLE NATURE OF RADIO WAVES** 30
BOGDAN A. SUS', BOGDAN B. SUS'
3. **THEORETICAL PRINCIPLES AND METHODS OF DISTORTIONS RECOGNITION IN LOAD SURGES, SHORT CIRCUITS AND POWERFUL ELECTRIC DRIVES LAUNCHING TYPE POWER LINES** 33
OLEH LIURA, IVAN OSTROVKA, IRYNA SABADASH, YAROSLAV NYKOLAICHUK
4. **A COMPUTATIONAL MODEL OF SIGNAL TRANSFORMATIONS IN PULSED NQR SPECTROMETER** 37
ANDRIY SAMILA, GALINA LASTIVKA, LEONID POLITANSKY
5. **THE PARAMETERS HIDING ESTIMATION OF CHAOTIC COMMUNICATION SYSTEMS** 40
DMYTRO VOVCHUK
6. **AUTOMATION OF BIOTECHNOLOGICAL OBJECTS** 44
VITALIY LYSENKO, ALLA DUDNYK
7. **ORTHOGONAL QUASI HARMONIC PIECE-WISE LINEAR FUNCTIONS BASED ON IQ MODULATION TECHNIQUE** 47
VICTOR TIKHONOV, ABDULLAH TAHER
8. **THE ANALYSIS OF THE USE OF TECHNOLOGIES OF ERROR RESILIENT CODING AT INFLUENCE OF AN ERROR IN THE CODEWORD** 52
VOLODYMYR BARANNIK, S.A. PODLESNY, KOSTYA YALIVETS, ALI BEKIROV
9. **PROSPECTS OF DISCRETE MACROMODELS USAGE FOR CALCULATION OF ELECTRIC POWER SYSTEMS MODES** 55
EUGENIUSZ ROSOLOWSKI, PETRO STAKHIV, OKSANA HOHOLYUK
10. **AN INSTALLATION FOR THE POLY-PHASE SIGNALS' INVESTIGATION** 58
ROMAN YANKEVYCH
11. **COMPARATIVE ANALYSIS OF COMPLEX SIGNALS BASED ON CONTINUOUS AND DISCRETE FREQUENCY MODULATION** 61
ANDRII KUZYK

SECTION 2
MATHEMATICAL SIMULATION IN RADIO ELECTRONICS, COMMUNICATIONS AND COMPUTER ENGINEERING

12. **MODERNIZED EBERS–MOLL MODEL FOR SOI MOSFET COMPUTER SIMULATION** 67
STEPAN NOVOSYADLYY, SERGIY BOYKO
13. **HETEROGENEOUS DISTRIBUTED ACCESS NETWORK WITH SATELLITE RADIO CHANNELS** 69
IRINA TYMCHENKO, EVGENIYA SVETSINSKAYA, ILYA KUBASOV, KONSTANTIN SUNDUCHKOV
14. **MATHEMATICAL MODELS FOR THE DISTRIBUTION OF FUNCTIONS BETWEEN THE OPERATORS OF THE COMPUTER-INTEGRATED FLEXIBLE MANUFACTURING SYSTEMS** 72
EVGENIY LAVROV, NADIIA PASKO, ANNA KRIVODUB, ANDRII TOLBATOV
15. **USING CIRCUIT SIMULATION TO STUDY THE PROCESSES IN ELECTRONIC CIRCUITS** 76
VLADIMIR MAKARENKO, VIKTOR SPIVAK
16. **LIGHT-EMITTING DIODE AS A MAGNETIC FIELD SENSOR** 79
VASILY IRKHA, VICTOR GORBACHEV, IVAN VIKULIN
17. **THE EXPANSION OF THE FUNCTIONAL POSSIBILITIES OF THE SYSTEM FUNCTIONS MAOPCS FOR THE STUDY OF LINEAR PERIODICALLY-TIME-VARIABLE CIRCUITS** 82
YURIY SHAPOVALOV, BOHDAN MANDZIY, DARIYA BACHYK
18. **SYMBOLIC MODEL OF THE QUADRATURE DETECTOR** 87
SPARTAK MANKOVSKYY, EMILIA MANKOVSKA

19. **ANALYTICAL MODEL OF RELIABILITY PROGRAM OF COMPUTER SYSTEMS AND SOFTWARE-CONTROLLED MEANS OF COMMUNICATION** 90
SERGIY GNATIUK

20. **OPTIMIZATION OF THE SET HEAD PATH FOR SMD MOUNTING APPARATUS** 93
LARYSA HLINENKO, VOLODYMYR FAST

21. **FEATURES OF GRADIENT WAVEGUIDE ANALYSIS IN A FREQUENCY DOMAIN** 96
VOLODYMYR FITIO, VOLODYMYR ROMAKH

22. **THE VAN DER POL'S MATHEMATICAL MODEL OF THE VOLTAGE-CONTROLLED OSCILLATOR BASED ON A TRANSISTOR STRUCTURE WITH NEGATIVE RESISTANCE** 100
ANDRIY SEMENOV

23. **MODELLING RADIATIVE PROPERTIES OF METALLODIELECTRIC STRUCTURES** 105
VIKTOR HOBLYK, VOLODYMYR PAVLYSH, NADIYA GOBLYK, IRYNA NYCHAI, OLEKSIY LISKE, MYKOLA ZELENKU, IVAN TEPLYAKOV

24. **COMPARISONS OF THE IDENTIFICATION OF MATHEMATICAL MACROMODELS IN THREE METRICS-GAUSSIAN, CHEBYSHEV, L1** 108
YAROSLAV MATVIYCHUK, PETER MALACHIVSKYY, OLGA MATVIYCHUK

25. **MODELLING RELIABILITY INDICES OF HIERARCHICAL SYSTEMS** 111
ANDRIY SYDOR, VASYL TESLYUK

26. **THE STATE-OF-THE-ART OF COMPUTER MODELING AND DESIGN OF THE VACUUM MICROWAVE DEVICES** 114
GENNADIY CHURYUMOV, TETYANA FROLOVA, ALEXSANDR GRITSUNOV

27. **MATHEMATICAL MODELING OF THE DISTRIBUTION OF POTENTIAL FIELD IN PIECEWISE HOMOGENEOUS OBJECTS USING BOUNDARY ELEMENTS METHOD** 117
LIUBOV ZHURAVCHAK, BOHDAN GRYTSKO, OLENA KRUK

28. **INTERVAL MODEL FOR THE PREDICTION SOIL MOISTURE** 121
MYKOLA DYVAK, IRYNA MADIUDIA, LYUDMYLA HONCHAR, RUSLAN SHEVCHUK

29. **DESIGNING SPIKING NEURAL NETWORKS** 124
YAROSLAV DOROGYY, VADYM KOLISNICHENKO

30. **REDUCTION OF INTERVAL EQUATIONS FOR INTERVAL SYSTEM OF LINEAR ALGEBRAIC EQUATIONS** 128
MYKOLA DYVAK, KASATKINA NATALYA, IRYNA OLIYNYK

31. **APPROXIMATION OF SELF-SIMILAR TRAFFIC BY SPLINE-FUNCTIONS** 132
IRINA STRELKOVSKAYA, IRINA SOLOVSKAYA, NIKOLAY SEVERIN, STANISLAV PASKALENKO

32. **DRYWALL HUMIDITY MODELING DURING ITS DRYING PROCESS UNDER CONDITION OF CHANGING THE TEMPERATURE FIELDS BASED ON INTERVAL DIFFERENCE OPERATOR** 136
MYKOLA DYVAK, YURII MASLYIAK, NATALIYA PORPLYTSYA, ANDRIY PUKAS, TARAS DYVAK

33. **THE AUTOMATION OF THE EXPLOITATION RISKS ASSESSMENT OF THE NAVIGATION INFORMATION SYSTEM OF AIR DRONES** 140
LEONID OZIRKOVSKYY, YURIY PASHCHUK, ANDRIY MASHCHAK, SERHIY VOLOCHIY

34. **APPLICATION THE CELLULAR AUTOMATA METHOD FOR MODELING THE GROWTH OF SURFACES CORROSION DEFECTS** 145
ROXANA TORS`KA, BOHDAN RUSYN

35. **MATHEMATICAL AND SOFTWARE TOOLS FOR MODELING OBJECTS WITH DISTRIBUTED PARAMETERS** 149
ANDRIY VEREMCHUK, ANDRIY PUKAS, IRYNA VOYTYUK, IRYNA SPIVAK

36. **SIMULATION OF RANDOM ERRORS OF INERTIAL SENSORS** 153
JACEK PASZEK, PIOTR KANIEWSKI

37. **MEMS PRESSURE SENSORS DESIGN BY THE COMSOL SYSTEM** 156
LOBUR M., VIVCHAR D., JAWORSKI N.

SECTION 3
ANTENNAS AND MICROWAVE TECHNOLOGY

38. **RADIATIONS FROM A PORTABLE TERMINAL** 161
PAWEL BIENKOWSKI, VITALIJ NICHOGA, HUBERT TRZASKA

39. **SPATIAL FILTRATION OF DIGITALLY MODULATED SIGNALS USING A TIME-MODULATED ANTENNA ARRAY** 164
GRZEGORZ BOGDAN, YEVHEN YASHCHYSHYN

40. **DESIGN METHOD OF DUAL-BAND DIGITAL PHASE SHIFTERS WITH ARBITRARY DIFFERENTIAL PHASE SHIFTS** 167
IVAN PRUDYUS, VALERIY OBORZHYTSKYY, VOLODYMYR STOROZH

41. **TO SYNTHESIS PROBLEM OF LINEAR ANTENNA BY THE DESIRED AMPLITUDE DIAGRAM** 170
MYKHAYLO ANDRIYCHUK

42. **ANTENNA OF RADIOCONTROL** 173
LUDWIG ILNYTSKYI, LEONID SIBRUK, DARYNA POLISHCHUK

43. **A FRACTAL LOG-PERIODICAL ANTENNA WITH VARIABLE SCALING: ON THEORETICAL MODEL ELABORATION** 177
VOLODYMYR ONUFRIENKO, LEONID ONUFRIYENKO

44. **A NON-RESONANT METHOD OF EXCITATION OF THE ELECTRODELESS LAMP** 180
TETYANA FROLOVA, GENNADIY CHURYUMOV

45. **RESONANT IRREGULAR HYBRID STRUCTURES** 183
IGOR BONDARENKO, ALEKSANDR GALICH

46. **DEVELOPMENT AND APPROBATION OF NOVEL INTERFERENCE TECHNIQUE FOR MATERIALS PERMITTIVITY INVESTIGATION IN THE FREQUENCY RANGE OF 50-75 GHZ** 186
NAZARIY ANDRUSHCHAK

47. **120 GHZ – 135 GHZ CPWG TO DIELECTRIC WAVEGUIDE TRANSITION AND ITS CAPABILITY WITH USING DIFFERENT LTCC MATERIALS** 191
PRZEMYSLAW PIASECKI, YEVHEN YASHCHYSHYN

48. **USING LABVIEW IN AUTOMATED MEASUREMENTS OF REFRACTIVE INDICES IN OPTICAL RANGE** 195
IVAN KARBOVNYK, NAZARIY ANDRUSHCHAK, IHOR SHCHUR

49. **MULTIBAND MICROSTRIP PATCH ANTENNA USING DGS FOR L-BAND, S-BAND,C-BAND & MOBILE APPLICATIONS** 198
MEHR-E-MUNIR, UMAR FAROOQ

50. **ELECTROMAGNETIC MODES IN WAVEGUIDES AND QUANTUM MECHANICS** 202
H. P. LABA, K. O. CHABAN, V. M. TKACHUK

SECTION 4
RADIOELECTRONIC DEVICES AND SYSTEMS

51. **COMPARISON OF A PRIORI SIGNAL-TO-NOISE RATIO ASSESSMENT METHODS USED IN NOISE REDUCTION ALGORITHMS** 209
ARKADIY PRODEUS

52. **MANAGEMENT OF STRUCTURAL COMPONENTS COMPLEX ELECTRONIC SYSTEMS ON THE BASIS OF ADAPTIVE MODEL** 214
ALEKSEY GRISHKO, NIKOLAY GORYACHEV, IGOR KOCHEGAROV, SERGEY BROSTILOV, NIKOLAY YURKOV

53. **TACTICAL-EXPLORING UNMANNED AVIATION SYSTEMS: CURRENT STATE AND PROSPECTS IN UKRAINE** 219
SERGIY ZLEPKO, LEONID KOVAL, SERGIY PAVLOV, KOST SOLODENKO, DMYTRO SHTOFEL

54. **EXPERIMENTAL RESEARCH OF SIGNALS OF DEFECTS SUCH AS THE TRANSVERSE CRACKS ON THE RAIL IMITATOR** 222
O. SALDAN, V. NICHOHA, V. STOROZH, I. STOROZH, I. STEFANYSHYN

55. **IMAGE SEGMENTATION BASED ON CLUSTER ANALYSIS OF MULTISPECTRAL MONITORING DATA** 226
ANDRII HRYVACHEVSKYI, IVAN PRUDYUS

56. **SYNTHESIS OF OPTIMAL MULTIANTENNA ULTRA-WIDEBAND DETECTOR OF SPATIALLY EXTENDED OBJECTS** 230
VALERIY VOLOSYUK, VLADIMIR PAVLIKOV, CUONG VU TA

57. **OPTIMAL ALGORITHM OF ULTRA-WIDEBAND SIGNALS PROCESSING IN 3D MAPPING SYSTEMS WITH TWO ANTENNA ARRAYS** 233
VALERIY VOLOSYUK, CUONG VU TA, OLENA TYMOSHCHUK

58. **OPTIMAL ALGORITHM FOR ESTIMATION OF RADIO BRIGHTNESS OF AN EXTENDED SOURCE OF RADIO THERMAL RADIATION IN THE ULTRA-WIDEBAND RADIOMETRIC COMPLEX WITH A THREE-ELEMENT-ANTENNA SYSTEM** 236
V.V. PAVLIKOV, KIEM NGUYEN VAN

59. **INVESTIGATION OF AMBIGUITY FUNCTION OF ULTRA-WIDEBAND, MULTI-BAND AND NARROW-BAND RADIOMETRIC COMPLEX WITH A THREE-ELEMENT-ANTENNA SYSTEM** 240
KIEM NGUYEN VAN, O. M. TYMOSHCHUK

60. **RESULTS OF USE A METHOD OF DECREASE SIDELOBES LEVEL OF SIGNALS AFTER COMPRESSION FOR DISTINCTION OF CLOSELY SPACED TARGETS** 243
PRAVDA V., BYCHKOV V.

61. **MATRIX MODEL OF THE SUBPIXEL IMAGING PROCESS BY OPTICAL SCANNER** 246
SERGIY FABIROVSKYY, IVAN PRUDYUS, VIKTOR TKACHENKO, LEONID LAZKO

62. **IMPROVED MULTI-FRECUENCY PHASE METHOD OF RANGING** 250
VITALII LIUBCHYK, YULIYA SENCHYSHYNA, ANDREY KLEPIKOVSKIY

63. **METHOD OF IMPROVING THE POWER EFFICIENCY OF QPSK SIGNALS** 253
ANDRIY BONDAREV, IVAN MAKSYMIV, TARAS MAKSYMYUK

64. **RADIO-FREQUENCY ARBITRARY-FUNCTION LOGICAL DEVICE SYNTHESIZING** 256
VASYL KYCHAK, VOLODYMYR KYCHAK

65. **DETECTION AND ALLOTMENT OF THE OBJECTS BASED ON MULTISPECTRAL MONITORING** 259
KONDRATOV P., OHANESYAN A., TKACHENKO V., PRUDYUS I., LAZKO L., HRYVACHEVSKYI A.

66. **CODING FOR INCREASE OF DATA TRANSMISSION ROBUSTNESS VIA ORTHOGONAL PARALLEL SUB-CHANNELS** 263
YEVGENII SHESTOPAL

67. **MODERN APPROACH TO SELECTION OF MAINS RFI FILTERS** 267
VOLODYMYR PILINSKY, VOLODYMYR SHVAICHENKO, DMYTRO TITKOV, MAXIM PANCHOHA

68. **MODELS OF HARDWARE INTEGRATION OF SENSORS ELEMENTS WITH CYBER-PHYSICAL SYSTEMS** 270
ROMAN DUNETS, HALYNA KLYM, ROMAN KOCHAN

69. **COMPARATIVE ANALYSIS OF RADIOMEASURING FREQUENCY CONVERTERS OF THE MAGNETIC FIELD** 275
OLEKSANDR OSADCHUK, KOSTYANTYN KOVAL, MAKSYM PRYTULA, ANDRIY SEMENOV

70. **SYNTHESIS OF GUARD SIGNALING COMPLEX STRUCTURE WITH A GLANCE OF POSSIBLE LAYOUTS OF SEISMIC SENSORS** 279
BOHDAN VOLOCHIY, VOLODYMYR ONISHCHENKO, YURIY SALNIK

71. **RESEARCH OF INTERFERENCE IMMUNITY OF THE SYSTEM FOR MEASURING THE AVERAGE ENERGY CONSUMPTION OF MICROCONTROLLERS** 284
OLEKSANDR OSOLINSKYY

72. **THE STAND OF MULTICHANNEL SYSTEM FOR COLLECTING INFORMATION FOR NON-DESTRUCTIVE TESTING OF RAILS** 289
IHOR STEFANYSHYN, OLEH SALDAN, VITALIY NICHOHA, VOLODYMYR STOROZH

73. **APPLICATION OF NON-STATIONARY SIGNALS MATCHED WINDOWING IN PULSE RADIOLOCATION TASKS** 292
IVAN CHESANOVSKYI, YULIIA BABII, DENIS LEVCHUNETS

74. **SCANNING TELEVISION OPTICAL MICROSCOPE WITH CONTROLLED FREEZING OF MICROOBJECT** 295
VOLODYMYR SHKLARSKYJ, ANDRIJ REHUSH, ANATOLJ PEDAN, JAROSLAV TEBENKO

75. **THE ANALYSIS OF MODERN RADAR SIGNALS PARAMETERS IN ELECTRONIC INTELLIGENCE SYSTEM** 298
JAN MATUSZEWSKI

76. **MULTISPECTRAL RADIOELECTRONIC SYSTEM OF REMOTE MONITORING. SCIENTIFIC AND TECHNICAL BASIS AND SPHERES OF PRACTICAL APPLICATION** 303
A. ZUBKOV, I. PRUDYUS, J. KRASNIK, S. MARTYNENKO, S. MYRONYUK, A. SHCHERBA, V. YUNDA

77. **METHOD OF CONTROL AND LINEARIZATION OF CALIBRATION FUNCTION FOR REFERENCE INFRARED RADIATION THERMOMETER** 308
NATALIYA HOTS

78. **SYNTHESIS OF STRUCTURE AND OPTIMIZATION OF ALGORITHMS OF WORK OF THE DECISION SUPPORT SYSTEM OF AT A FIRE-CONTROL ARTILLERY SUBDIVISIONS OF TACTICAL LINK** 312
Y. BUDARETSKIY, Y. SCHAVINSKIY

79. **RESIZABLE SCANNING RASTER GENERATION IN TELEVISION OPTICAL MICROSCOPE** 317
VOLODYMYR SHKLIARSKYI, YURIY MATIYESHYN, ROSTYSLAV MATVIYIV, VITALIY GOY
80. **ALGORITHMS OF TELEVISION SCANNING OPTICAL MICROSCOPE IN DETERMINING THE PARAMETERS OF DYNAMIC MICROOBJECTS** 321
VOLODYMYR SHKLIARSKYI, YURIJ MATIIESHYN, YURIJ BALANYUK
81. **FEATURES OF THE DIFFERENT DYNAMIC MICROOBJECTS SCANNING USING THE TELEVISION SCANNING OPTICAL MICROSCOPE** 326
VOLODYMYR SHKLIARSKYI, VOLODYMYR STOROZH, YURIJ MATIIESHYN

SECTION 5
ELECTRONICS AND PHOTONICS: SYSTEMS AND DEVICES, MICRO- AND NANOTECHNOLOGIES

82. **TEST STATION FOR FIBRE-OPTIC PRESSURE SENSOR OF REFLECTION TYPE** 333
TATIANA BROSTILOVA, SERGEY BROSTILOV, NIKOLAY YURKOV, VALERIY BANNOV, ALEXEY GRIGORIEV
83. **THE GENERATOR OF SUPERHIGH FREQUENCIES ON THE BASIS SILICON GERMANIUM HETEROJUNCTION BIPOLAR TRANSISTORS** 336
OLEKSANDR OSADCHUK, VOLODYMYR OSADCHUK, IAROSLAW OSADCHUK
84. **DEVELOPMENT AND INVESTIGATION OF THE SURFACE PLASMON POLARITON FOUR-CHANNEL SPLITTER** 339
Volodymyr Pavlysh, Denys Nevinskyi, Lubou Zakalyk, Solomiya Lebid, Halyna Korzh
85. **TRANSIENT MODE CHARACTERISTICS OF LUMINESCENCE PHOTOCURRENT INTEGRATORS** 342
ZENON HOTRA, ROMAN HOLYAKA, IRYNA KREMER, ZINOVIY MYKYTYUK, MARIYA VISTAK
86. **NOVEL THZ SOURCES WITH PROFILED FOCUSING FIELD AND PHOTONIC CRYSTAL ELECTRODYNAMIC SYSTEMS** 345
YEVHEN ODARENKO, OLEKSANDR SHMAT'KO
87. **VISUALIZATION OF THE MONOCHROMATIC PLANE WAVE SCATTERING BY MULTILAYER LENS** 348
YANA SASHKOVA, YEVHEN ODARENKO
88. **3PHYSICS AND CHEMISTRY OF SEMICONDUCTOR SURFACES AIIIBV AS THE BASIS FOR HIGH-SPEED TRANSISTORS SUBMICRON STRUCTURES LIC** 351
STEPAN NOVOSYADLIY, LIUBOMYR MELNYK
89. **SPATIAL ANISOTROPY OF INDUCED OPTICAL EFFECTS IN ANISOTROPIC MATERIALS FOR OPTOELECTRONIC DEVICES: HIDDEN RESERVES FOR ENHANCING THEIR PERFORMANCE** 354
ANATOLIY ANDRUSHCHAK
90. **POLYSILICON IN SOI-STRUCTURES AS A MATERIAL FOR SENSOR APPLICATION IN THE WIDE TEMPERATURE RANGE** 357
ANATOLY DRUZHININ, IGOR KOGUT, VICTOR HOLOTA, YURIY KHOVERKO
91. **MAGNETORESISTANCE OSCILLATIONS IN GERMANIUM AND INDIUM ANTIMONIDE WHISKERS** 361
ANATOLY DRUZHININ, IGOR OSTROVSKII, YURIY KHOVERKO, NATALIA LIAKH-KAGUY, YANA BYLDINA
92. **THE FREQUENCY DEPENDENCE FEATURES OF SI WHISKERS CONDUCTANCE IN LOW-TEMPERATURE RANGE** 364
ANATOLY DRUZHININ, IGOR OSRTOVSKII, YURIY KHOVERKO, ROMAN KORETSKII, SERHII YATSUKHNENKO
93. **ARCHITECTURE DEVELOPMENT AND ELEMENTS SIMULATION OF ANALYTICAL MICROSYSTEM-ON-CHIP WITH "SILICON-ON-INSULATOR" STRUCTURES.** 368
VICTOR DOVHIJ, VICTOR HOLOTA, IGOR KOGUT
94. **THE PERSPECTIVES OF CAWO4 CRYSTALS USING IN ACOUSTO-OPTICAL MODULATORS** 373
OLEH BURYY, DMYTRO VYNNYK, NATALIYA DEMYANYSHYN, BOHDAN MYTSYK, MYKOLA MELNYK, IVAN SOLSKYI, ROSTYSLAV MELNYK
95. **THE TEMPERATURE INFLUENCE ON THE PROPAGATION CHARACTERISTICS OF THE SIGNALS IN THE PRINTED CONDUCTORS** 376
PAVEL ANDREYEV, ALEXEY GRISHKO, NIKOLAY YURKOV

96. **MOST EFFICIENT GEOMETRIES OF THE ELECTRO-OPTIC EFFECT IN CRYSTALLINE MATERIALS OF DIFFERENT SYMMETRY** 379
OLEH BURYY, ANATOLIY ANDRUSHCHAK, ANDRZEJ RUSEK, SERHIJ UBIZSKII

97. **SILICON NANOSTRUCTURES FORMED BY METAL-ASSISTED CHEMICAL ETCHING FOR ELECTRON FIELD EMISSION CATHODES** 384
ANATOLIY EVTUKH, OLGA STEBLOVA, OLEG BRATUS', ANATOLY DRUZHININ, STEPAN NICHKALO

98. **COATINGS OF THE "BLACK-SILICON" TYPE FOR SILICONE SOLAR CELLS** 388
VALERIJ YEROKHOV, OLGA IEROKHOVA

99. **SHAPE EFFECT OF SILVER NANOPARTICLES ON PLASMON PROPERTIES OF DLC: AG NANOCOMPOSITES** 392
IRYNA YAREMCHUK, VOLODYMYR FITIO, YAROSLAV BOBITSKI

100. **INFORMATION TECHNOLOGY FOR MOST EFFICIENT APPLICATION OF BULK AND NANOCRYSTALLINE MATERIALS AS SENSITIVE ELEMENTS FOR OPTOELECTRONIC DEVICES** 395
ANATOLIY ANDRUSHCHAK, OLEH BURYY, BOHDAN MYTSYK, NAZARIY ANDRUSHCHAK, NATALIYA DEMYANYSHYN, KSENIIA CHABAN, ANDRZEJ RUSEK, ANDRIY KITYK

101. **AN EXPERIMENTAL STUDY OF UTILIZING MULTIMODE POLYMER FIBER FOR LOAD DETECTION** 399
VASYL VARYSHCHUK, YAROSLAV BOBITSKI

102. **OPTOELECTRONIC MULTI-SENSOR OF SO2 AND NO2 GASES** 402
ZINOVIY MYKYTYUK, ANDRIY FECHAN, VASYL PETRYSHAK, GRYGIRIY BARYLO, OKSANA BOYKO

103. **MULTICOMPONENT POSITRONIUM LIFETIME MODES TO NANOPOROUS STUDY OF MGO-AL2O3 CERAMICS** 406
HALYNA KLYM, IVAN KARBOVNYK, IVANNA VASYLCHYSHYN

104. **ADJUSTED TWO-DIMENSIONAL MODEL OF SILICON DIOXIDE FILMS GROWTH FOR SILICON SUBSTRATES COMPLEX CONFIGURATION** 409
VOLODYMYR BEREZHANSKY

105. **LOCALIZED SURFACE PLASMON RESONANCE IN MULTIWALLED CARBON NANOTUBES** 412
ZENON HOTRA, PAVLO TURYK

106. **COMPUTER SIMULATIONS OF NANOTUBE NETWORKS IN DIELECTRIC MATRIX** 415
ANDRIY STELMASHCHUK, IVAN KARBOVNYK, HALYNA KLYM

107. **THE SENSITIVE ELEMENT OF PRIMARY TRANSDUCER OF PROTEIN OPTICAL SENSOR** 418
OREST SUSHYNSKYI, MARIA VISTAK, VASYL DMYTRAH

108. **SENSOR SYSTEMS FOR MAGNETIC DIAGNOSTICS OF FUSION REACTORS AND ACCELERATORS** 422
INESSA BOLSHAKOVA, YAROSLAV KOST, FEDIR SHURYGIN, OLEKSANDR VASYLIEV

SECTION 6
INFORMATION SYSTEMS: CONSTRUCTION, OPERATION AND SECURITY

109. **OPTIMIZATION OF TRAFFIC FILTERING IN VIRTUAL NETWORKS BASED ON SOLVING THE MINIMUM VERTEX COVER PROBLEM** 429
STANISLAV MOTSNYI

110. **MOBILE PHONE MULTI-FACTOR AUTHENTICATION WITH ROBUSTNESS OF CLONE DETECTION** 432
SERGIY ZHUK, IGOR GEPKO

111. **INFORMATION ANALYSIS OF ENERGY PERFORMANCE AND FACTORS AFFECTING THE SERVICEABILITY OF PRODUCTS ILLUSTRATED BY THE EXAMPLE IN GAS INDUSTRY** 436
MARINA MIROSHNYK, VLADIMIR KOTUKH, NATALIA KAPTSOVA

112. **IMPROVING THE ACCURACY OF HUMAN PLACEMENT IN DETECTION ALGORITHMS IN GRAPHICS BY SPLITTING UP REGION OF INTEREST** 439
KOSTIANTYN KASIAN, KOLYKHALOV ANDRII

113. **PROGRAM-TECHNICAL ASPECTS OF ENCRYPTION PROTECTION OF USERS' DATA** 443
NATALIA LOGINOVA, ELENA TROFIMENKO, OLEXANDER ZADEREYKO, RASHID CHANYSHEV

114. **SOLVING DYNAMIC ASSYMETRICAL TRAVELLING SALESMAN PROBLEM IN CONDITIONS OF PARTLY UNKNOWN DATA** 446
OLEKSANDR MULIAREVYCH

115. **KNOWLEDGE DISCOVERY AS PLANNING DEVELOPMENT IN KNOWLEDGEBASE FRAMEWORK** 449
DMYTRO DOSYN, VASYL LYTVYN, VIRA KOVALEVYCH, OKSANA OBORSKA, ROMAN HOLOSHCHUK

116. **TWO METHODS TO DETERMINING THE TIME COMPLEXITY OF ALGORITHM** 452
TARAS TKACHUK

117. **THE METHOD TO OPTIMIZE STRUCTURAL, HARDWARE AND TIME COMPLEXITIES CHARACTERISTICS MULTI-BIT ADDERS OF SPECIAL PROCESSORS FOR DATA ENCRYPTION** 455
BORIS KRULIKOVSKYI, NATALIIA VOZNA, VOLODYMYR KIMAK, ALINA DAVLETOVA

118. **AN APPROACH TO THE FORMATION OF THE TYPE-2 FUZZY SETS** 460
ANDREW YERUKAYEV

119. **ORGANIZATION OF CLOUD STORAGE DATA IN DISTRIBUTED SYSTEMS** 463
ROSTYSLAV STRUBYTSKYI

120. **MULTIAGENT SYSTEM FOR THE OPTIMAL CONTROL OF A COMBINATION OF TRANSPORT ROBOTS IN AN MANUFACTURING TECHNOLOGICAL PROCESS** 468
INNA KHAVINA

121. **STEGANOGRAPHY METHOD USING HARTLEY TRANSFORM** 473
ALEXANDER KOZIN, OLGA PAPKOVSKAYA, MARIIA KOZINA

122. **THE FORMALLY STATED MODEL FOR TECHNOLOGICAL PROCESS OPERATOR QUERIES INTERPRETATION** 476
VASYL SHEKETA, MYKOLA DEMCHYNA, ROMAN VOVK, YULIA ROMANYSHYN

123. **EXTERNAL ELEMENTS OF HONEYPOT FOR WIRELESS NETWORK** 480
ROMAN BANAKH, ANDRIAN PISKOZUB, YAROSLAV STEFINKO

124. **THE TABULAR TRANSFER MODE IN THE RADEMACHER NTB ADDERS** 483
MYKHAILO SOLOMKO

125. **MANUAL AND AUTOMATED PENETRATION TESTING. BENEFITS AND DRAWBACKS. MODERN TENDENCY** 488
YAROSLAV STEFINKO, ANDRIAN PISKOZUB, ROMAN BANAKH

126. **TOWARDS A FORMALIZATION OF THE FUNDAMENTAL CONCEPTS OF SOA** 492
RAVIL KUDERMETOV, OLGA POLSKA

127. **A TECHNIQUE OF DEVS-DRIVEN VALIDATION** 495
VADYM SHKARUPYLO

128. **IMPLEMENTATION DETAILS FOR THE CIPHER KEY GENERATION CARDANO PERMUTATION** 498
YURIJ GRYCIUK, PAVLO GRYTSYUK

129. **THE FORMAL STRUCTURING OF SUBJECT DOMAIN FOR OIL AND GAS INDUSTRY IT APPLICATIONS** 503
MYKOLA CHESANOVSKYY, VASYL SHEKETA, VOLODYMYR YURCHYSHYN, TARAS STYSLO

130. **THE DEVELOPMENT OF A FAST ITERATIVE ALGORITHM STRUCTURE OF COSINE TRANSFORM** 506
VOLODYMYR GRYGA, IGOR KOLOSOV, OLGA DANYLUK

131. **INVESTIGATION OF TRANSFORMATIONS AND LANDSCAPES FOR COMBINATORIAL OPTIMIZATION PROBLEMS** 510
ARTEM POTEBNIA, SERGIY POGORILYY

132. **DYNAMIC LOAD BALANCING ALGORITHM OF DISTRIBUTED SYSTEMS** 515
LYUDMILA KIRICHENKO, IGOR IVANISENKO, TAMARA RADIVILOVA

133. **ANALYSIS OF PIXELS PERMUTATIONS BASED ON DISCRETIZED CHIRIKOV MAP** 519
SERGIY HALIUK, OLEG KRULIKOVSKYI, LEONID POLITANSKYI

134. **THE ALGORITHM OF HRM SYSTEMS SELECTION** 522
GANNA PLEKHANOVA

135. **THE PROBLEM OF PROVIDING FUNCTIONAL STABILITY PROPERTIES OF INFORMATION SECURITY SYSTEMS** 526
YURII KRAVCHENKO, VIRA VIALKOVA

136. **RECONFIGURABLE COMMUTATION STRUCTURES USING THE ELEMENTS BY BEREZOVSKY** 531
STANISLAV BEREZOVSKY

137. **TEST OF VERIFICATION OF MULTIDIGIT NUMBERS ON SIMPLICITY ON THE BASIS OF METHOD OF VECTOR AND MODULAR MULTIPLICATION** 534
YAROSLAV NIKOLAICHUK, STEPAN IVASIEV, IHOR YAKYMENKO, MYKHAJLO KASIANCHUK

138. **APPROACH TO DETERMINATION OF PRIORITY FOR NODES OF TELECOMMUNICATION NETWORK FUNCTIONING UNDER DDOS-ATTACKS IN ORDER TO PROVIDE QUALITY OF SERVICE** 537
ARKADII SNIHUROV, VADYM CHAKRIAN

139. **CLOUD SERVICES OF SMART CYBER UNIVERSITY** 540
VLADIMIR HAHANOV, SVETLANA CHUMACHENKO, ALEXANDER MISHCHENKO, VLADISLAV SERGIENKO, YULIA HAHANOVA

140. **CYBER DEMOCRACY AND DIGITAL RELATIONSHIP** 545
VLADIMIR HAHANOV, EUGENIA LITVINOVA, MARIA BRAZHNIKOVA, ANASTASIA HAHANOVA
141. **TECHNOLOGICAL CULTURE OF BIG DATA** 549
TETIANA SOKLAKOVA, IGOR IEMELIANOV, TAMER BANI AMER, IVAN HAHANOV

SECTION 7
QUALITY AND RELIABILITY OF RADIOELECTRONIC AND COMMUNICATION DEVICES AND SYSTEMS

142. **SYSTEMS EVALUATION OF RADIO ELECTRONIC DEVICES QUALITY** 555
YURIY BOBALO, LEONID NEDOSTUP, MYROSLAV KISELYCHNYK, MYHAYLO MELEN
143. **ELEMENTWISE DIAGNOSING OF TECHNICAL SYSTEMS WITH HIGH RELIABILITY REQUIREMENTS** 558
KOSTIANTYN KASIAN, MYKOLA KASIAN
144. **COMMUNICATION CHANNEL STATISTICAL CHARACTERISTICS RESEARCH METHODS** 562
MARINA MIROSHNYK, VIKTORIYA KRYLOVA
145. **INITIAL DATA PROCESSING ALGORITHMS OF BIT ERROR RATE TESTERS** 566
VASYL KYCHAK, VLADIMIR TROMSYUK
146. **MODERN DECISIONS OF TASKS OF DIAGNOSTICATING OF THE TELECOMMUNICATION SYSTEMS** 569
TETYANA KORYTCHINKO
147. **INCREASING THE STRUCTURAL SURVIVABILITY OF TELECOMMUNICATION NETWORKS** 572
NINA KNIAZIEVA, TATIANA KUNUP
148. **IMPROVING METHOD OF INCREASING THE STRUCTURAL SURVIVABILITY OF TELECOMMUNICATION NETWORKS** 577
INNA GRISHCHENKO, LILIYA ZIMENKO
149. **MEASUREMENTS OF THE ENERGY GIN IN THE MODIFIED CIRCUIT SIGNAL PROCESSING UNIT** 582
OLEG SHYNKARUK, JULIY BOIKO, OLEKSANDER EROMENKO
150. **SYNTHESIS OF TEST GENERATORS BASED ON THEORY OF CYCLIC CODES** 585
VASYL SEMERENKO, OLEKSANDR ROIK
151. **HARDWARE FOR FAULT DIAGNOSIS OF ANALOG CIRCUITS BY MULTITEST METHOD** 589
DENIS AFANASSYEV, VASYL RABYK
152. **EFFICIENCY IMPROVING STRATEGY MAINTENANCE BASE STATION OF CELLULAR NETWORK** 592
BOHDAN VOLOCHIY, MYKHAILO ZMYSNYI, IHOR KULYK

SECTION 8
INFOCOMMUNICATION SYSTEMS AND NETWORKS

153. **PERFORMANCE COMPARISON OF COGNITIVE RADIO NETWORKS SPECTRUM SENSING METHODS** 597
MARYAN KYRYK, LYUDMYLA MATIISHYN, VOLODYMYR YANYSHYN, VITALIY HAVRONSKYY
154. **DYNAMIC PRESENTATION OF TENSOR MODEL FOR MULTIPATH QOS-ROUTING** 601
OLEKSANDR LEMESHKO, OLEKSANDRA YEREMENKO
155. **A QUEUE MANAGEMENT MODEL ON THE NETWORK ROUTERS USING OPTIMAL FLOWS AGGREGATION** 605
T.N. LEBEDENKO, A.V. SIMONENKO, FOUAD ABDUL RAZZAQ ARIF
156. **THE MODELS OF PROCUREMENT MANAGEMENT AND INFORMATION TECHNOLOGIES FOR HYBRID PROJECT MANAGEMENT** 609
VICTOR MOROZOV, OLENA KALNICHENKO, IULIIA LIUBYMA
157. **PERFORMANCE-ENERGY TRADEOFF MODELS FOR DISTRIBUTED COMPUTING** 613
ANDRIY LUNTOVSKYY, LARYSA GLOBA, OLEKSANDR STEPURIN
158. **MULTICHANNEL CLOCK SIGNAL MONITORING SYSTEM FOR INFOCOMMUNICATION NETWORKS** 618
KOVAL V.V., KALIAN D.O., TEPLIUK V.M., SHKLIAREVSKII I.I., KHUDYNTSEV M.M.
159. **THE METHOD OF INCREASING ACCESSIBILITY OF THE DYNAMIC VIDEO INFORMATION RESOURCE** 621
VOLODYMYR BARANNIK, S.S. SHULGIN

160. **MULTI-CRITERIA SELECTION OF OPTIMUM MEANS OF TELECOMMUNICATIONS** 624
VALERIY BEZRUK, YULIA SKORIK
161. **RELIABILITY AND FEATURES OF OPTICAL CABLE LAYING** 627
HEORHIY ROZORINOV, SERHIY TOLYUPA, AYMEN MOHAMED FENDRI
162. **ANALYSIS OF SDN FOR WIRELESS HANDOVER PLATFORM** 630
VOLODYMYR VASYLENKO, VALENTYN KUKLOV, GANNA GRYNKEVYCH
163. **CONSTRUCTION OF MICROWAVE LINK USING CHANNEL CODE DIVISION BASED ON MODIFIED PSEUDORANDOM GOLD SEQUENCES** 634
ANATOLIY SEMENKO, NATALIA BOKLA, ANDRIY SHOKOTKO, VITALIY LUSENKO
164. **THE RESEARCH PROGRAM OF MILLIMETRIC RADIO WAVES ATTENUATION CHARACTERISTICS ON PERSPECTIVE COMMUNICATION LINES OF UKRAINE** 638
A. I. TSOPA, V. K. IVANOV, V. I. LEONIDOV, YU.I. MALESHENKO, V. V. PAVLIKOV, N. V. RUZHENTSEV, A. A. ZARUDNIY
165. **CONCEPT OF THE MIGRATING FIREWALL TO SCALABLE CLOUD NETWORKS** 643
IVAN DEMYDOV, OREST LAVRIV, ZENOVIY KHARKHALIS
166. **REALIZATION OF RESOURCE BLOCKS ALLOCATION IN LTE DOWNLINK IN THE FORM OF NONLINEAR OPTIMIZATION** 646
AYMEN AL-DULAIMI, MOHAMMED AL-DULAIMI, DMYTRO AGEYEV
167. **THE OPTIMAL DISTRIBUTION OF OPTICAL RESOURCES BETWEEN DATA CENTERS FOR PROVIDING THE REQUIRED LEVEL OF QOS** 649
OLGA SHPUR, BOHDAN STRYKHALYUK, OLEKSANDR MORUSHKO, IRYNA BOLYUBASH
168. **ALGORITHM FOR GREEDY ROUTING BASED ON THE THURSTON ALGORITHM IN SENSOR NETWORKS** 652
YULIA KLYMASH, BOHDAN STRYKHALYUK, IHOR STRYKHALYUK
169. **FAULT-TOLERANT IP ROUTING FLOW-BASED MODEL** 655
OLEKSANDRA YEREMENKO, NADIA TARIKI, AHMAD M. HAILAN
170. **QOS MECHANISM IN CONTENT DELIVERY NETWORK** 658
MARYAN KYRYK, NAZAR PLESKANKA, MARYANA PITSYK
171. **COMMON RADIO RESOURCE MANAGEMENT MODEL FOR HETEROGENEOUS CELLULAR NETWORKS** 661
ANDRIY MASIUK, MYKOLA BESHLEY, OREST LAVRIV, YURIY DESCHYNSKIY
172. **QOS/QOE CORRELATION MODIFIED MODEL FOR QOE EVALUATION ON VIDEO SERVICE** 664
VOLODYMYR CHERVENETS, VASYL ROMANCHUK, HALYNA BESHLEY, ANDRIY KHUDYY
173. **DEVELOPMENT OF MONITORING SYSTEM FOR END-TO-END PACKET DELAY MEASUREMENT IN SOFTWARE-DEFINED NETWORKS** 667
MARIAN SELIUCHENKO, MYKOLA BESHLEY, OLEKSIY PANCHENKO, MYKHAILO KLYMASH
174. **ESTIMATION OF QUALITY OF INTERNET SERVICES IN UKRAINE** 671
OLEKSIY NEDASHKIVSKIY
175. **ALGORITHM OF OPTICAL TRANSPORT NETWORK MODELING BASED ON PERCOLATION THEORY** 674
MYKHAILO KLYMASH, MYKOLA KAIDAN, VALERIY KOVAL
176. **MODELLING OF RADIO WAVES PROPAGATION AND CREATION OF RADIO NETWORKS USING GEOINFORMATION SYSTEMS** 677
IVAN KATERYNCHUK, ROMAN RACHOK, DMYTRO MUL, ANDRII BALENDER

SECTION 9
INFORMATION PROCESSING

177. **AUTOMATION OF THE DATA PROCESSING VIA CLUSTERING ON THE WAVELET TRANSFORM BASE** 685
GALINA SHCHERBAKOVA, VIKTOR KRYLOV, RADMILA PISARENKO, OLEG LOGVINOV
178. **QUANTITATIVE EVALUATION OF CONTRAST FOR A COMPLEX IMAGE BY ITS HISTOGRAM** 688
ELENA YELMANOVA
179. **PREDICTION OF COMPRESSION RATIO IN LOSSY COMPRESSION OF NOISY IMAGES** 693
ALEXANDER ZEMLIACHENKO, RUSLAN KOZHEMIAKIN, BENOIT VOZEL, VLADIMIR LUKIN
180. **LOSSY COMPRESSION OF IMAGES CORRUPTED BY SPATIALLY CORRELATED NOISE** 698
SERGEY KRIVENKO, OLENA KOLGANOVA, VLADIMIR LUKIN

181. **A TWO-STEP ALGORITHM OF COMPENSATING THE ADDITIVE CORRELATED NOISE ON A HOMOGENEOUS IMAGE** 703
OLEKSII LIASHUK, SERGII ZHUK
182. **IMAGE RETRIEVAL BY STATISTICAL FEATURES AND ARTIFICIAL NEURAL NETWORKS** 706
ROMAN MELNYK, ARSENII ZAWYALOW
183. **LINGUISTIC ANALYSIS OF TEXTUAL COMMERCIAL CONTENT FOR INFORMATION RESOURCES PROCESSING** 709
VICTORIA VYSOTSKA
184. **FACE IMAGE SEARCHING BY PARAMETRIC STATISTICAL FEATURES** 714
ROMAN MELNYK, YURIY KALYCHAK
185. **DATA REPRESENTING AND PROCESSING IN EXPERT INFORMATION SYSTEM OF PROFESSIONAL ACTIVITY ANALYSIS** 718
OLEH ZARITSKIY, PETRO PAVLENKO, ANDRIY TOLBATOV
186. **TRANSFERRING THE 3D TV OBJECTS BY THE STANDARD DIGITAL STREAMS** 721
OLENA OSHAROVSKA, VALENTINA SOLODKA
187. **ADAPTIVE ASYMPTOTICALLY ROBUST INVARIANT DETECTION OF SIGNALS IN UNCERTAIN NOISE ENVIRONMENTS** 724
VENIAMIN A. BOGDANOVICH, ALEKSEY G. VOSTRETSOV, AND NIKITA S. KHAILO
188. **UNCERTAINTY IN SITUATIONAL AWARENESS SYSTEMS** 729
KHRYSTYNA MYKICH, YEVHEN BUROV
189. **THE USE OF MULTI-LEVEL MODELING IN THE CLIOMETRIC STUDIES PROCESS** 733
SERGIY HOLUB, NATALIA KHYMYTSIA
190. **MODEL INTELLIGENT PROCESSING OF AERIAL PHOTOGRAPHS WITH A DEDICATED KEY FEATURES INTERPRETATION** 736
VLADIMIR BARANNIK, ANDRII KRASNORUTSKIY, YU. N. RYABUKHA, D.E. OKLADNOY
191. **METHODOLOGICAL BASIS FOR DETERMINING THE ENERGY SIGNIFICANCE OF THE STRUCTURAL UNIT OF A VIDEO FRAME BASED ON THE ESTIMATION OF LOW-FREQUENCY COMPONENTS OF THE MATRICES OF THE DCT BLOCKS OF THE LUMINANCE COMPONENT** 739
V. V. BARANNIK, DMITRY KOMOLOV, A.P. MUSIENKO, R.V. TARNOPOLOV
192. **THE ANALYSIS OF TEXT DOCUMENTS CLASSIFIERS CONSTRUCTING METHODS** 742
TETIANA GOLUB
193. **THERMAL IMAGES IMPROVING BASED ON CUMULATIVE HISTOGRAM CORRECTION AND MEDIAN FILTERING METHODS** 746
PETRO KONDRATOV, ALBERT OGANESYAN, VICTOR TKACHENKO, IVAN PRUDYUS, LEONID LAZKO AND DMYTRO MYMRIKOV
194. **ON PREDICTION OF DCT-BASED DENOISING EFFICIENCY UNDER SPATIALLY CORRELATED NOISE CONDITIONS** 750
OLEKSII RUBEL, VLADIMIR LUKIN, KAREN EGIAZARIAN
195. **JOINT CAPTURING OF READOUTS OF HOUSEHOLD POWER SUPPLY METERS** 755
MYKOLA KOZLENKO, MYKOLA KUZ
196. **ANALYSIS THE FUNCTIONS OF WAVELET TRANSFORM TO COMPRESS CONTENT IN TELEVISION PRODUCTION** 758
NIKOLAY PATLAENKO
197. **COMPUTERIZED CONTROL OF DEFECTS IN PRESSURE WELDING JOINTS BY ULTRASONIC INSPECTION** 761
IGOR ZIAKHOR, IGOR KHUDETSKYY

SECTION 10
BIOTECHNICAL AND MEDICAL DEVICES AND SYSTEMS

198. **ESTIMATION METHOD FOR SAFETY AND EFFICIENCY OF THE ELECTRONIC EQUIPMENT FOR BIOPHYSICAL EXPLORATIONS** 767
S.K. MESHANINOV, V.M. SPIVAK
199. **OPTIMIZATION OF PARAMETERS OF THE VISUALIZATION QUALITY IMPROVEMENT METHOD OF X-RAY IMAGES** 770
POVOROZNJUK ANATOLIY, FILATOVA ANNA

200. **DESIGN FEATURES OF AUTOMATED DIAGNOSTIC SYSTEMS FOR FAMILY MEDICINE** 774
SERGIY KOSTISHYN, SERGIY TYMCHYK, ROMAN VYROZYB, ALEXANDRA ZLEPKO, VOLODYMYR PAVLOV
201. **EXCITATION ENERGY CONTROL IN QUANTUM RETINOGRAPHY** 777
MYKHAILO BACHYNSKYY, YURIYY STOYANOV, BOHDAN YAVORSKYY
202. **PROSPECTS FOR THE USE OF NEW METHODS OF DIGITAL PROCESSING OF MEDICAL IMAGES** 780
JOSYP BILYNSKY, OKSANA HORODETSKA, PAVLO RATUSHNY
203. **POTENTIAL INFLUENCE OF WIRELESS WI-FI NETWORKS FOR THE DIGESTIVE FUNCTION OF A STOMACH** 784
VSEVOLOD NOVIKOV, ANTON BORSUK, VICTORIA GLAZKOVA
204. **SCHEMATIC SUPPORT OF PROGRAMMED POLYCHROMATIC TREATMENTS WITH THE PRELIMINARY TEST FOR COLOUR SENSITIVITY** 787
ZENON HOTRA, OLEKSANDR KOZHUKHAR, MARIYA IVAKH, HRYHORIY BARYLO, VOLODYMYR VIRT
205. **MODELING OF RADIATORS CHARACTERISTICS FOR ULTRASOUND TRANSDUCERS WITH MECHANICAL SCANNING** 790
STORCHUN E.V., YAKOVENKO E.I.
206. **IMPROVING THE EFFECTIVENESS OF PHYSIOTHERAPY IN DENTISTRY** 793
ZENON HOTRA, GRIGORIY BARYLO, ROKSOLANA SHKREBNYUK, MARIYA IVAKH
207. **MILLIMETER-WAVE SYSTEM FOR MEDICAL DIAGNOSTICS** 796
YAROSLAV SAVENKO, FEDIR REPA, EVGENIY NELIN
208. **THE INFORMATIVE PARAMETERS DETERMINATION FOR A VISUAL SYSTEM DIAGNOSTICS BY USING THE STEADY STATE VISUAL EVOKED POTENTIALS** 800
MARIA STADNYK
209. **PRECISE MICROFLOW CONTROL IN LAB-ON-A-CHIP AND ORGAN-ON-A-CHIP AS FUTURE APPLICATIONS** 804
KATERYNA PRASOL, CLAUS FÜTTERER
210. **DEVELOPMENT THE SOFTWARE APPLICATIONS FOR MOBILE MEDICAL SYSTEMS BASED ON OS ANDROID** 808
N.DOROSH, H. KUCHMIY, O. BOYKO, O.DOROSH, O. STEPANJUK, N.MARITZ

SECTION 11
INFORMATION TECHNOLOGIES IN EDUCATIONAL PROCESS

211. **USED DISTANCE LEARNING TECHNOLOGIES** 813
INNA HERASYMENKO
212. **LIFELONG LEARNING MONITORING MODEL** 817
ILONA REVENCHUK, TETYANA SHATOVSKA
213. **CONSTRUCTION OF MULTIDIMENSIONAL DATA WAREHOUSE FOR PROCESSING STUDENTS' KNOWLEDGE EVALUATION IN UNIVERSITIES** 822
NADIA PASYEKA, MYKOLA PASYEKA
214. **ANALYSIS OF INTEGRITY AND COVERAGE COMPLETENESS OF THE INFORMATIONAL IMAGE OF A HIGHER EDUCATION INSTITUTION** 825
ROMAN KORZH, ANDRIJ PELESCHYSHYN, ZORIANA HOLUB
215. **THE SYSTEM OF INFORMATION PROVIDING OF EDUCATIONAL PROCESS IN UNIVERSITY** 828
ANDRIY ANDRUKHIV, DMYTRO TARASOV, MARIA SOKIL
216. **INFORMATION TECHNOLOGIES IN THE EDUCATIONAL PROCESS AS THE BASIS OF MODERN DISTANCE LEARNING** 831
OLEKSANDR VIUNENKO, ANDRII TOLBATOV, SVITLANA VYGANYAYLO, VOLODYMYR TOLBATOV, SVITLANA AGADZHANOVA, SERGII TOLBATOV
217. **USING INTERNATIONAL STANDARDS OF QUALITY MANAGEMENT SYSTEM IN HIGHER EDUCATIONAL INSTITUTIONS** 834
ZHANNA MYNA, ULYANA YARKA, OKSANA PELESCHYSHYN, TETIANA BILUSHCHAK
218. **LEARNING FOREIGN LANGUAGES IN CONTEXT: PROS AND CONS OF USING MODERN COMPUTER TECHNOLOGIES** 838
IRYNA KRASNIUK, MARYNA KRYVYCH

219. **FEATURES OF THE FORMATION OF A UNIFIED EDUCATIONAL-INFORMATION SPACE FOR GEOGRAPHICALLY AND ORGANIZATIONALLY DISTRIBUTED UNIVERSITIES** 842
IRYNA DOMANETSKA, HANNA KRASOVSKA
220. **TESTS TASKS QUALITY ASSESSMENT METHOD** 845
NATALIA SHCHERBAK
221. **TYPICAL ALGORITHM OF STAGE COMPLETION WHEN CREATING A VIRTUAL COMMUNITY OF A HEI** 849
OLYA TRACH, VOLODYMYR VUS, OKSANA TYMOVCHAK-MAKSYMETS
222. **PECULIARITIES OF THE APPLICATION OF INNOVATIVE EDUCATIONAL TECHNOLOGIES IN POSTGRADUATE EDUCATION** 852
MARYANA ZAKHARCHUK
223. **METHOD FOR EVALUATING THE EFFICIENCY OF SYSTEMS FOR DISTANCE EDUCATION** 855
ANDRIY MELNYK, MYKHAILO SHPINTAL, VIKTOR SPILCHUK, MYKHAILO SUSLA
224. **SERIOUS GAMES: EVALUATION OF THE LEARNING OUTCOMES** 858
IRYNA ZOLOTARYOVA, OLENA PLOKHA
225. **VALIDATION OF THE USER ACCOUNTS PERSONAL DATA OF ONLINE ACADEMIC COMMUNITY** 863
SOLOMIA FEDUSHKO, YURIY SYEROV, ROMAN KORZH

SECTION 12
TELECOMMUNICATION SYSTEMS AND NETWORKS

226. **SUPER-HIGH FREQUENCY BLOCK FOR TRANSMITTER-RECEIVER OF 8 MM RANGE** 869
IGOR SUNDUCHKOV
227. **MODEL OF DYNAMIC MANAGEMENT OF TELECOMMUNICATION AND COMPUTER RESOURCES** 872
SERGEY SEMENOV, ALLA GORYUSHKINA, SVETLANA GLOBA
228. **HYPERGRAPH REPRESENTATIONS OF TOPOLOGICAL MODEL MESH-NETWORK IEEE 802.11** 876
SERGII HARKUSHA, OLENA HARKUSHA, MARINA IEVDOKYMENKO
229. **RESULTS OF THE DEVELOPMENT FUNCTIONAL MATHEMATICAL MODEL OF DISTRIBUTION SUB-CHANNELS IN THE MESH-NETWORK IEEE 802.16** 879
SERGII HARKUSHA, OLENA HARKUSHA
230. **USING OF AMPLITUDE MANIPULATED SIGNAL TO INCREASE CAPACITY OF MIMO TELECOMMUNICATION SYSTEM** 882
ANATOLY SEMENKO, CATHERINE DOMRACHEVA, VIKTOR ZAIKA
231. **INFORMATION AND LEGAL ASPECTS OF THE COMMUNICATION FUNCTIONS OF THE COMPUTERIZED SYSTEM OPERATOR** 885
LIUBOV NYKOLAYCHUK, HALYNA PROTSIUK, IHOR PITUKH, VASYL PROTSIUK
232. **RESEARCH OF THE FLOW-BASED MODEL OF HIERARCHICAL MULTICAST ROUTING** 889
OLENA NEVZOROVA, KINAN M. AROUS, ALI SALEM ALI
233. **SERVICES OF TELECOMMUNICATION SYSTEMS OF NEW GENERATION** 893
VALENTYN ABAKUMOV, MARINA LYSKOVA
234. **DEVELOPMENT OF TRAFFIC LIGHT CONTROL ALGORITHM IN SMART MUNICIPAL NETWORK** 896
IEVGENIIA KUZMINYKH
235. **PERSPECTIVE BROADBAND ACCESS TECHNOLOGIES OVER MULTIPAIR TELEPHONE CABLES** 899
VITALIY BALASHOV, VASIL ORESHKOV
236. **THE ISSUE OF TIMELY DELIVERY OF VIDEO TRAFFIC WITH CONTROLLED LOSS OF QUALITY** 902
V. V. BARANNIK, KHARCHENKO N., V.V. TVERDOKHLEB, OLEG KULITSA
237. **IMPLEMENTATION OF THE TRAINING MULTISERVICE NETWORK OF ITRE (INSTITUTE OF TELECOMMUNICATIONS, RADIOELECTRONICS AND ELECTRONIC ENGINEERING) WITH THE REMOTE ACCESS** 905
H. M. VASKIV, A. YA. YAROSHCHUK, M. V. DRUL'
238. **THE RESEARCH OF DEPENDENCE OF HARMFUL INTERFERENCE IN THE SYSTEMS OF BROADBAND ACCESS OVER ELECTRIC WIRING NETWORKS ON GUARD INTERVAL DURATION** 908
LIAKHOVETSKYY L.M., YANEVICH A.K.
239. **HIERARCHICAL APPROACH TO RESOURCE ALLOCATION IN MULTITENANT TRANSPORT OPTICAL NETWORK** 911
OKSANA YEVSIEIEVA, YEVGEN ILYASHENKO

240. **OPTIMAL SIGNALS FOR TRANSMISSION OVER THE IMPERFECT MEDIA** 914
BALASHOV VITALIY, BARBA IRINA
241. **THE 802.11 PROTOCOLS USAGE FOR WIRELESS SYSTEMS CONSTRUCTION WITH FLEXIBLE ARCHITECTURE** 918
LEONID URYVSKY, SERHII OSYPCHUK, BOGDAN SHMIGEL
242. **THE MANET`S HIERARCHICAL CONTROL SYSTEM USING FUZZY LOGIC** 922
VALERIY ROMANYUK, OLEG SOVA, ANTON ROMANYUK, SERGEY SALNYK
243. **ACCOUNTING USERS' OPINION ABOUT QUALITY OF SERVICES IN NGN WITH DISTRIBUTED CONTROL SYSTEM** 926
ANASTASIA KALCHENKO
244. **USE OF WIRELESS TELECOMMUNICATION SYSTEM WITH CODE CHANNELS DIVISION BASED ON MODIFIED PSEUDORANDOM GOLD SEQUENCES FOR THE INFORMATION TRANSMISSION FROM SURVEILLANCE CAMERAS** 930
VOLODYMYR TOLUBKO, ANATOLIY SEMENKO, NATALIA BOKLA, KLAUS KABICH, ALEKSANDER DEMENTIEV
245. **FORMULATING AND SOLVING PROBLEM OF PRIORITY SUBCHANNEL ALLOCATION IN DOWNLINK WiMAX** 934
HAIDER D. AL-JANABI, HUSSAM D. AL-JANABI, ORAZ M. HOJAYEV
246. **PROSPECTS OF IMPLEMENTATION OF MODERN CELLULAR WIRELESS DATA TRANSFER STANDARDS** 937
ANDRIY DZYUBINA, HALYNA KOPETS
247. **THE PROBLEM OF DOWNLINK CHANNEL BANDWIDTH CAPACITY ALLOCATION IN LTE TECHNOLOGY** 940
HAIDER AL-ZAYADI
248. **TRANSMISSION QUALITY ESTIMATION FOR DOCSIS UPSTREAM CHANNEL IN CABLE TV NETWORKS** 943
VOLODYMIR BALIAR
249. **STUDY ON TRAFFIC AGGREGATION ALGORITHMS FOR EDGE NODES OF OPTICAL BURST SWITCHING NETWORK** 947
STEPAN DUMYCH
250. **WAVELENGTH REARRANGEMENT AND LOAD BALANCING ALGORITHM FOR OWTDMA-PON NETWORK** 950
OLENA KRASKO, ROMAN KOLODIY, VIKTOR KHAVALKO
251. **DEPLOYMENT STRATEGIES AND STANDARDIZATION PERSPECTIVES FOR 5G MOBILE NETWORKS** 953
TARAS MAKSYMYUK, MYKHAILO KLYMASH, MINHO JO