2006 8th International Conference on Actual Problems of Electronic Instrument Engineering

(APEIE 2006)

Novosibirsk, Russia 26 – 28 September 2006



IEEE Catalog Number: ISBN:

CFP06471-PRT 978-5-7782-0662-5

DETERMINATION OF EFFECTIVE MEDIUM MODULUS WITH DOUBLY PERIODIC SYSTEM OF CYLINDRICAL CAVITIES	1
S.G. Rastorguyev	
SIMPLE FREE-SPACE METHOD FOR MEASUREMENT OF DIELECTRIC CONSTANT BY MEANS OF DIFFRACTIVE OPTICS WITH NEW CAPABILITIES	3
THE GAUSS WAVE PACKETS SCATTERING ON THE REGULAR LATTICE OF FINITE LENGTH	9
IS IT POSSIBLE TO MAKE MATERIALS WITH IONIC SUPERCONDUCTIVITY?	11
DEPENDENCE OF THE RESISTIVITY ON ANGLE AND SIZE FOR A RECTANGULAR SAMPLE MADE FROM THE CONDUCTIVE SQUARE CELL NET	18
SECTIONAL ULTRASONIC IRRADIATOR FOR INTRACAVITARY TREATMENT	22
PLASMA CHEMICAL ETCHING OF SILICON	28
DEFINING THE ZONE OF INTEREST FOR THE MARKER IMAGES ON ANODIZED ZIRCONIUM SURFACE	30
V.S. Kimaikin, G.A. Syretzkij	
ELECTROMAGNETICALLY INDUCED ABSORPTION IN AN ELLIPTICALLY POLARIZED LIGHT FIELD	32
D.V. Brazhnikov, A.V. Taichenachev, A.M. Tumaikin, V.I. Yudin, S.A. Zibrov, Y.O. Dudin, V.L. Velichansky	
Application of spectral density of transitions in semiconductor laser theory	37
Nonlinear phase effect connected with a nonlinear gain	43
EFFICIENCY OF SIGNAL CENSORING IN WHITENING FILTERS	47
THE GROUP OF BRIDGE CIRCUITS WITH THE COUPLING ON THE BASE OF ANALOG ADDER	50
PROCESS APPROACH TO QUALITI MANAGEMENT SYSTEM	58
ALGORITHMS OF SIGNALS CENSORING IN ADAPTIVE WHITENING FILTERS	60
MULTIPATH CHANNEL INFLUENCE UPON PROBABILITY CHARACTERISTICS OF COMMUNICATION SUBSYSTEMS OF RADIO SHORT-RANGE NAVIGATION SYSTEMS	67
APPLICATION OF LABVIEW FOR ESTIMATION OF NON-LINEAR DISTORTIONS OF LOW-FREQUENCY MODULES OF HOUSEHOLD RADIO-ELECTRONIC EQUIPMENT	69
A COLLECTOR NETWORK OF PARAMETRIC TRANSISTOR FREQUENCY MULTIPLIERS SYNTHESIS METHOD	71

QUASIPOLYNOMIAL BANDSTOP FILTERS ON LUMPED ELEMENTS WITH A PARALLEL	
RESONANCE	73
ABOUT THE SOUND VELOCITY PROFILE RECOVERING RESULTS	80
Development and Analysis of Interval Detection Algorithm Invariant to Signal Energy Frequency Distribution	82
SIGNAL TRANSFERING METHOD WITH SIMULTANEOUS COMPENSETION OF FREQUENCIES SHIFTING	84
THE COMPARATIVE ANALYSIS OF CORRECTIONS RELATIVE METHODS CHARACTERISTICS OF THE FIRST AND THE SECOND ORDER	86
THE TECHNICAL CHARACTERISTICS OF THE INVARIANT ECHO-COMPENSATOR WITHOUT A PROTECTIVE TIME INTERVAL	88
PECULIARITIES OF UTILIZATION AND CALCULATION OF LONG-HAUL ALL-OPTICAL TRANSMISSION SYSTEM	90
RESONANCE FREQUENCY OF THE OSCILLATORY SYSTEM WITH DIELECTRIC RESONATOR L.G. Playsky	94
USE OF ADDITIONAL MEDICAL SYSTEMS AT CARRYING OUT PHYSIOTHERAPEUTIC PROCEDURES IN AUTOKINESITHERAPY WITH ESTIMATION OF THE TREATMENT DYNAMICS AND THE ENHANCEMENT OF ITS EFFICIENCY	99
SPEAKING ABOUT METHODS OF REVEALING JF SIGNIFICANT FACTORS-PREDICTORS OF SUDDEN DEATH	102
THE INVESTIGATION OF PHYSICAL MECHANISM OF TRANSCAPILLARY EXCHANGE BY PHASE-SENSITIVE LASER METHOD	104
THE SQUARE LAW OF BROWNIAN MOTION OF MICROOBJECTS IN LIQUIDS AT SMALL TEMPORAL AND SPATIAL SCALES	105
THE PHENOMENON OF FORMATION OF THE HELICAL COUNTERFLOW MOTION OF GAS MEDIUMS AT VENTILATION OF LUNGS	106
THE PULSE LASER RADIATION IN BORN CORN TREATMENT	107
TOOL BASIS OF MODERN REFLEXOTHERAPY. V.V. Nebrat, E.V. Rabinovich	108
THE QUALITY OF OCULAR ARTIFACTS SUPPRESSION IN ELECTROENCEPHALOGRAM DEPENDING ON SELECTION OF A WAVELET MOTHER FUNCTION FOR A SIGNAL DECOMPOSITION Vagania N. Laving, Vladimir, S. Pudov, Vladimir, L. Polybinsky	109

ANALYSIS OF THE EXISTING HEALTHCARE INFORMATION SYSTEMS FOR MEDICAL SETTINGS IN RUSSIA, 2005-2006	ı 10
FEATURES OF HARDWARE REALIZATION OF THERAPEUTIC MAGNETIC INFLUENCES	.11
HARDWARE APPROACHES TO PRACTICE OF "IN VIVO" BIOIMPEDANCE MEASUREMENT IN VARIOUS NOISE ENVIRONMENT CONDITIONS, IN TREATMENT-AND-PROPHYLACTIC INSTITUTIONS	12
SPEECH FORMATION OBJECTIVISATION METHODS DEVELOPMENT AND ANALYSIS FOR CORRECT PHONATION DIAGNOSTICS	13
THE VALIDITY ESTIMATION OF THE RECOVERING STANDARD ECG LEADS FROM THREE ORTHOGONAL LEADS ALGORITHM	14
THE APPLYING SETS GRAPH PROTECTION MODEL TO THE DETECTION INFORMATION THREATS IN DISTRIBUTED NETWORKS AND DATA BASE MANAGEMENT SYSTEMS	115
DEVELOPMENT OF DIPOLE RADIATING INTEGRATED DEVICE USING NOVEL PLANAR BALANCE UNIT	ı 18
THE SOFTWARE FOR A CHOICE OF COEFFICIENT OF CRITERION OF A MINIMUM OF THE RESULTING ROOT-MEAN-SQUARE ERROR AND SMALL PARAMETER FOR LINEAR AUTOMATIC CONTROL SYSTEMS	21
SEPARATION OF THE MAIN PART OF THE FIELD IN SOLVING THREE-DIMENSIONAL NON-LINEAR MAGNETOSTATIC PROBLEMS	1 24
USE OF COMPOUND THREE-DIMENSIONAL MESHES CONTAINING PRISMATIC AND TETRAHEDRAL FINITE ELEMENTS	26
THE METHODS OF ACCURACY INCREASE OF PRESENTATION OF THE ELECTROMAGNETIC FIELDS CHARACTERISTICS BEING SPATIAL DERIVATIVE OF THE FINITE ELEMENT SOLUTION	28
ESTIMATING PARAMETERS OF STOCHASTIC NONLINEAR DYNAMIC SYSTEM WITH USE OF GRADIENT METHOD	30
MODELS OF COMPONENTS FOR CIRCUIT SIMULATION WITH THE HIDDEN NODES	.32
THE USE OF VECTOR FINITE ELEMENT METHOD AND MIXED VECTOR FINITE ELEMENT METHOD FOR SOLVING FIRST ORDER SYSTEM OF MAXWELL EQUATIONS	ւ34
TIME-FREQUENCY ALGORITHM OF AUDIO SIGNAL COMPRESSION	.36

APPLICATION OF UNSTRUCTURED RECTANGULAR MESHES FOR BOREHOLE ELECTRICAL SURVEY NON-STATIONARY PROBLEMS SOLUTION BY VECTOR FINITE ELEMENTS METHOD	138
M.G. Persova, E.V. Khitsenko	130
THE HARMONIC ELECTROMAGNETIC FIELDS MODELING FOR SOLVING TASKS OF MAGNETO-TELLURIC SOUNDING	140
NOVEL DETECTING HARMONIC SOURCES METHOD IN DISTRIBUTION SYSTEMS AND NEW HARMONICS FACTOR	142
DESIGN, REALISATION AND APPLICATION OF HIGH VOLTAGE HIGH FREQUENCY EMC MEASUREMENT DEVICE WITH CURRENT LOOP OUTPUT	149
IMPLEMENTATION OF RUGGED MEASUREMENT SYSTEM ON ELECTRIC VEHICLE	155
THREE-LEVEL Z-SOURCE NEUTRAL-POINT-CLAMPED INVERTER	161
A THEORETICAL FOOTING FOR DESIGN METHODOLGY AND PRACTICAL IMPLEMENTATION OF THE THREE-PHASE THREE-LEVEL RECTIFIERS	169
FOUR-LEVEL RECTIFIER AND FOUR-LEVEL INVERTER FOR ELECTRIC DRIVES	175
THREE-LEVEL RECTIFIERS OF THREE-PHASE ORTHOGONAL SYSTEM OF VOLTAGES	183
A STUDY OF INPUT CURRENT MODEL FOR NEW MULTIPULSE THREE-LEVEL RECTIFIERS OF THREE-PHASE ORTHOGONAL VOLTAGES SYSTEMS	189
Synthesis of Circuits of Rectifiers with Series-Parallel Switching of AC Voltagess	196
Synthesis of Rectifiers with Natural Commutation	198
DESIGN OF POWER ELECTRONICS DRIVEN PMSM WITH CONSTANT TORQUE BY SPECIAL MAGNETIC CIRCUIT AND PERMANENT MAGNET CONFIGURATION	200
MODULAR 3-PORT ISOLATED CURRENT- AND VOLTAGE MEASUREMENT SYSTEM FOR ADVANCED CONVERTER CONTROL	206
POWER ELECTRONICS CONTROLLED DC DRIVE FOR GEOPHYSICAL EARTH MAGNET FIELD REVERSAL SIMULATION	211
APPLICATION OF FEEDBACK LINEARIZATION FOR AIR GAP FLUX CONTROL OF INDUCTION MOTOR IN THE FIELD WEAKENING REGION	217
ADVANCED FINITE ELEMENT ANALYSIS FOR HIGH POWER WIND ENERGY SYSTEMS Thomas Karall, Rudolf Woerndle	223
A BAD DATA PROCESSING ALGORITHM FOR A SUBSTATION AUTOMATION SYSTEM	229

ESIGN STUDY OF POWER ELECTRONICS FED TRANSVERSAL FLUX MACHINE IN AXIAL RRANGEMENT	234
Andreas Schmid	
PID CONTROLLER DESIGN FOR NONLINEAR SYSTEMS BASED ON TWO-TIME-SCALE MOTIONS	240
V.D. Yurkevich	
Abstracts of Selected Papers Published in the Proceedings of APEIE-2006	248
Author Index	