

2018 International Multi-Conference on Industrial Engineering and Modern Technologies (FarEastCon 2018)

**Vladivostok, Russia
3-4 October 2018**

Pages 1-695



**IEEE Catalog Number: CFP18M35-POD
ISBN: 978-1-5386-9536-4**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

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

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

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

IEEE Catalog Number:	CFP18M35-POD
ISBN (Print-On-Demand):	978-1-5386-9536-4
ISBN (Online):	978-1-5386-9535-7

Additional Copies of This Publication Are Available From:

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

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

ESTIMATION OF ENERGY CONSUMPTION OF DM-H DRILL RIG MAIN DRIVE IN FAR NORTH CONDITIONS	1
<i>Vadim Z. Manusov ; Dmitry V. Antonenkov ; Denis B. Solovev</i>	
ANALYSIS OF THE SPECTRAL CHARACTERISTICS OF COMPLEX PHASE-MANIPULATED SIGNALS IN THE BASIS OF THE MELLIN INTEGRAL TRANSFORM	6
<i>Makarov Anatoly Mikhailovich ; Pisarenko Elena Anatolyevna ; Ermakov Alexander Sergeevich</i>	
LOGIC-FUNCTIONAL MODELING OF NONLINEAR RADIO ENGINEERING SYSTEMS	10
<i>V.A. Kravchenko ; D. Sh. Shirapov</i>	
METHOD OF PARAMETRIC OPTIMIZATION IN PROBLEMS OF IDENTIFICATION OF BOUNDARY CONDITIONS OF CONVECTIVE HEAT TRANSFER IN PROCESSES OF NON-STATIONARY HEAT CONDUCTION	16
<i>A.N. Diligenskaya</i>	
ULTRA-SMALL STEP FREQUENCY SYNTHESIZER FOR CONTROL OF PHASE-LOCKED LOOP SYSTEMS	20
<i>Vadim Zhmud ; Andrei Ivoilov ; Lubomir Dimitrov</i>	
HEAT TRANSFER MODEL ANALYSIS OF A HYBRID POROUS COMPACT HEAT EXCHANGER	27
<i>V.I. Ryazhskih ; D.A. Konovalov ; A.V. Nikolenko</i>	
RESEARCH ON THE HYDRODYNAMICS OF COOLANT FLOW IN COMPACT HEAT EXCHANGERS FILLED WITH AN INHOMOGENEOUS POROUS MEDIUM	33
<i>N.N. Kozhukhov ; E.A. Kozhukhova ; V.Y. Dubanin</i>	
MODIFICATION OF NONPARAMETRIC PROBABILITY DENSITY ESTIMATION OF PARZEN'S TYPE WITH IMPLICITLY GIVEN FORM OF KERNEL FUNCTION	39
<i>Aleksandr V. Lapko ; Vasily A. Lapko ; Ekaterina A. Yuronen</i>	
SYNTHESIS AND THE ANALYSIS OF THE NONPARAMETRIC SYSTEMS OF A PATTERN RECOGNITION BASED ON DECOMPOSITION ON DIMENSION OF THE TRAINING SELECTION	44
<i>Aleksandr V. Lapko ; Ekaterina A. Yuronen ; Vasily A. Lapko</i>	
FUZZY-BASED MULTI-POINT INTERCONNECTED CONTROL SYSTEM OF ELECTRICAL DRIVES FOR SHEET METAL FORMING	48
<i>Vyacheslav Alekseyevich Solovyev ; Nelly Egorovna Deryuzhkova ; Kyaw Aung Htet</i>	
PRACTICAL APPLICATION AND METHODS OF CALCULATION FOR LINEAR INDUCTION MOTORS	52
<i>Vasilii Tiunov</i>	
NONLINEAR-PERIODIC CONTROL SYSTEM FOR NON-AFFINE STATIONARY PLANT WITH STATEMENT DELAY	58
<i>E. L. Eremin ; E. A. Shelenok</i>	
SOFTWARE IMPLEMENTATION OF THE ACCURATE REGULATORS A THREE-DIMENSIONAL OBJECT: HEATING CHAMBER EVAPORATOR HEATER STEAM BOILER	65
<i>A.V. Bogdanov ; E.A. Muraveva</i>	
ENERGY RESILIENCE ASSESSMENT IN THE PERIOD OF TRANSITION TO SUSTAINABLE ENERGY	69
<i>Vadim I. Loktionov</i>	
DEVELOPMENT OF THE METHOD FOR CONSTRUCTING TRAJECTORIES OF AIR OBJECTS	76
<i>S.N. Zhiganov ; E.A. Zhiganova ; K.V. Mikheev</i>	
IMPROVING PERFORMANCE OF AUTONOMOUS POWER SUPPLY SYSTEMS USING BRUSHLESS SYNCHRONOUS GENERATORS	80
<i>V. V. Karagodin ; V. A. Gorin ; S. V. Smirnov</i>	
EFFICIENCY OF AN ALGORITHM OF SCHEDULING	86
<i>Evgeniy M. Kuznetsov ; Vyacheslav P. Klimanov</i>	
THE ANALYSIS OF MEASUREMENTS OF INDICATORS OF QUALITY OF THE ELECTRIC POWER AND CALCULATION OF ECONOMIC EFFICIENCY AFTER INSTALLATION OF THE BOOSTER TRANSFORMER	90
<i>Ivanova Viliya Ravilevna ; Fetisov Leonid Valerevich ; Bulatov Oleg Andreevich</i>	

AUTOMATED MONITORING OF LEVEL DISTORTION CODED SIGNALS TRANSMITTED ON RAIL LINE	94
<i>A. I. Godyaev ; A. A. Onischenko</i>	
AUTOMATED SYSTEM FOR COLLECTING, PROCESSING TELEMETRIC INFORMATION AND MANAGING REMOTE OBJECTS.....	98
<i>Petrova Anna Nikolaevna ; Chudin Vyacheslav Mikhailovich</i>	
DISTINCTIVE FEATURES OF ENERGY DEMAND FORECASTING IN THE NON-MANUFACTURING SECTOR OF THE ECONOMY.....	102
<i>Elena Galperova ; Olga Mazurova</i>	
IMPROVE NOISE IMMUNITY OF TRANSFER MESSAGES BY RADIO CHANNEL IN CELLULAR SYSTEMS	108
<i>G.V. Zhiba ; V.P. Pisarenko ; A.N. Shevtsov</i>	
EMERGENCY CONDITIONS IN A THREE-PHASE REGENERATIVE CONVERTER WITH SINGLE-POLE COMPENSATION WITH IN-BAND GAIN LIMITING	113
<i>A. I. Andriyanov ; E. A. Sachenko ; A. A. Malakhanov</i>	
METHOD FOR INCREASING THE SPEED AND REDUCING THE ERROR OF MULTIDIMENSIONAL PRECISE LOGIC CONTROLLER	121
<i>E. A. Muraveva ; M.I. Sharipov ; A.V. Bondarev</i>	
ECONOMIC FEATURES TO OPTIMIZE THE CATALYST CALCINATIONS PROCESS.....	126
<i>E.A. Muraveva ; R.F. Gabitov</i>	
THE ELECTROMAGNETIC JUICE PRESS CONTROL SYSTEM.....	131
<i>V. A. Kargin ; A. V. Volgin ; A. P. Moiseev</i>	
THE METHOD OF DEFINING THE THRESHOLD VALUE OF THE SYMBOLIC CORRELATION FUNCTION FOR DETECTING DSSS HYDROACOUSTIC SIGNAL	136
<i>A. S. Mironov ; I. N. Burdinskiy ; I. V. Karabanov</i>	
THE POWER CONSUMPTION DECREASING OF THE TWO-WHEELED BALANCING ROBOT.....	142
<i>Andrei Ivoilov ; Vitaly Trubin ; Vadim Zhmud ; Lubomir Dimitrov</i>	
DETECTION AND RECOGNITION OF EMERGENCY SITUATIONS IN CONTINUOUS VIDEO STREAM OF INFORMATION AND TELECOMMUNICATION SYSTEMS	150
<i>O.S. Amosov ; Y.S. Ivanov ; S.V. Zhiganov</i>	
IDENTIFICATION OF POTENTIAL RISKS TO SYSTEM SECURITY USING WAVELET ANALYSIS, THE TIME-AND-FREQUENCY DISTRIBUTION INDICATOR OF THE TIME SERIES AND THE CORRELATION ANALYSIS OF WAVELET-SPECTRA.....	156
<i>O.S. Amosov ; S.G. Amosova ; N.V. Muller</i>	
CLASSIFICATION OF FACTORS INFLUENCING ON RECUPERATION BRAKING OF URBAN TRANSPORT AND EVALUATION OF THEIR IMPACT	161
<i>Egor A. Spiridonov ; Mikhail V. Yaroslavtsev</i>	
PROBABILITY-THEORETICAL MODEL FOR ESTIMATING MEASUREMENT ERRORS OF COORDINATE MEASURING MACHINES	167
<i>N.V. Ruzanov ; M. A. Bolotov ; V.A. Pechenin</i>	
DEVELOPMENT OF AN ANTINOISE METHOD OF DATA SHARING BASED ON THE APPLICATION OF A TWO-STEP-UP SYSTEM OF RESIDUAL CLASSES.....	172
<i>Y.N. Kocherov ; D.V. Samoylenko ; A.I. Koldaev</i>	
CALCULATION OF THE LOAD OF AN ELECTRIC DRIVE OF A RECIPROCATING COMPRESSOR OF A SHIP REFRIGERATION UNIT	177
<i>Aleksei Vyngra ; Boris Avdeyev</i>	
THE CALCULATION OF THE WORKING AREA OF BISTATIC RADAR.....	181
<i>A. V. Eliseev</i>	
MATHEMATICAL MODELING AND THE COMPUTER ANALYSIS OF STRENGTH CHARACTERISTICS AND SENSITIVITY OF HIGH-LOADED PARTS OF POWER TURBINES.....	186
<i>O Repetckii ; I Ryzhikov ; Tien Quyet Nguyen</i>	
AN APPROACH TO MULTIDIMENSIONAL NONLINEAR OPTIMIZATION	190
<i>Dmitry V. Boldyrev ; Aleksandr V. Pashkovskiy</i>	
THE SYSTEM OF ENVIRONMENT CONTROL OF BOTANIC GARDEN GREENHOUSES	195
<i>D. Dik ; E. Polyakova ; A. Chelovechkova ; V. Moskvina ; T. Nikiforova</i>	
THE INFLUENCE OF NEW FUNCTIONAL PROPERTIES OF ACTIVE-ADAPTIVE ELECTRICAL NETWORKS ON THE CORRECTNESS OF SELECTION AND VERIFICATION OF CONDUCTOR CROSS-SECTIONS BY EXISTING METHODS	202
<i>A.O. Varygina ; N.V. Savina</i>	
APPLICATION OF GAME THEORY FOR SUPPORT OF ACCEPTANCE OF ADMINISTRATIVE DECISIONS IN THE FIELD OF INFORMATIVE SAFETY	207
<i>E.O. Bukharov ; A.V. Kalach ; A.S. Soloviev</i>	

DEVELOPMENT AND TESTING OF THE 3D PRINTED PLASTIC EJECTOR PROTOTYPE FOR THE SOFC ANODE GAS RECIRCULATION	213
<i>V.A. Munts ; Yu.V. Volkova ; M.I. Ershov</i>	
METHODS FOR IMPLEMENTING OF THE SINGLE-ENDED TRAVELING WAVE FAULT LOCATING ON THE TRANSMISSION LINES BASED ON TRAVELING WAVE PATTERN RECOGNITION.....	218
<i>Aleksandr Kulikov ; Anton Loskutov ; Pavel Pelevin</i>	
MATHEMATICAL MODEL OF THE HEAT CIRCULATION PATH OF COMPLEX TECHNICAL SYSTEMS.....	224
<i>I.G. Drozdov ; V.I. Ryazhskih ; D.A. Kononov</i>	
STUDYING AN ACTIVE VIBRATION-PROTECTION SYSTEM WITH A LINEAR DC ACTUATORS.....	228
<i>A.M. Abakumov ; D.G. Randin</i>	
ESTIMATION OF GLOBAL SOLAR RADIATION AND PERFORMANCE OF PHOTOVOLTAIC MODULES USING LONG-TERM METEOROLOGICAL DATA.....	232
<i>V.A. Shakirov</i>	
SCADA-SYSTEM BASED ON MULTIDIMENSIONAL PRECISE LOGIC CONTROLLER FOR THE CONTROL OF A CEMENT KILN.....	236
<i>E. A. Muraveva ; M. I. Sharipov ; R.F. Gabitov</i>	
ECO-FRIENDLY WAVE-TYPE WIND TRANSFORMERS.....	242
<i>S.D. Strelakov ; L.P. Strelakova</i>	
ELECTRIC DRIVE OF AN ELECTRIC VEHICLE ON THE BASIS OF KAZAKHSTAN AUTOMOBILES.....	245
<i>Tergemes Kazhybek Tleugaliuly ; Omirzakov Nagym Tuymebayuly ; Tergemesov Duman Kazhybekovich</i>	
INCREASING OF THE RESPONSE SPEED OF THE ROTARY TABLE SERVO DRIVE.....	250
<i>A.V. Starikov ; S.L. Lisin ; D. Yu. Rokalo</i>	
PREDICTIVE MODEL OF ENERGY MARKET INDICATORS BASED ON CONTINUED APPROXIMATION FOR SERIES SAMPLE PRIOR TO THE MOMENT OF PREDICTION.....	255
<i>Vladimir N. Krutikov ; Oksana N. Indenko ; Ekaterina S. Chernova</i>	
THE WAY OF ASSESSMENT OF TRANSITION PROCESS TIME WITH THE IDENTIFICATION OF THE CLOSED-LOOP SYSTEM INCREASING REGULATION ACCURACY.....	261
<i>S. G. Gutova ; M. A. Novoseltseva ; O. N. Indenko ; I. A. Kazakevich</i>	
IMPROVING DESIGN OF TRANSFORMER TYPE HEATER ELEMENT.....	266
<i>Zar Ni Nyein ; A. V. Litovets ; A. V. Serikov</i>	
APPLICATION OF E-REGIONS OF THE PARAMETERS OF THE MODEL FUNCTION OF THE SIGNAL FOR THE EXTRAORDINARY SITUATIONS DETECTION.....	272
<i>L.I. Suchkova ; A.G. Yakunin</i>	
MODIFICATION OF THE DIMMING CONTROL METHOD FOR LED LIGHTING USING PLC TECHNOLOGY.....	278
<i>Sergey M. Kopytov ; Alexander V. Ulyanov</i>	
A DATA REPRESENTATION BASED ON BLOCK WAVELET TRANSFORM IN MODIFIED FORM.....	282
<i>A. Shoberg ; K. Shoberg</i>	
DEPENDABILITY ASSESSMENT OF WESTERN SIBERIA ELECTRICAL GRIDS.....	286
<i>Tatyana D. Gladkikh</i>	
THE INCREASE OF THE EFFECTIVENESS OF THE AUTONOMOUS SYSTEM OF SOLAR ENERGY SUPPLY.....	291
<i>S.K. Sheryazov ; A.H. Doskenov ; A.S. Chigak</i>	
WIRELESS SYSTEM OF HIGH-SPEED UNDERWATER OPTICAL COMMUNICATION FOR TRANSMISSION FOR VIDEODATA FROM A BOARD OF A SUBMERSIBLE.....	296
<i>S.N. Kirillov ; V.T. Dmitriev ; L.V. Aronov</i>	
MODELING THERMOCYCLIC LOADS OF THE HYDROGEN-OXYGEN STEAM GENERATOR USING THE ANSYS SOFTWARE COMPLEX.....	300
<i>A.N. Egorov</i>	
AUTOMATED COLLECTION AND PROCESSING DATA IN THE SYSTEM OF MONITORING ENVIRONMENTAL POLLUTION BY INDUSTRIAL ENTERPRISES.....	305
<i>A. A. Belov ; Y.A. Kropotov</i>	
INCREASE OF OPERATIONAL RELIABILITY OF GROUNDING DEVICES IN THE ZONE OF ACTION OF FORCES OF VERTICAL DEFORMATION OF SOIL.....	310
<i>P. F. Vasilyev ; A. M. Khoitunov</i>	
DEVELOPMENT OF A NEW DEVICE FOR HUMAN BODY TEMPERATURE REGULATION.....	314
<i>A. Sinitsyn ; E. Filippova ; O. Derevianko</i>	

TO THE INVESTIGATION OF THE PARAMETERS INFLUENCE OVER THE WELDING ASYNCHRONOUS SELF-EXCITED GENERATOR WITH DISTRIBUTED WINDINGS ON ITS EXTERNAL CHARACTERISTICS.....	318
<i>Dmitry N. Pautov ; Vladimir A. Kopyrin ; Yuliya V. Surmyatova</i>	
THE DEVICE FOR DIAGNOSING THE TECHNICAL CONDITION OF THE WORKING TOOL OF THE EXECUTIVE BODY OF THE COAL COMBINE.....	323
<i>D.M. Shprekher ; G. I. Babokin ; E. B. Kolesnikov</i>	
DEVELOPMENT OF PROGNOSTIC NEURAL NETWORK MODELS BASED ON NON-POSITIONAL CODING FOR AUTOMATIC CONTROL SYSTEMS	328
<i>E.E. Tikhonov ; A.I. Sosin</i>	
OPTIMIZATION OF NEURAL NETWORK COMPUTATION WITH USE OF RESIDUAL NUMBER SYSTEM FOR TASKS OF DESIGN OF NEURAL NETWORK SYSTEMS OF AUTOMATIC CONTROL.....	334
<i>E.E. Tikhonov ; A.I. Sosin ; A.A. Evdokimov</i>	
ELECTRO KINETIC CONDITIONING OF COMMERCIAL WOOD.....	339
<i>Vitaliy N. Nikandrov ; Evgeniy G. Porsev ; Elena Yu. Kamysheva</i>	
DEVELOPMENT OF COMPLEX CONTROL OF ELECTRIC POWER SUPPLY SYSTEM WITH THE APPLICATION OF A SOLAR BATTERY.....	344
<i>B. Aizhan ; A. Baklanov</i>	
AUTOMATIC CONTROL SYSTEM OF VENTILATION AND AIR CONDITIONING SYSTEMS BASED ON THE ORGANIZATION OF ENERGY-SAVING AIR TREATMENT MODES.....	348
<i>V.V. Pudikov ; N.B. Litvinova ; P.A. Grushkovsky</i>	
METHODS OF CALIBRATING THE ORIENTATION OF THE INDUSTRIAL ROBOT TOOL.....	351
<i>O.N. Krakhmalev ; D.I. Petreshin ; G.N. Krakhmalev</i>	
AUTONOMOUS BIOFUEL POWER UNIT TO PROVIDE THERMAL AND ELECTRICAL ENERGY FOR INDIVIDUAL CONSUMERS	356
<i>I. Komarov ; A. Rogalev ; D. Rostova</i>	
HIGH-SPEED PASSENGER LIFT MODEL DEVELOPMENT	361
<i>M. Y. Chernenko ; E. S. Kucher ; E. Y. Kamysheva</i>	
KALMAN-FILTERING BASED ALGORITHM FOR SENSOR'S CHANNEL FAULT DETECTION AND ISOLATION.....	365
<i>T.A. Kuznetsova</i>	
THE CONSTRUCTION PRINCIPLE AND SYSTEM ARCHITECTURE OF THE AUTOMATIC HOLD SYSTEM OF AN UNMANNED VESSEL	371
<i>V. Kramar</i>	
POWER EFFICIENT MACHINE-TRANSFORMER AGGREGATES FOR WORK OF ELECTRIC MACHINES IN EXTREME ENVIRONMENTS	375
<i>I.G. Zabora</i>	
THE REMOTE METHOD OF DIAGNOSING THE TECHNICAL CONDITION OF COMPLEX ELECTROMECHANICAL SYSTEMS	380
<i>D.M. Shprekher ; E. B. Kolesnikov</i>	
CT IMAGES SEGMENTATION ALGORITHM BASED ON GRAPH CUTS	383
<i>Maksim Privalov ; Maksim Kazantsev</i>	
ADMITTANCE SPECTROSCOPY OF NANOHETEROSTRUCTURES: COMPUTER-CONTROLLED DATA ACQUISITION AND MODELING OF EMISSION PROCESSES.....	389
<i>Ya. V. Ivanova ; V.I. Zubkov ; O.V. Derevianko</i>	
QUALITY CONTROL OF SODIUM HIGH-PRESSURE LAMPS BY THE SINGULAR DECOMPOSITION METHOD	393
<i>Anatoliy D. Semenov ; Anton V. Volkov</i>	
NUMERICAL SIMULATION OF INDUCTION HEATING FOR MOLTEN POOL HEAT TRANSFER EXPERIMENTS IN SLICE GEOMETRY	397
<i>D. B. Lopukh ; I. N. Skrigan ; A. V. Vavilov ; A. P. Martynov ; S. V. Bechta ; A. A. Komlev</i>	
EXPERT SYSTEMS AS A TOOL TO IMPROVE EFFICIENCY OF OPERATIONAL PRODUCTION MANAGEMENT	403
<i>A.A. Zhihotova ; V.D. Berdonosov</i>	
EQUALIZATION OF TORQUES IN MULTI MOTOR ELECTRIC DRIVES WITH ESTIMATION OF MOTORS PARAMETERS	410
<i>D.V. Volkov ; Yu.P. Stashinov</i>	
ELECTRICITY LOSSES IN URBAN DISTRIBUTION NETWORKS AND THEIR MANAGEMENT	415
<i>Y. V. Myasoedov ; L. A. Myasoedova ; I. G. Podgurskaya</i>	

VOLTAGE CONTROL IN ACTIVE-ADAPTIVE ELECTRIC NETWORKS	420
<i>N.V. Savina ; Y. V. Myasoedov ; N. S. Bodrug</i>	
MULTI-AGENT APPROACH FOR REAL-TIME OPTIMAL CONTROL OF ELECTRO MICROGRID	424
<i>V. A. Shikhin ; A. K. Abd Elraheem ; J. Ren</i>	
DETERMINATION OF THE PLACE OF SHORT-CIRCUIT ON POWER LINES WITH A SIMULTANEOUS RUPTURE OF A PHASE	430
<i>N. Buryanina ; J. Koroluk ; M. Koryakina ; E. Lesnykh ; K. Suslov</i>	
INVESTIGATION OF METHODS FOR DETERMINING THE INTEGRAL CHARACTERISTICS OF PERIODIC SIGNALS SEPARATED IN TIME	434
<i>E Yaroslavkina</i>	
TECHNIQUE FOR FRICTION MODEL IDENTIFICATION IN AN INDUSTRIAL ROBOT JOINT USING KUKA KR10	438
<i>M. N. Nevmerzhtskiy ; A. V. Vara ; K.V. Zmeu ; B. S. Notkin</i>	
THE DEVICE FOR MEASUREMENT, DIGITATION AND SAVING OF THE ELECTROTELLURIC, SEISMOLOGICAL, AND GEOPHYSICAL DATA	443
<i>I.P. Dudchenko</i>	
HARDWARE SUPPORT OF THE PERIODIC COMPONENT DETECTION ALGORITHM BASED ON ZERO-CROSSING	447
<i>Chye En Un ; A.V. Levenets ; Denis B. Solovev</i>	
A METHODOLOGICAL APPROACH TO THE SOFTWARE DEVELOPMENT FOR HEATING SYSTEM DESIGN	452
<i>V. Stennikov ; E. Barakhtenko ; D. Sokolov</i>	
NEW GENERATION ALGORITHMS FOR DETERMINING OF OPTIMAL PARAMETERS OF HEATING SYSTEMS	457
<i>V. Stennikov ; E. Barakhtenko ; D. Sokolov</i>	
THE WIDEBAND BALUN-LNA IN 130 NM SIGE TECHNOLOGY	463
<i>K. V. Murasov ; S. A. Zavyalov ; A. V. Kosykh ; Z. B. Sadykov</i>	
STUDY OF THE EFFICIENCY OF HYBRID ENERGY SYSTEMS WITH RENEWABLE GENERATION: DYNAMICS OF ENERGY PRODUCTION IN SUMMER AND WINTER PERIODS	466
<i>O. V. Marchenko ; S. V. Solomin ; A.N. Kozlov</i>	
NOVEL APPROACH TO ACTIVE RECTIFIER CONTROL DURING VOLTAGE DIPS	472
<i>Jaroslav E Shklyarskiy ; Aleksey I Bardanov</i>	
EXPERIMENTAL STUDY OF A COMBINED SUPERSONIC SEPARATOR	477
<i>V.S. Vlasenko ; V.V. Slesarenko ; K.I. Bashirov</i>	
COMPLEX RESEARCH OF ENERGY EFFICIENCY OF ELECTRIC ARC FURNACE LADLE INSTALLATIONS	481
<i>E. B. Agapitov ; A. A. Nikolaev ; M. A. Lemeshko</i>	
INCREASING THE EFFICIENCY OF ELECTRICITY PRODUCTION FROM RENEWABLE SOURCES FOR CHARGING ELECTRIC VEHICLES	485
<i>I A Anisimov ; A D Burakova ; L N Burakova</i>	
EXPERIMENTAL STUDY OF THE STRESS-STRAIN STATE FEATURES OF OUTLET GUIDE VANE MADE FROM POLYMER COMPOSITE MATERIAL USING FIBER OPTIC SENSORS	489
<i>Andrey Voronkov ; Natalia Kosheleva ; Konstantin Pelenev</i>	
STUDY OF THE TEMPERATURE STATE OF THE T-100-130 STEAM TURBINE HIGH-PRESSURE CYLINDER BY EXPERIMENTAL AND THEORETICAL METHODS	494
<i>O.Y. Kurganova ; I.V. Kudinov ; T.E. Gavrilova</i>	
METHODS FOR INCREASING THE ACCURACY OF GEOACOUSTIC EMISSION SIGNAL MODELS BASED ON SPARSE APPROXIMATION	500
<i>Olga Lukovenkova ; Yuri Marapulets ; Alina Kim ; Alexander Tristanov</i>	
A COMPLEX METHOD FOR AUTOMATIC DETECTION OF GEOACOUSTIC EMISSION PULSES PRECEDING EARTHQUAKES	506
<i>Olga Lukovenkova ; Yuri Marapulets ; Alina Kim ; Alexander Tristanov</i>	
NOVEL FUNCTIONAL-IMPERATIVE PROGRAMMING LANGUAGE EL: A BRIEF INTRODUCTION	510
<i>Aleksandr A. Maliavko</i>	
ALGORITHMIC AND SOFTWARE TO IDENTIFY ERRORS IN MEASURING EQUIPMENT DURING THE FORMATION OF PERMANENT JOINTS	517
<i>A.V. Milov ; V. S. Tynchenko ; V. E. Petrenko</i>	

DISTRIBUTION OF INTRINSIC HYBRID MODES IN A WAVEGUIDE STRUCTURE BASED ON A GRADIENT BIANISOTROPIC METAMATERIAL	522
<i>A.I. Kireeva ; I.P. Rudenok</i>	
NUMERICAL SIMULATION OF LOW-COHERENCE RADIATION PROPAGATION IN TURBID MEDIA AND STRUCTURAL IMAGE RECONSTRUCTION IN ENDOSCOPIC OPTICAL COHERENCE TOMOGRAPHY WITH ALLOWANCE FOR SPECKLE FLUCTUATIONS	527
<i>S.V. Frolov ; A.Yu. Potlov ; S.V. Sindeev ; S.G. Proskurin</i>	
ASSESSMENT OF DRIFT OF GYROSCOPIC SYSTEMS BUILT ON THE BASIS OF MICROELECTROMECHANICAL SENSORS.....	531
<i>A.V. Artemiev ; A.A. Gorhkov ; D.A. Oskin ; O.S. Gromasheva</i>	
OPTIMIZATION OF DRIVE SYSTEM BASED ON ARC-TYPE STATOR ASYNCHRONOUS MOTOR	535
<i>I. A. Vezhnovets ; V. M. Kaveshnikov</i>	
DEVELOPMENT OF A TRANSPORT ROBOT FOR AUTOMATED WAREHOUSES	539
<i>I.G. Plaksina ; G.I. Chistokhina ; D.V. Topolsky</i>	
THE CONCEPT OF LIGHTNING DETECTION NETWORK ENHANCEMENT ON THE KOLA PENINSULA	543
<i>A.V. Burtsev ; V.V. Yaroshevich ; G.P. Fastiy</i>	
SLIDING MODE CONTROL BASED STATCOM.....	547
<i>Yu. V. Skuriatin ; A.V. Belousov ; N.A. Denysevych</i>	
STABILITY OF SYNCHRONOUS MOTORS UNDER SINGLE PHASE GRID SHORT CIRCUITS	553
<i>A. I. Fedotov ; R. M. Mudarisov</i>	
FUZZY OPTIMIZATION IN THE PROBLEM OF FORKLIFTS PATH PLANNING	558
<i>G.N. Rogachev ; M.L. Patkin ; N.G. Rogachev</i>	
GENERIC MATHEMATICAL MODEL OF THE HYDROTREATING DIESEL FUEL REACTOR	563
<i>K. I. Netsvetaeva ; Z. A.-H. Ahmadova</i>	
MATHEMATICAL DESCRIPTION AND OPTIMIZATION OF ROBOT CONTROL FOR PLASTERING WORKS.....	567
<i>Thomas Bock ; Natalia Buzalo ; Alexey Bulgakov</i>	
INCREASING NPP MANEUVERABILITY ON THE BASIS OF HEAT ACCUMULATION SYSTEM AND ADDITIONAL MULTIFUNCTIONAL STEAM TURBINE	572
<i>R.Z. Aminov ; V.E. Yurin ; M.A. Murtazov</i>	
TECHNOLOGICAL AND ECONOMIC EVALUATION OF THE SYSTEM OF HEAT SUPPLY WITH THE USAGE OF RENEWABLE SOURCES OF ENERGY.....	577
<i>S.K. Sheryazov ; O.S. Ptashkina-Girina ; N.S. Nizamutdinova</i>	
CALCULATION OF ELECTRIC FIELD IN ANY POINT OF THE EARTH FOR DETERMINATION OF ELECTROMAGNETIC COMPATIBILITY OF OBJECTS WITH HIGH-VOLTAGE POWER	582
<i>A.S. Karpov ; G. P. Fastiy</i>	
THE CONSUMER LOCALIZATION DISTORTING POWER QUALITY: STUDYING OF A POSSIBILITY.....	586
<i>V.V. Yaroshevich ; A. S. Karpov ; A.V. Burtsev</i>	
THE DEVELOPMENT A POWER SOURCE BASED ON RES, FOR AUTONOMOUS SYSTEMS OF TECHNICAL MEANS OF PROTECTION	590
<i>Evgeniy Andreenkov ; Sergey Shunaev ; Roman Solopov</i>	
INTERDEPENDENCE MODELING OF THE POSSIBLE DEFECTS SET	595
<i>V.V. Voronin ; O. A. Davydov</i>	
METHODOLOGICAL APPROACH TO CAPACITY HARMONIZATION OF RENEWABLE ENERGY SOURCES AND BATTERY PACRKS	600
<i>Alexander Tarasov</i>	
CONDITIONS OF APPLICATION OF DISTRIBUTED SYSTEMS SYNTHESIS METHODS TO MULTIDIMENSIONAL OBJECT	604
<i>Tatyana V. Kukharova ; Ivan M. Pershin</i>	
OBSERVATION AND PREDICTION SYSTEMS MODELING FOR HUMAN MENTAL STATE	609
<i>Tatyana V. Kukharova ; Vladimir A. Utkin ; Igor V. Boev</i>	
CALCULATED AND EXPERIMENTAL INVESTIGATIONS OF RESONANT STEP-DOWN DC-DC CONVERTER SPECIFICATIONS FOR ELECTRIC VEHICLES	614
<i>Oleg V. Kukovinets ; Baurzhan K. Ospanbekov ; Kirill M. Sidorov</i>	
COMPLEX MODELING OF AUTONOMOUS POWER PLANT OPERATION WITH VARIABLE SPEED ENGINE GENERATOR AND ENERGY STORAGE	620
<i>K. M. Sidorov ; B. K. Ospanbekov ; V. E. Yutt</i>	

CONDITIONS OF APERIODIC TRANSIENT IN CONTROL SYSTEMS OBEYING A MATHEMATICAL MODEL WITH CUBIC CHARACTERISTIC EQUATION	627
<i>Maslennikov Valerii Viktorovich ; Meshcheryakov Vyacheslav Viktorovich ; Dovgopolaya Elena Alekseevna</i>	
METHODS REGULATION OF THREE-PHASE VOLTAGE BY BOOSTER CASCADE IN 12 SUB-BANDS	632
<i>V. S. Klimash ; A. S. Lavrenov</i>	
A HYBRID EXPERT SYSTEM FOR SELECTION AND MAINTENANCE OF ROBOTIC MILLING CONDITIONS	637
<i>S. Boboshko ; V. Kovalev</i>	
REVERSIBLE STRUCTURAL TRANSFORMATION METHODS OF MEASURING DATA FRAMES AS A MEANS OF INCREASING THE EFFICIENCY OF COMPRESSION.....	644
<i>A.V. Levenets ; En Un Chye ; I.V. Bogachev</i>	
RELIABILITY AND EFFICIENCY INCREASING OF THE HALF-WAVE POWER TRANSMISSION LINES	650
<i>A. M. Khoiutanov ; G. I. Davydov</i>	
DEVELOPMENT OF AN INTELLIGENT MEASURING SYSTEM FOR DIGITAL SUBSTATIONS	654
<i>D.V. Topolsky ; I.G. Topolskaya ; N.D. Topolsky</i>	
OPTIMIZATION OF PANEL FORMING PROCESSES IN CREEP MODE USING CAE-TECHNOLOGIES.....	658
<i>K.S. Bormotin ; Win Aung</i>	
EVALUATION OF THE COERCIVE FORCE OF PERMANENT MAGNETS OF ELECTRICAL DEVICES BASED ON SOLVING INVERSE PROBLEMS	662
<i>Anna Balaban ; Yuriy Bakhvalov ; Valeriy Grechikhin</i>	
ROBUST TO JPEG COMPRESSION IMAGE WATERMARKING SCHEME BASED ON EVEN-ODD MODULATION AND ERROR-CORRECTING CODES	666
<i>Alexander Bahrushin ; Galina Bahrushina ; Ruslan Bazhenov</i>	
RANG ANALYSIS OF DISTRIBUTED ELECTRICITY CONSUMERS OF DECENTRALIZED ENERGY ZONES OF THE NORTH AND ARCTIC REGIONS OF THE RUSSIAN FEDERATION.....	672
<i>Dmitry V. Antonenkov ; Violetta R. Kiushkina ; M.K. Ammosov ; Denis B. Solovev</i>	
CALCULATION AND EXPERIMENTAL STUDIES OF THE WORKING PARAMETERS OF THE GAS PISTON ENGINE	680
<i>V. G. Kamaltdinov ; V.A. Markov ; S.S. Nikiforov</i>	
THE INFLUENCE OF OPERATION OF A WHOLESALE ELECTRICITY MARKET TO A DAMAGE FROM POWER OUTAGE FOR THE INDUSTRIAL ENTERPRISE	686
<i>A. Iuldasheva ; A. Malafeev</i>	
AUTOMATIC PROGNOSTIC REGULATORS OF DISTRIBUTED GENERATORS	692
<i>Yuri N. Bulatov ; Andrey V. Kryukov ; Nguyen Van Huan</i>	
NEW TECHNOLOGY FOR MEASURING GEOMETRIC PARAMETERS OF LARGE-SIZED ROTARY PARTS.....	696
<i>H.K. Radev ; V. J. Bogeov ; V. A. Vassilev</i>	
LARGE-SCALED DETAILS FLATNESS MEASUREMENT METHOD	700
<i>D. I. Diakov ; H.N. Nikolova ; V.A Vassilev</i>	
ON THE ACCURACY AND CREDIBILITY OF ESTIMATES OF OBJECT PARAMETERS	703
<i>H.K. Radev</i>	
USING THE EFFECT OF SUPERCONDUCTIVITY AND SUPERCONDUCTING MATERIALS TO LIMIT SHORT-CIRCUIT CURRENTS	708
<i>A.N. Kuksin ; A.V. Myatezh</i>	
SMOOTHING FILTERING OF OBSERVED SAMPLES ACOUSTIC SIGNALS AND INTERFERENCE IN AUDIO EXCHANGE TELECOMMUNICATIONS	712
<i>Y. A. Kropotov ; A. A. Belov ; A. Y. Proskuryakov</i>	
ANALYTICAL METHOD FOR DETERMINATION OF SEDIMENT THICKNESS AT PIPELINE INNER SURFACES	717
<i>Ye. V. Stefanyuk ; R.M. Klebleyev ; O. Yu. Kurganova</i>	
MONITORING OF ENVIRONMENTAL SAFETY OF THE TERRITORIAL TECHNOSPHERE ON THE BASIS OF MULTI-AGENT TECHNOLOGY	720
<i>O. E. Bezborodova ; O. N. Bodin ; V. G. Polosin</i>	
EFFICIENCY ENSURING OF ICE MELTING IN POWER NETWORKS REGION	726
<i>A. Shchurov ; S. Shovkoplyas ; A. Zasyupkin</i>	
LEAST SQUARES METHOD FOR SOLVING A SYSTEM OF LINEAR EQUATIONS BASED ON MULTILEVEL WAVELET DECOMPOSITION OF THE RESIDUAL	730
<i>V. Esaulov ; R. Sinetsky</i>	

NANODIAMOND SUSPENSIONS APPLICATION FOR HEAT TRANSFER PROCESSES INTENSIFICATION	735
<i>A S Lobasov ; A V Minakov ; M I Pryazhnikov</i>	
INFLUENCE OF RADIATION PROPERTIES OF COMBUSTION PRODUCTS ON THE RELIABILITY OF THE COMBUSTION ZONE IN POWER PLANTS	740
<i>E.V. Toropov</i>	
DECREASE IN RISK OF INCIDENT IN WORK AUTOMATIC CONTROL SYSTEM OF THE GAS-PUMPING UNIT	744
<i>D. S. Denisov ; T. A. Bakiyev</i>	
SPECTRAL MODULATION TECHNIQUE BASED ON FREQUENCY-SHIFT KEYING FOR HIGH-SPEED OPTICAL FIBER-WIRELESS COMMUNICATION SYSTEM	752
<i>Elizaveta P. Grakhova ; Guzel I. Abdrakhmanova ; Ivan K. Meshkov ; Irina L. Vinogradova ; Valeriy Kh. Bagmanov</i>	
SOLID-STATE VOLTAGE REGULATOR FOR A 6–10 KV DISTRIBUTION NETWORK	757
<i>E.N. Sosnina ; A.I. Chivenkov ; I.A. Lipuzhin</i>	
OPTIMIZATION OF THE PARAMETERS OF THE DISTRIBUTION NETWORK COMPUTER MODEL TO REDUCE LOSSES	764
<i>E.S. Sokolova ; M.V. Martynyuk ; D.V. Dmitriev ; A.I. Tyurin</i>	
PROCESSING OF THE RESULTS OF THE PLANNED MATHEMATICAL EXPERIMENT IN SOLVING PROBLEMS OF RESEARCH OF DYNAMICS MACHINES AND MECHANISMS	769
<i>I. N. Statnikov ; G. I. Firsov</i>	
CONTROL SYSTEM OF ELECTRIC DRIVE OF A COAL COMBINE WITH CONTROL AND FORECASTING OF ITS TECHNICAL CONDITION	775
<i>D.M. Shprekher ; G. I. Babokin ; E. B. Kolesnikov</i>	
CONTROLLING THE TEMPERATURE OF COMBUSTION PRODUCTS IN POWER PLANTS	779
<i>L.E. Lymbina</i>	
THE RADIATING STRUCTURE OF A SHORT-RANGE WIRELESS ENERGY TRANSMISSION SYSTEM	783
<i>I. Shirokov ; A. Azarov ; I. Serdyuk</i>	
DESIGN OF RECEIVING INDUCTIVE SYSTEM FOR EQUIPMENT FOR ELECTRICAL EXPLORATION OF EARTH'S CRUST	787
<i>I. Shirokov ; E. Redkina ; E. Shirokova</i>	
NUMERICAL INVESTIGATION OF THERMOHYDRAULIC PROCESSES IN THE COOLING CHANNELS OF THE NOZZLE VANE OF A HIGH-TEMPERATURE GAS TURBINE	791
<i>I. Shevchenko ; A. Rogalev ; S. Osipov</i>	
A NUMERICAL STUDY OF HEAT AND MASS TRANSFER IN A NARROWING CHANNEL WITH PIN FIN-DIMPLE ARRAYS	795
<i>I. Shevchenko ; V. Kindra ; N. Bychkov</i>	
METHODS FOR IMPROVING THE RELIABILITY OF POWER SUPPLY OF ENTERPRISES BASED ON THE AUTONOMOUS COGENERATION SOURCES	799
<i>A.A. Alabugin ; R.A. Alabugina ; A.E. Shchelkonogov</i>	
FUZZY LOGIC CONTROL SYSTEM OF THREE-AXIS CNC MILLING MACHINE	804
<i>M.V. Bobyr ; A.S. Yakushev ; N.A. Milostnaya</i>	
THE ANALYSIS OF THE KINEMATIC CHARACTERISTICS OF THE MULTIFUNCTIONAL MODULE BASED ON THE SCARA TYPE MANIPULATOR	810
<i>O. Filipovich ; N. Chalencov ; A. Balakin</i>	
ELECTROMAGNETIC STRIKE ACTION SYSTEM WITH SELF-ADJUSTMENT OF OUTPUT ENERGY	816
<i>V. A. Kargin ; A. V. Volgin</i>	
MICROCONTROLLER CONTROL OF SERIES EXCITATION MOTOR	820
<i>Viktor I. Susdorf ; Alexandr S. Meshkov ; Min Thu Aung</i>	
MODELING OF ELECTROMAGNETIC PROCESSES IN A PLATE WITH INFINITE NUMBER OF CUTS	824
<i>E. Danilina</i>	
RESEARCH OF THE CUTS EFFECT ON ELECTROMAGNETIC CHARACTERISTICS IN A CONDUCTIVE CYLINDRICAL SHELL AS A STRUCTURAL ELEMENT OF AN ELECTRICAL MACHINE	829
<i>E. Danilina ; A. Setrakova</i>	
DETERMINATION OF PARAMETERS OF THE GAS ABSORPTION SYSTEM WITH AIR COOLING FOR CONDITIONING OF INDUSTRIAL PREMISE	833
<i>A. F. Burkov ; I. V. Zavchenko ; V. S. Sokolova</i>	

ELECTRIC POWER SUPPLY SYSTEM DEVELOPMENT FOR DOWN-HOLE ELECTRIC STEAM GENERATORS TO PRODUCE HIGH-VISCOSITY OIL	837
<i>Vadim I. Malarev ; Alexandra V. Kopteva ; Vladimir Yu. Koptev</i>	
SIMULATION MODELING OF THE SUBMERSIBLE ASYNCHRONOUS MOTOR' SOPERATION MODES	841
<i>Vladimir A. Kopyrin ; Oleg V. Smirnov ; Marina V. Deneko</i>	
A HIERARCHICAL METHOD OF FORMING FINGERPRINTS OF A SOUND SIGNAL	846
<i>Maksim O. Derbasov ; Vasilij E. Gai ; Polina A. Shagalova</i>	
THE POSSIBILITY OF RECOGNIZING ELECTRICALLY REMOTE FAULT IN THE MULTIDIMENSIONAL SPACE OF INFORMATION SIGNS	850
<i>P. S. Kireev ; V. I. Nagay ; I.V. Nagay</i>	
INTELLIGENT INTERLOCKING OF SWITCHING DEVICES	855
<i>S.V. Sarry ; P.S. Kireev ; A.V. Ukraintsev</i>	
DESIGNING OF A PROTECTION AND MONITORING SYSTEM AGAINST THE DEVELOPING FAULT IN MEDIUM VOLTAGE ELECTRICAL INSTALLATIONS	859
<i>V. I. Nagay ; I. V. Nagay ; A.V. Ukraintsev</i>	
SOLID STATE VOLTAGE REGULATORS INFLUENCE ON POWER FLOWS REDISTRIBUTION IN SMART GRIDS 6-20 KV	863
<i>Alexey B. Loskutov ; Dmitry V. Zyrin ; Anna S. Demidova</i>	
HEATING MODES STUDY OF NON-MAGNETIC PRODUCTS IN ROTATING MAGNETIC FIELD OF PERMANENT MAGNETS	867
<i>Aleksander I. Aliferov ; Andrey E. Morev ; Vladislav A. Promzelev</i>	
OPTIMAL ROUTING IN MULTI-SERVICE NETWORKS	873
<i>A. Soldatenko ; V. Bykova</i>	
PLACING THE ELEMENTS AND STRUCTURAL ASSEMBLIES OF ELECTRICAL EQUIPMENT OF AN UAV	877
<i>R. Ayr. Nizamov ; E. Yu. Fedorov ; A. V. Ferenets</i>	
RESEARCH OF CHANGE OF PARAMETERS OF A MAGNETIC FLUX OF THE STATOR AND ROTOR OF SPECIAL ELECTRIC DRIVES	882
<i>V. Yu. Karandey ; B.K. Popov ; V.L. Afanasiev</i>	
MATHEMATICAL MODEL OF THE INFLUENCE OF THE GATHERING-STARS LOADING ORGAN'S PARAMETERS ON THE CHOICE OF THE TUNNELLING MACHINE CONVEYOR SPEED	888
<i>A.V. Otrokov</i>	
COMPUTER MODELING OF DYNAMIC PROCESSES OF PASSENGER ELEVATORS AT CASUAL EXTERNAL INFLUENCE	892
<i>G.S. Khazanovich ; A. V. Otrokov ; D.S. Aprishrin</i>	
REQUIREMENTS FOR OPTICAL-HARDWARE-SOFTWARE SYSTEMS FOR MODELING THREE-DIMENSIONAL VISUALLY OBSERVABLE SPACE FOR TRAINING SIMULATORS FOR LOCOMOTIVES	898
<i>V. Roganov ; E. Roganova ; T. Glebova</i>	
THE TRIGONOMETRIC INTERPOLATION METHOD BASED ON BORDERING FUNCTIONS IN MONITORING OF WAVE AND RESONANCE CHANGES OF MECHANICAL AND PHYSICAL FIELDS	903
<i>A.V. Sedov</i>	
INTELLIGENT SOFTWARE PLATFORM AND END-POINT SOFTWARE FOR RISK MANAGEMENT	908
<i>A. Senkov</i>	
THE FURNACE FOR BURNING WASTE WOOD PROCESSING INDUSTRY	913
<i>A. Trinchenko</i>	
SPECIAL FEATURES OF STRUCTURAL PATTERN RECOGNITION FOR DIGITAL IMAGES OF REACTIONS OF INTEGRAL STRAIN GAUGES INDICATIONS	920
<i>T. R. Zmyzgova</i>	
MATHEMATICAL MODEL OF WHEEL PAIRS MOVEMENT OF A RAIL VEHICLES	925
<i>G. Petrov ; A. Tarmaev</i>	
SYNTHESIS OF THE AUTOMATIC TEMPERATURE CONTROL OF THE LOCOMOTIVE ASYNCHRONOUS DRIVE ENGINE	930
<i>D. Ya. Antipin ; D. A. Bondarenko ; V. I. Vorobiev</i>	
ADAPTIVE TRAILER BACKUP CONTROL	934
<i>S.P. Kruglov ; S.V. Kovyrshin</i>	

TOOLS FOR THE DEVELOPMENT OF MACROECONOMIC MODELS OF THE FUEL AND ENERGY COMPLEX	940
<i>Alexander M. Lukatskii ; Galina V. Fedorova</i>	
ALTERNATIVE ENERGY IN THE PROCESSES OF DRYING OF THERMOLABILE MATERIALS	946
<i>S.R. Mukhametzyanov ; R.R. Safin ; P.A. Kainov</i>	
PROSPECTS FOR THE DEVELOPMENT OF WIND ENERGY RESOURCES IN THE WESTERN SECTOR OF THE ARCTIC ZONE OF RUSSIA	950
<i>V.A. Minin ; A.I. Furtaev</i>	
ENERGY DEMAND FORECASTING SYSTEM	954
<i>Sergey P. Filippov ; Natalia A. Grygorieva ; Elena M. Makarova</i>	
ENERGY-RESOURCE-SAVING SYSTEM “DISTILLATION UNIT - HEAT PUMP” FOR INDUSTRIAL SEPARATION OF SUBSTANCES	961
<i>L. V. Plotnikova ; G. I. Efmov ; S. Y. Sitnikov ; I. I. Chilikova</i>	
THE SOLUTION OF DIRECT AND INVERSE PROBLEMS OF CALCULATING THE FIELDS OF MAGNETIC SYSTEMS WITH ALLOWANCE FOR INCLUSIONS AND CAVITIES OF THE TOROIDAL FORM	965
<i>Sergey A. Nekrasov ; Petr A. Denisov ; Dmitry N. Chernov</i>	
THE LEVEL OF ACCURACY OF GENERATION MOMENT DETERMINATION OF IMPULSE EXCITATION OF THE STRING CONVERTER AND ITS IMPULSE ON THE INFORMATION AND MEASURING SYSTEMS AND THEIR ABILITY TO WORK	970
<i>Nikolay Gusev ; Alexandr Kucherenko ; Dmitriy Mandritsa</i>	
REDUCTION OF MAGNETIZING CURRENT OF POWER TRANSFORMER DUE TO OPTIMAL LOCATION OF CONCENTRIC WINDINGS	974
<i>D.V. Gukov ; S.M. Ivankov ; S.D. Zagulyaev</i>	
UNCLEAR POWER REGULATION SYSTEM FOR VACUUM ARC FURNACE	978
<i>A. S. Shilov ; N. E. Deryuzhkova</i>	
GEARLESS ELECTROMECHANICAL DRIVE FOR COMPLEX SECURITY SYSTEM OF AN ORGANIZATION	984
<i>Sergey N. Ivanov ; Soe Htike ; Alexander V. Ulyanov</i>	
INTELLIGENT SYSTEM FOR PROGNOSTICATION AND OPTIMIZATION OF POWER EXPENSES OF TECHNOLOGICAL PROCESSES AT ROBOTIZED PRODUCTIONS	990
<i>M.A. Gorkavyy ; A.S. Gudim ; A.Y. Efimov ; Denis B. Solovev</i>	
THE METHOD AND STRUCTURE OF SWITCHING ON AND OFF, AND REGULATING THE VOLTAGE OF A TRANSFORMER SUBSTATION	994
<i>V. S. Klimash ; B. D. Tabarov</i>	
RESEARCH OF THE PHYSICAL PROCESSES OF THE POWER ELECTRONICS DEVICE	998
<i>V. S. Klimash ; Ye Min Thu</i>	
ALGORITHMIZATION AND PRINCIPLES OF CONSTRUCTION OF INFORMATION SUPPORT OF THE AUTOMATED MODULE FOR ENERGY OUTLAYS OPTIMIZATION OF TECHNOLOGICAL PROCESSES AT ROBOTIZED PRODUCTIONS	1002
<i>M.A. Gorkavyy ; A.Y. Efimov ; V.A. Solovyev ; Denis B. Solovev</i>	
THE PROPAGATION MODEL OF MODULATED SUBTERAHERTZ SIGNALS IN THE ROF COMMUNICATION SYSTEMS	1006
<i>Irina L. Vinogradova ; Anna V. Voronkova ; Elizaveta P. Grakhova ; Guzel I. Abdrakhmanova ; Ivan K. Meshkov ; Albert Kh. Sultanov</i>	
GENERAL PRINCIPALS OF BUILDING THE FIZZY MULTI-CASCADE TRACKING CONTROL SYSTEMS	1010
<i>S.P. Cherniy ; V.A. Solovyev</i>	
FUZZY MULTI-CASCADE AC DRIVE CONTROL SYSTEM	1014
<i>S.P. Cherniy ; A.S. Gudim ; A.V. Buzikayeva</i>	
THE APPLICATION OF THE HILBERT TRANSFORMER FOR MEASURING OF THE REACTIVE POWER	1018
<i>Andrey N. Serov ; Nikolay A. Serov ; Alexey A. Lupachev</i>	
EXPERIMENTAL EXTERNAL NOISE LEVEL'S EVALUATION OF THE COMBINE HARVESTER AND SIMULATION OF THE NOISE PROCESS IN IT	1024
<i>P. V. Sirotin ; I. Y. Lebedinsky ; A. G. Sapegin</i>	
ASSESSMENT OF TRAIN TRACTION ELECTRIC ENERGY LOSSES	1028
<i>Vasilii T. Cheremisin ; Mikhail M. Nikiforov ; Sergey Y. Ushakov</i>	
RESEARCH OF PERFORMANCE OF ALTERNATIVE ENERGY SOURCES IN HIGH NORTH CONDITION	1034
<i>K A Romanov ; A N Popov ; P A Maryandyshv</i>	

A STUDY ON THE IMPACT OF PROFILING FLOAT GEOMETRICAL AND PHYSICAL CHARACTERISTICS ON ITS SPEED	1040
<i>Andrey V. Dologlonyan ; Aleksandr N. Grekov ; Andrey K. Sukhov</i>	
INCREASE IN SPEED OF SORPTION MEASURING INSTRUMENTS OF HUMIDITY OF GAS MIXES	1044
<i>Chang Liu ; Xiaohui Pan</i>	
FUZZY QUANTUM CONTROL.....	1050
<i>Denis V. Chernyshev</i>	
AMPLITUDE VALUES OF THE INCIDENT AND REFLECTED WAVES IN A DOUBLE-CIRCUIT POWER TRANSMISSION LINE.....	1054
<i>M.P. Plotnikov ; G.A. Bolshanin</i>	
APPLICATION OF AN INTELLIGENT SYSTEM FOR THE MONITORING OF ENERGY EFFICIENCY INDICATORS AT SERVICE LOCOMOTIVE DEPOTS	1060
<i>A.A. Komyakov ; A.V. Ponomarev ; V.V. Erbes</i>	
MICROCONTROLLER INFORMATION-MEASURING SYSTEMS OF CONTROL OF MOVEMENTS WITH ACOUSTOOPTICAL TRANSDUCERS IN BRAGG MODE	1066
<i>M.A. Urakseev ; K.V. Vazhdaev ; A.R. Sagadeev</i>	
EFFICIENCY OF APPLICATION OF VARIABLE FREQUENCY DRIVES OF MAIN CIRCULATION PUMPS IN NPPS WITH WWER	1070
<i>V.A. Khrustalev ; M.V. Garievsky</i>	
COMPLEX ANALYSIS OF NPP SAFETY SYSTEMS WITH VVER IN EMERGENCY SITUATIONS USING THE EXAMPLE OF THE NOVOVORONEZH NPP-2 PROJECT	1075
<i>R.Z. Aminov ; A.N. Egorov ; V.E. Yurin</i>	
THE INPUT PARAMETERS MEASUREMENT UNCERTAINTY WHEN CALCULATING THE SEA WATER DENSITY	1079
<i>Aleksandr N. Grekov ; Nikolay A. Grekov ; Evgeniy N. Sychov</i>	
MODELING AND OPTIMIZATION OF MAGNETIC CIRCUITS OF A FIBER-OPTIC DISPLACEMENT SENSOR	1084
<i>O. G. Ogli Babaev ; S. A. Matyunin</i>	
MODELING OF THE MAGNETO-OPTICAL CHANNEL OF A FIBER-OPTIC DISPLACEMENT SENSOR	1089
<i>O. G. Ogli Babaev ; S. A. Matyunin ; M. K. Virchenko</i>	
ENERGY MODES OF THE PULSE LINEAR ELECTROMAGNETIC MOTOR WITH EFFECTIVE TRANSFORMATION OF MAGNETIC ENERGY	1095
<i>V.I. Moshkin ; D. N. Shestakov ; G. G. Ugarov</i>	
OPTOELECTRONIC DEVICES WITH DIFFRACTION OF LIGHT ON A PHASE GRATING	1098
<i>M.A. Urakseev ; K.V. Vazhdaev ; A.R. Sagadeev</i>	
INTELLIGENT DECISION-MAKING SYSTEMS FOR MONITORING POWER-PLANT DISPATCHERS' KNOWLEDGE	1104
<i>M. A. Sachko ; A. A. Rudenko ; V. P. Krivosheev</i>	
THE HYBRID CORRECTION SYSTEM, BASED ON ACTIVE AND PASSIVE FILTERS FOR HARMONIC COMPENSATION IN NETWORKS OF OIL ENTERPRISES.....	1108
<i>Boris N. Abramovich ; Yuriy A. Sychev ; Roman Yu. Zimin</i>	
IMPLEMENTATION OF THE SPEED APPROACH FOR UAV COLLISION AVOIDANCE IN DYNAMIC ENVIRONMENT	1112
<i>V.D. Berdonosov ; A.A. Zivotova ; D.O. Zhuravlev ; Zaw Htet Naing</i>	
SOFTWARE FUZZY LOGIC COMPENSATOR OF NONLINEAR ELEMENTS OF AUTOMATIC CONTROL SYSTEM.....	1118
<i>D. O. Savelyev ; A. S. Gudim</i>	
ADAPTIVE BARRIER ALGORITHM IN MPI BASED ON ANALYTICAL EVALUATIONS FOR COMMUNICATION TIME IN THE LOGP MODEL OF PARALLEL COMPUTATION.....	1122
<i>Vitalii V. Zharikov ; Alexey A. Paznikov ; Kirill V. Pavsky ; Valery A. Pavsky</i>	
ESTIMATION OF THE STABILITY OF THE MACHINING TECHNOLOGICAL SYSTEM USING NONLINEAR DYNAMICS MATHEMATICAL MODELS	1127
<i>A. K. Ostapchuk ; E. M. Kuznetsova ; O. V. Dmitrieva</i>	
APPLICATION OF THE METHOD OF STATISTICAL MODELING AND PARAMETRIC IDENTIFICATION FOR AUTOMATION OF THE PROCESSES OF WOOD TREATMENT	1131
<i>Nail F. Timerbaev ; Dmitry B. Prosvirnikov ; Almaz R. Sadrtidinov</i>	
RELIABILITY CONTROL OF COMPLEX TECHNICAL SYSTEMS BASED ON THE MODIFIED METHOD OF THE SHORTEST DESCENT	1136
<i>V.D. Babishin ; M. Ya Parfenova</i>	

REGISTRAR THE PARAMETERS OF POWER SUPPLY QUALITY	1141
<i>A A Onischenko ; A N Merschikov</i>	
HEATING THE STARTER WITH MAGNETOELECTRIC EXCITATION DURING HOT-START AND DRY MOTORING OF A GAS-TURBINE ENGINE.....	1146
<i>Yu. V. Zubkov ; V. N. Ovsyannikov</i>	
DISTRIBUTED COMPLEX OF DIAGNOSTICS AND MONITORING OF TECHNICAL PARAMETERS OF CELLULAR NETWORKS BASED ON THE SMARTPHONE.....	1151
<i>G.V. Martiyashin ; I.S. Pyshkina ; K.V. Zhegera</i>	
COGENERATION POWER PLANT FOR PROCESSING BIOMASS WITH THE APPLICATION OF SOLID OXIDE FUEL CELLS.....	1155
<i>Ivan Yu. Mazarov ; Nail F. Timerbaev ; Almaz R. Sadrtidinov</i>	
METAL HYDRIDE FLOW-THROUGH HYDROGEN PURIFICATION METHOD FOR RENEWABLE ENERGY PRODUCTION AND STORAGE	1159
<i>D. V. Blinov ; V. I. Borzenko ; A. N. Kazakov</i>	
ON THE SYNCHRONIZATION OF AN AXIAL TWO-INPUT ELECTRIC MACHINE GENERATOR	1165
<i>B. K. Gaitov ; L. E. Kopelevich ; A. V. Samorodov ; V. A. Kim ; A. Y. Kashin</i>	
ELECTROMAGNETIC, ELECTROMECHANICAL AND THERMAL TRANSIENT CHARACTERISTICS OF AN ASYNCHRONOUS MOTOR WITH VARIABLE PARAMETERS.....	1171
<i>Y. M. Kashin ; A. A. Sharshak ; L. E. Kopelevich ; A. S. Badalvan</i>	
SIMULATION OF RELAY CONTROL SYSTEMS OF CONVEYOR SPEED	1177
<i>A A Reutov</i>	
ANALYSIS OF THE CELL PHONE INFLUENCE ON THE HUMAN BODY DURING VOICE CONTROL.....	1182
<i>E. Solomin ; A. Ibrahim ; E. Sirotkin</i>	
USING POLE-DIPOLE ARRAY FOR MEASUREMENTS OF FREQUENCY DEPENDENT SOIL ELECTRICAL PROPERTIES.....	1187
<i>Dmitry Kuklin</i>	
PROPAGATION OF BULK ACOUSTIC WAVES IN RHOMBOHEDRAL CRYSTALS.....	1192
<i>M. E. Adamova ; E. A. Zhukov ; A.V. Kaminsky</i>	
THE VALUES OF SPECIFIC CONSUMPTION OF ENERGY IN THE ASSESSMENT OF THE LEVEL OF FUTURE DEMAND	1196
<i>Alena Aleshina ; Iaroslav Vladimirov ; Elisey Kozhukar</i>	
CENTRALIZED RELAY PROTECTION OF POWER PLANTS USING IEC-61850.....	1200
<i>A.N. Alndreev ; E.A. Patrashkin ; A.S. Zheltov</i>	
THE ELECTROMAGNETIC TORQUE RIPPLE OF THREE-PHASE INDUCTION ELECTRIC MACHINE, OPERATING AS A PART OF THE AUXILIARY ELECTRIC DRIVE ONBOARD OF AC ELECTRIC LOCOMOTIVE - A FACTOR CONTRIBUTING TO THE FAILURE OF BEARINGS.....	1203
<i>M. Yu. Pustovetov ; K.M. Pustovetov</i>	
THE ANALYSIS OF THE PRACTICE OF USING OF HIGH-VOLTAGE FREQUENCY CONVERTERS ACS5000.....	1207
<i>A.S. Semenov ; A.N. Egorov ; O.V. Fedorov</i>	
STAND-ALONE, LOGISTICS—FREE KW-SCALE HYDROGEN ENERGY STORAGE SYSTEM.....	1211
<i>V. Borzenko ; D. Blinov ; A. Glagoleva</i>	
IMPULSE CHARGER FOR LEAD-ACID BATTERIES ELECTRICAL SUBSTATIONS.....	1217
<i>A.M. Konstantinov ; D.A. Zelenyuk</i>	
METHOD FOR GENERATING A HIGH VOLTAGE MULTIPOLAR IMPULSE IN ELECTROPULSE TECHNOLOGIES.....	1222
<i>E. V. Petrenko ; V. F. Vazhov ; A. S. Yudin</i>	
ENHANCING ENERGY EFFICIENCY OF 25 KV TRACTION POWER SYSTEM DUE TO BALANCING CURRENT DECREASE.....	1226
<i>Y. A. Konstantinova ; V. N. Li ; E. Y. Tryapkin</i>	
ADAPTIVE POWER SUPPLIES FOR TECHNOLOGICAL OBJECTS WITH NON-STATIONARY LOADS	1231
<i>Vladislav V. Fediakov ; Mariia N Kornieko ; Evgeny S. Khayatov</i>	
WAYS TO INCREASE ENERGY EFFICIENCY OF TRACTION MECHANISMS BY MECHATRONIC SYSTEMS.....	1236
<i>Anatoly T. Tsirkunenko ; Sergey S. Bukhanov ; Vladislav V. Platonov</i>	
FREQUENCY METHODS FOR SYNTHESIZING A CONTROL SYSTEM FOR SEMICONDUCTOR CONVERTERS	1241
<i>Maksim A. Grigorev ; Artyom A. Gryzlov ; Valeriia S. Katrichuk</i>	

CONTROL OF THE TECHNOLOGICAL PROCESS OF OBTAINING THIN-WALLED TUBES BY MECHATRONIC DEVICES	1246
<i>Azalia A. Imanova ; Viktor Y. Bespalov ; Erlan Tulegenov</i>	
FEATURES OF LOSS CALCULATION IN MECHATRONIC MODULES ON THE BASIS OF SYNCHRONOUS RELUCTANCE AND INDUCTION AC ELECTRIC DRIVES	1250
<i>Sergey P. Gladyshev ; Aleksey N. Gorozhankin ; Artyom D. Golykov</i>	
EVALUATION OF THE ELECTROMAGNETIC SITUATION AT OPEN SWITCHGEARS OF POWER STATIONS AND SUBSTATIONS	1256
<i>Sergey S. Bukhanov ; Lada A. Doykina ; Anatoly T. Tsirkunenko</i>	
HIGHLY EFFICIENT MECHATRONIC MODULES WITH NEW TYPES OF ELECTRIC MACHINES FOR GENERAL INDUSTRIAL MECHANISMS AND METALLURGICAL OBJECTS	1261
<i>Artyom M. Zhuravlev ; Timofei G. Fedorov ; Evgeny S. Khayatov</i>	
SYNTHESIS OF MECHATRONIC MODULES WITH IMPROVED MASS-SIZE INDICATORS OF METALLURGICAL FACILITIES	1267
<i>Valeriia S. Katrichuk ; Maksim A. Grigorev ; Artyom A. Gryzlov</i>	
DESIGNING CONTROL NODES FOR MECHATRONIC MODULES BY THE CRITERION OF MINIMAL LOSSES	1272
<i>Mariia N. Kornienko ; Vladislav V. Fediakov ; Sergey S. Bukhanov</i>	
MECHATRONIC MODULES OF TRACTION ELECTRICAL DRIVE	1277
<i>Artyom D. Golykov ; Sergey P. Gladyshev ; Aleksey N. Gorozhankin</i>	
THE ADAPTIVE AUTOMATIC CONTROL SYSTEM OF NATURAL GAS AIR-COOLING UNIT	1282
<i>Aleksander M. Abakumov ; Ivan P. Stepashkin</i>	
INFLUENCE OF INDIRECT MEASUREMENTS ON THE ACCOUNT OF GENERAL NEEDS OF HOT WATER CONSUMPTION	1286
<i>A.N. Vinogradov ; V.P. Chipulis</i>	
APPROXIMATION MODELS FOR THE HYDROLITOSPHERIC PROCESSES	1290
<i>M.I. Pershin ; E.G. Papush ; A.O. Spivak</i>	
MODELING INTERMOLECULAR INTERACTION IN MULTICOMPONENT ENVIRONMENTS IN ENERGY POWER SYSTEMS	1295
<i>V. Anisimova Irina ; N. Ignatèv Victor</i>	
PROCESSING HYDROACOUSTIC SIGNALS IN SYSTEMS FOR SONAR SURVEYING	1299
<i>A.S. Mironov ; E.S. Fomina</i>	
PROJECT OF AUTONOMOUS POWER PLANT WITH HIGH-TEMPERATURE SUPERCONDUCTIVE DEVICES	1305
<i>Lidia Chubraeva ; Timofeyev Sergey</i>	
DEVELOPMENT OF THE CONVERTER-STORAGE SYSTEM BASED ON SMART MATERIALS	1310
<i>Lidia Chubraeva ; Sergey Timofeyev</i>	
OPERATION PRINCIPLES OF CONTROL PROCESS OF HEAT GENERATION AND ACTIVATION KYRGHYZ COALS ON CHP	1316
<i>K.V. Osintsev</i>	
AUTOMATIC FLARE CONTROL BASED ON THE MATHEMATICAL MODEL OF IGNITION OF THE INITIAL SECTION OF COMBUSTION	1320
<i>K.V. Osintsev</i>	
APPROACHES TO INFORMATION MEASUREMENT OF THE STRUCTURE STATE OF TECHNICAL SYSTEMS	1324
<i>Dulesov Aleksander Sergeevich ; Eremeeva Olga Sergeevna ; Karandeev Denis Jurevich ; Dulesova Natalia Valeriivna</i>	
INCREASING ACCURACY OF THREE-DIMENSIONAL DISPLACEMENT CONTROL SYSTEM APPLYING FUZZY LOGIC THEORY	1330
<i>O.N. Kuzyakov ; M.A. Andreeva</i>	
TWO-CASCADE EXTREMUM SEEKING SYSTEMS FOR NONLINEAR NON-STATIONARY PLANTS	1334
<i>G.A. Frantsuzova ; A.S. Vostrikov ; D.A. Suvorov</i>	
RATIONALE FOR PRINCIPLES OF DEVELOPING CONTROL AND PROTECTION OF WEB CONTENT USING CMS DRUPAL	1339
<i>Ulyana Lapteva ; Oleg Kuzyakov</i>	
AN APPROACH OF THE WAVELET-FUZZY CONTROLLER OF VECTOR CONTROL SYSTEM BY THE INDUCTION MOTOR	1345
<i>Alexander I. Koldaev ; Alexey A. Evdokimov ; Dmitriy V. Samoilenko ; Yuriy N. Kocherov</i>	
METHOD OF SETTING RELIABILITY REQUIREMENTS FOR A POWER SUPPLY SYSTEM	1351
<i>A.E. Voronin ; N.E. Peshekhonov ; V.V. Rybakov</i>	

REACTIVE POWER METERING IN NON-SINUSOIDAL CONDITIONS USING MAEWSKI TYPE ALGORITHM.....	1355
<i>Yuri Kulinich ; Sergei Shukharev ; Viktor Kolobov</i>	
THE SYSTEM FOR STABILIZATION OF SCREW EXTRUDER PRODUCTIVITY	1359
<i>V.N. Mitroshin ; D.I. Kuleshova</i>	
INFLUENCE OF QUALITY OF THE ELECTRIC ENERGY ON RELIABILITY OF ELECTRICAL SUPPLY SYSTEMS	1364
<i>N.V. Savina ; Y. V. Myasoedov ; L. A. Myasoedova</i>	
ENERGY CONSUMPTION IN THE TRANSPORT SECTOR: TRENDS AND FORECAST ESTIMATES	1369
<i>Olga Mazurova ; Elena Galperova</i>	
THE SELECTING OF ARTIFICIAL INTELLIGENCE TECHNOLOGY FOR CONTROL OF MOBILE ROBOTS	1376
<i>Kafiev Irshat ; Romanov Petr ; Romanova Irina</i>	
MEASURING POROSITY OF FLUIDIZED BED IN BOILER	1380
<i>G.N. Akhobadze</i>	
TRANSIENT STABILITY PROBLEMS OF ELECTIC POWER SYETEMS WITH DISTRIBUTED GENERATION	1383
<i>Voropai Nikolai Ivanovich ; Chulyukova Margarita Valeryevna</i>	
Author Index	