

Table of Contents

Preface, Committees and Sponsors

Chapter 1: Advancements in Electrical Engineering and Electric Machines Applications

The Study of Parameter Robustness of Induction Motor Variable Frequency Speed Regulation Adaptive Inverse Control System G.R. Zhang and J. Xue	3
Finite Element Analysis and Experimental Study for MWD Hybrid Excitation Generator X. Du, D.S. Li and E.H. Lin	7
Research of Electric Radiator Design Based on DFMA Method X.T. Wang, J.X. Zhang and L.P. Yin	11
A Modified Direct Torque Control Based Fuzzy Variable Structure of Permanent Magnet Synchronous Motor G.L. Che and H. Lai	15
Design and Analysis of a New Permanent Magnet Actuator for Medium Voltage Vacuum Circuit Breakers J.Z. Zhang, C.H. Cai and C.G. Wu	20
Stator Temperature Distribution of AC Machine Based on Fluid Flow Field C.H. Huang and X.Z. Wu	27
Research on Automatic Detection Method about Rotor Initial Position of Permanent Magnet Synchronous Motor B. Li and G.X. Zhou	31
Research on Characteristics of Cogging Torque of Permanent Magnet Synchronous Motor Based on Finite Element Method S.B. Yu, S. Cao, L. Li and F.Y. Xiao	37
Modal Analysis of Stator and Rotor in Large Capacity Permanent Magnet Motor S.B. Yu, L. Li and S. Cao	41
Torque Optimization of Double-Stator Switched Reluctance Machine M. Abbasian and V. Hanaeinejad	45
Bridgeless SEPIC PFC Converter H.L. Do	51
The Influence of Moment of Inertia to Induction Motor Rotation in Sensorless Direct Torque Control and Duty Ratio R. Gunawan, M. Luniara Siregar and F. Yusivar	55
Design of Electric Closed Gearbox Comprehensive Test Bench Based on AC Generation H.N. Jiao, Z.L. Wang and J. Yang	61

Chapter 2: Advanced Materials Engineering and Technology

Influence of Solution Heat Treatment Temperature and Time on the Microstructure and Mechanical Properties of Gas Induced Semi-Solid (GISS) 6061 Aluminum Alloy N. Pajaroen, T. Plookphol, J. Wannasin and S. Wisutmethangoon	67
Evolution of the Coefficient of Dynamic Viscosity with Growing Damage in Metals Z.H. Minhas and S. Qin	72
Investigation of Microstructure and Mechanical Properties of Ultra High Strength Bainitic Steel M.H.S. Ansari and M. Aghaie-Khafri	77
Thermal Heating Effect on Structural and Mechanical Property of Diamond-Like Carbon Film Prepared by Filtered Cathodic Arc N. Khamnualthong, K. Siangchaew and P. Limsuwan	82

Oriented Reduced-Pressure Melts Growth of the Vacuum Ultraviolet Double Frequency Crystal $\text{KBe}_2\text{BO}_3\text{F}_2$ W.L. Wang	86
An Experimental Investigation on the Bearing Failure Load of Multi-Pin Joints in Composite Laminates Y.G. Xie, J.F. Zhang, Z.Z. Cao and L. Zhang	89
Structure and Lattice Expansion of Pure Sodium Confined inside Nanoporous Vycor Glass at Low Temperatures A. Ghaffar, W. Pichl, G. Krexner and R. Schuster	93
Tensile and Compressive Creep Behavior of Magnesium Alloy AZ91D S. Sujatanond, Y. Mutoh, Y. Miyashita and Y. Otsuka	98
Nano Colorful Cement Composite A. Kazemi Babaheydari, M. Asad-Zadeh and F. Mohammadi	103
The Use of Porous Silicon for Nanostructuring of Functional Metal Layers for MEMS S. Timoshenkov, D. Gaev and A. Boyko	108
BCNO: Preparation and Microwave Absorbing Properties Y. Kang, Z.Y. Chu and H.F. Cheng	112
Effects of LiCF_3SO_3 on PVDF-HFP/MG49 (70/30) Based Blend Polymer Electrolyte N. Ataollahi, A. Ahmad, H.H. Hamzah, M.Y. Rahman and N.S. Mohamed	117
Evidence of Phase Transition of Indium Doped Zinc Phthalocyanine S. Rojanasuwan, P. Prajuabwan, A. Chanhom, A. Jaruvanawat, A. Rangkasikorn and J. Nukeaw	121
The Properties of Al_2O_3 Films Deposited onto Al_2O_3-TiC and Si Substrates by RF Diode Sputtering H. Panitchakan and P. Limsuwan	126
Photocatalytic Reactions of Titanium Dioxide for Active Packaging Application K. Somkid and P. Ngaotrankanwivat	131
Bolt Load Loss Behavior of Magnesium Alloy AZ91D Bolted Joints Clamped with Aluminum Alloy A5056 Bolt S. Sujatanond, Y. Miyashita, S. Hashimura, Y. Mutoh and Y. Otsuka	135
Exciton Dissociation at Indium Tin Oxide/Indium Doped Zinc Phthalocyanine Interface P. Prajuabwan, S. Rojanasuwan, A. Chanhom, A. Jaruvanawat, A. Rangkasikorn and J. Nukeaw	140
Hole Doping Through Indium Intercalation Into Nickel Phthalocyanine P. Prajuabwan, S. Rojanasuwan, A. Chanhom, A. Jaruvanawat, A. Rangkasikorn and J. Nukeaw	148
A Method of Die Surface Compensation after Spring Back Prediction in Sheet Metal Forming X.D. Li and X.H. Zhan	157
Deposition and Characterization of Chromium Doped Tin Oxide Transparent Conducting Thin Films Prepared by Spray Pyrolysis Technique M.H. Abdi, N.B. Ibrahim and M.M.B. Mohaghegh	164
Nano Geopolymer for Sustainable Concrete Using Fly Ash Synthesized by High Energy Ball Milling A.M.M. Al Bakri, H. Kamarudin, M. Bnhussain, J. Liyana and C.M.R. Ghazali	169
Mechanical Properties and Morphology of Palm Slag, Calcium Carbonate and Dolomite Filler in Brake Pad Composites C.M.R. Ghazali, H. Kamarudin, S.B. Jamaludin, A.M.M. Al Bakri and J. Liyana	174
Numerical Simulation of Mold Filling and Solidification Behavior in Permanente Casting Process Q.M. Chang, Y.K. Yang, J. Yuan and X. Chen	179
Hydrothermal Synthesis of Diluted Magnetic $\text{Zn}_{1-x}\text{Mn}_x\text{O}$ Semiconductor W.L. Zheng and W. Yang	184
Effects of Elements Composition on Tribological Properties of PES/Metal Matrix Composite Materials Z.G. Luo, J. Li, B. Zhao and J.W. Xu	188
Morphologies of ZnO Crystals Synthesized by Hydrothermal Method W.L. Zheng and W. Yang	193
Copper Nanowires on NaCl (110) Template K. Locharoenrat	198
Development of New Hybrid Shell Element Taking the Normal Stress into Account H. Lu and W. Huang	202

Oil Film State between Friction Pair in Hydro-Viscous Drive F.W. Xie, Y.S. Hong, G. Zheng and S.M. Wang	206
A Way to Analyze Oil Damping Force of Electromagnetic Release with Oil Dashpot H.J. Guo, X.P. Su and X.L. Xia	210
The Research on Certain Type of Starter Lead-Acid Battery Performance Test Used in Real Off-Road Vehicle G.B. Zhang, D.W. Zhu and G. Yang	214
Hierarchical Meso-Microporous SAPO-11 Synthesis from Acid Assistant Dealuminization: Effect of Acid Strength Z. Liu, H. Song, Z.X. Feng and Z.F. Yan	219
The Effect of Thermal Heating on Corrosion Resistance of Diamond-Like Carbon Film Prepared by Filtered Cathodic Arc N. Khamnualthong, K. Siangchaew and P. Limsuwan	223
Thermal, Mechanical and Chemical Analyses of Rapid and Self-Cured Prepolymerized Polyurethane Coatings W.C. Sien and K.H. Badri	227
Electrooxidation of Methanol on Carbon Supported Gold Nanoparticles D. Zhang	232
Sulfurization of Copper Indium Diselenide Synthetized by Sol-Gel Spin-Coating Method L.J. Kong, G.F. Zhu and K.X. Han	237
Preparation of Waterborne Graphite Conductive Coating and Study of Its Electromagnetic Shielding Performance W.D. Wang, Q. Xu, S.X. Zhou and W.W. Deng	241
Stability of Solid/Liquid Interface of Pb-80wt%Sn Alloy under Direct Current during Directional Solidification N. Li, R. Zhang, L.M. Zhang, L.F. Du and Q. Liu	245
Correlation between EIS and Potential Distribution for Carbon Steel under Epoxy Coating J. Liu, B. Wang, L. Zhu, T.Y. Luo and W. Wang	249
Fine Tuning Magnetic Properties of FePt:C Thin Films by FePt UnderLayers L.F. Jin and H. Zhuang	254
Well to ERT Front-End Sensor-Based Design Production J. Jiang, Z.F. Li and D.P. Yang	258
Experimental Study of Nanofluids Crystallize on Low Temperature Environment J.Z. Yu, Z.L. Li and H.Y. Hu	262
Effect of Ti and Zr Deoxidation Process on the Inclusions in Low Carbon Steel M.H. Shi, J.Y. Liu and F.X. Zhu	266
Current-Voltage and Capacitance-Voltage Characteristics of Pd Schottky Diodes Fabricated on ZnO Grown along Zn- and O-Faces M. Faisal, M. Asghar, K. Mahmood, M. Willander, O. Nur and P. Klason	270

Chapter 3: Elecrtonics and Integrated Circuits, Embedded Technology and Applications

Fault Diagnosis of Analog Circuit Based on Multi-Test Points and Multi-Feature Information Q. Pan and C. Yang	277
Research and Validation of ICs' TDDDB Physics-of-Failure Model M. Xu, F.M. Lu and C.H. Zeng	281
Design and Implementation of the Tightly-Coupled SINS / GPS Integrated Navigation System Based on FPGA for Target Missile J.J. Guo, X.F. Cai and C. He	287
A Novel Design of Traveling Wave Protection Device in EHV Transmission Lines Based-On ARM and FPGA H.Z. Wang and C.Y. Sun	291
Remote Assessment of Fruit Quality Based on Embedded Technology W.X. Zhu, P. Huang and F.X. Shen	296
Implementation of Clock Synchronization in PTN Based on FPGA G.Q. Yan and C.X. Yan	300

The Detection System of Adaptive Electrochemical Micro Electric Current S.Q. Ma and M.H. Fan	304
The Design and Implementation of Micromouse Based on C8051F120 D. Wan	308
Circuit Design and Implementation for a Class of Hysteretic Systems C.Z. Pan, Y.Q. Liu and J.J. Xue	312
The Design of Digital Direct Current Source Based on Nios II Q.Q. Fu and A.P. Wu	316
Design and Implementation of TPMS Tire Air Leakage Alarm Functionion Based on the SP370 D.R. Hu, Z.X. Wang and D.D. Hou	320
Infinite 3D Cubic Lattices of Identical Resistors J.H. Asad	324
The Design of Governing System of DC Motor Based on EDA Technology Y. Zhang, X.W. Duan and Y. Liu	329
Isolated High Step-Up DC-DC Converter with Zero-Voltage-Switching H.L. Do	333
A Novel SHE Modulation Method for Modular Multilevel Converter (MMC) with Reduced Switching Frequency X.X. Ma and P. Wang	337

Chapter 4: Intelligent Control Engineering and its Applications

Intelligent Traffic Control at Intersection Based upon Real-Time Vehicle Detection G.Z. Yao	343
Improved Control Model for Relay Protective Settings Remote Control and its Application Y.Q. Liu, H.S. Hua and L. Wang	347
Practical Research on Predictive Fuzzy-PID Control in Reactor Temperature Control C.Y. Huang and H.P. Pan	355
Soft Starting of Medium Voltage Induction Motors with Fuzzy PD Control Z.Y. Yin and Y.T. Yue	359
A Novel Three-Phase Power Factor Correction with Digital Control Y.T. Yue, Z.H. Liu and Y. Lin	365
Robust Tracking Control for 3 DOF Helicopter Based on Least Squares Support Vector Machine J.M. Zhang, L. Xue, R.M. Zhang and C.Y. Sun	370
Mine Pump Control System Based on KJD30Z Industrial Control Computer B.Y. Qian	374
The Direct Torque Control of Induction Motors in Hybrid Electric Vehicles Based on the AMESim D.J. Wang, D.D. Pan, X.T. Cao and H. Chen	378
Design of Fuzzy-PID Controller for Ride Comfort Enhancement of a Half-Vehicle with Active Suspension System W.K. Lan and E.D. Ni	382
System Design of Digitally Controlled Constant Current Source A.J. Zhu and Y.C. Shao	387
Design of Heavy-Medium Coal Separation Automatic Control System Based on S7-300 PLC C.Y. Zhang and Z.J. Zhou	391
Research on Airbags Overturning Device due to the PID Closed-Loop Control Technology D.Q. Zhang, L.Y. Su and D.X. Zhao	395
Research on the Flight Control for an Asymmetrical X-Quadrotor Y.J. Ding, X.Z. Wang and S.H. Zheng	399
Indirect Adaptive Fuzzy Sliding Mode Control and Application to Tank Pressurization System F.R. Xu, Z. Wang and H.Z. Yu	403
The Design of Rolling Bearing Testing for some Missile Control System Based on C8051F021 H.L. Wang, X.D. Cheng, F.L. Liu and D.Y. Zhang	409

Weighted Multiple Model Adaptive Control Based on ADRC H. WANG and W.C. Zhang	412
Application of PLC in Intelligent Control of Heating Pipe Network Y.F. Ma	418
Precisie PID Temperature Control Based on LabVIEW H.Y. Wang, X. Lu and J. Tian	422
Design of Intelligent Control of DC Motor G.J. Li	427
Stabilizing Gain Regions of PID Controller for Time Delay Systems F.M. Peng and B. Fang	432
Planar Tracking Control for Multiple Underactuated AUVs under Formation Constraint H.L. Liu, G.Y. Tang, Q.L. Xu and H. Yu	438
Based on the MATLAB Self-Tuning Fuzzy PID Controller Design C.Y. Liu and G.G. Chen	443
The Study of Optimal Fuzzy PID-Smith Control Based on Genetic Algorithm D.T. Liu and H.X. Li	448
Multi-Objective Disturbance Attenuation Control for T-S Fuzzy System with Hard Constraints X.Q. Gao and D.H. Meng	453
Desired Compensation Adaptive Robust Control for NC Rotary Table Direct Drive Rotary Feeding System Y.Z. Yang, C. Cui, Y.B. Sun and C.L. Liu	457
The Application Study of Temperature Control Strategy for Boiler G.Q. Hou and P. Lv	462
Design of a Small Portable Wind/PV Hybrid Controller X.H. Wu, F.F. Guan and F. Xu	466
High Accuracy Attitude Regulation of Spacecraft Using Arm Motion Y. Shi, B. Liang and X.Q. Wang	470
Study on Control System for CS Mode of PHEV Based on State Space Description Method F.J. Zhou, W.K. Cao, C. Lin, G. Wang and Z.F. Xu	475
Experiment Study of the Single Point and Multi-Point Natural Gas Electronic Injection Systems Q. Zhao, C.Q. Ni and Y.T. Zhang	479
Development and Application of Backplane-Type EtherCAT Slave Controller C.F. Kang and C. Zang	484
Research on Fuzzy Direct Torque Control System Based on Improved Grey Model Prediction W. Zhao, Q. Wang and L.Y. Wang	488
The Key Technical Research on V2G System Z.P. Wang and S. Wang	494
Effect of Reference Height Control System on CPG Networks for Quadruped Hopping Robot A.M. Kassim, M.Z.A. Rashid, M.R. Yaacob, N. Abas and T. Yasuno	498
A Voltage Mode Control Maximum Power Point Tracking for Stand-Alone Photovoltaic System M.S. Jamri, A.M. Kassim and M.R. Hashim	503
Comparison of Two Controllers PI and IP of the Voltage of a Two Inverters UPQC A. Rahmouni and C. Benachaiba	508
Finite-Time Control for Switched Discrete-Time System W.M. Xiang and Y.C. Zhao	516
Remote Monitoring System for Direct Current Power R.L. Liu, Y. Zhan, B. Yan and H.J. Wang	524
Robust Tracking for BLDCM System Based on Unknown Differentiable Deadzone Nonlinearity Z.G. Shi and W. Huo	530
Synchronous Control System for Envelope Machine Using DSP W.X. Zhu, Y.G. Cai and J. Zhang	535

Automatic Spectrum Control System Design and Implementation for RGB Light Emitting Diode	
T.P. Sun, J.H. Li and K.Y. Li	539
Fractional Order Controller Design for Ball and Beam System	
M. Korkmaz and O. Aydogdu	544
SCM Based High Precision Temperature Controller Design	
Z.H. Han and Z.H. Feng	549
An Optimized Design for Inverted Pendulum System of Active Disturbance Rejection Control Based on Generic Algorithm	
J. Du and J.L. Jiang	553
Design of Auto-Stabilization Control Technique for a Quadrotor System	
N. Abas, R. Akmeliawati, Z. Ibrahim, M.Z.A. Rashid and N.H. Samsudin	559
Modeling and Delay-Dependent Stability Analysis of Multi-Sampling Rate MIMO Networked Control System with State Feedback	
D.T. Liu and C. Zhang	565
Application of Direct Feedback Linearization Control for Permanent Magnet Synchronous Generator Based Wind Energy Conversion System	
W. Wu	571

Chapter 5: Measurements and Instrumentation Technologies

Quantitative Analysis of LIBS Reduces the Matrix Effect Methods	
Y.L. Yang, J.X. Li, F.W. Meng and C.H. Ma	579
Automatic Temperature Measurement System of Accelerated Ageing Test for Fuse	
J. Shi and S.Y. Tang	583
Study on the Accurate Measurement of Film Thickness	
Z.Q. Xu and K.G. Qian	588
Application in Meta-Evaluation of Weapon Quality Based on Evidence Theory of Weight	
F. Cao, F. Wu and F. Lu	592
Interaction of Laser Energy with Bow Shock in Mach 5 Flow	
D.K. Wang, Y.J. Hong and J.B. Li	596
Thermoelastic Damping of the Axisymmetric Vibration of Laminated Trilayered Circular Plate Resonators	
Y.X. Sun, Y. Jiang and J.L. Yang	600
A Direct Measurement System to Estimate Gas Content in Coal	
S. Xue, J. Xie and Y.C. Wang	604
Mechanical Analysis of Outer Sleeve for Electronic Pressure Meter	
W.H. Yan, J. Yan and Y. Chen	608
Gravity Pendulum Tilting Monitor	
H. Wei and J. Yi	613
Monitor and Cut Technology of Anomaly Flow for Gas Meter	
X.Y. Kong, J.L. Liu, W.Q. Liu and S.J. Yao	617
Design and Analysis of High-Tension Lines De-Icing Device	
Y.Q. Zhao, M.L. Zhang and L.J. Ma	621
Vertical Analysis Based on the Fault Data of Running Smart Meter	
J.S. Liu, X. He, S.T. Li, H.M. Hong, K. Hu and H. Wu	625
Predicting the Smart Meters Life Cycle Based on the Analysis of Correlation Coefficient	
J.S. Liu, C. Li, S.T. Li, H.M. Hong and K. Hu	629
A Study on Beam Shaping of Helix Antenna	
X.Y. Qu and Z.Q. Yang	634
Research on Calibration of Semiconductor DC Tiny Current Source	
C. Liu, L.H. Yu and Y.C. Xu	638
Single-Axis Rotation Modulation of SINS	
Y.L. Mao, J.B. Chen, C.L. Song and J.Y. Yin	643
Testing Effective and Maximum Torque for the Metal Material Coupled by Interference Fit	
X. Xin and Y.J. Huang	647

The Application of Pseudo-Random Sequence in the Properties Measurement of Polymer Optical Fiber	
Y.C. Wang and C.W. Sun	653
The Indexing Precision Testing Techniques of Power Tool Rest Cutter Head	
X.H. Lu, W.Y. Wu, P.Z. Han, G.J. Li and Z.C. Zhang	658
Experimental Study on the Frictional Resistance of Gas Flow in Vertical Helically Coiled Pipe	
S.H. Zheng, J.G. Mu and W.C. Fan	662
Design and Simulation of Pressure Sensor for Ocean Depth Measurements	
K.J. Suja, B.P. Chaudhary and R. Komaragiri	666

Chapter 6: Manufacturing and Industrial Engineering, Management Applications

Study on Processing Optimization in Ultrasonic-Assisted Grinding of SiCp/Al Thin-Walled Workpiece	
M. Wang and M. Zhou	673
New Industrial Shape Detecting Equipment of Cold Strip	
B.Q. Yu and L.P. Yang	677
Dynamic Elasto-Plastic Analysis of 300m Span and 0.15 Rise-Span Ratio Arch Truss by Ninghe Wave	
Y. Shi, H.W. Li, Y.Y. Chen and H.P. Zhong	681
Research on Dynamic Scheduling Technology in Job Shop with Tool Flow	
X. Chen and G.X. Wang	685
Study on Design and Application of a Manufacturing Process Management System of Large Sized Structure Components in Construction Machinery	
K. Zhou and X.D. Li	689
Effect of Intercritical Annealing Temperature on Development of Cold Rolled Dual Phase Steel from Q345 Steel	
J.Y. Liu, F.X. Zhu and S.C. Ma	693
Application of Physics-of-Failure Method in Reliability Engineering of Electronic Products	
J. Shao and C.H. Zeng	697
The Application of Particle Motion Equation in Coal Handling System of Dissipation Dust Law	
S.C. Ge, Y.X. Feng and D.J. Jing	702
Effects on Error of the Component Power Flow by Mounting Deviation in Pipes	
Y. Liu, X.M. Zhu and W.C. Peng	706
Study and Application on Ultrasonical Combined Electrical Micro-Machining the Special Shape Micro-Structures	
Y.W. Zhu, Y.R. Du, X.L. Miao and N.Z. Yun	711
The Study of Prognostics and Health Management for the Air Cooling Equipments Based on FMA and Life Test	
H.D. Ma, H.Z. Fang, S.M. Cui and Y. Xiong	717
The Finite Element Analysis of Reinforcement Shearing	
Z.S. Liu and X.L. Chen	724
Ways and Means of Improving the Quality of Drill Pipe Connections	
H.L. He, S.S. Na, B. Tian, J.Q. Wang, X.L. Cao and D.Y. An	728
Evaluation on Effectiveness of Weapon Equipment Based on Grade Conversion Operations	
L.Y. Mu and Y. Wei	733
Novel Emitter-Segmented Power HBT with 2-D Non-Uniform Segment Spacing for High Thermal Stability	
D.Y. Jin, R.X. Hu, W.R. Zhang, D. Lu, Q. Fu and Y.J. Zhang	737
Dynamics Analysis of Break Disc Based on FEA and Modal Experiment	
L. Zhang, C. Kai and Y. Tian	742
The Calculation of the Reproducibility Error in the Technological System with the Clamp on the Gas Power	
X.D. Shen	746

Application of the Rainbow Schlieren Method in Free Underexpanded Jets W.T. Wu, Y.J. Hong, J.F. Ye and G.L. Jiang	750
Finite Element Analysis on Thermal Characteristic of a High Precision Turning Center's Headstock Y.M. Zhang, R.J. Gu and J.L. Han	754
Study on the Comprehensive Program of Heat Pump Technology Recycling Thermal Power Plants Circulating Water Heat Y.F. Ma, Y.X. Liu and T. Ji	759
Failure Mode and Effects Analysis of Equipment Based on Grey Theory Z.D. Tan and Z.F. Du	763
Experimental Research on Heat Resistances of Vertical Evaporative Condenser Z.J. Wu	767
Measure and Analyze the Problems of Concrete Mixture Production via Six Sigma DMAIC Tools: Central Concrete Mix Plant as a Case Study A.A. Karakhan and A.E. Alsaffar	771
Pipeline Vibration Analysis and Control for the First Booster of Ethylene W.Y. Zhang, Y.M. An, S.F. Wang, H. Wu and J.Y. Lei	777
Electrical Discharge Dressing Metal-Bonded Diamond Grinding Wheels with Misted Emulsion L.R. Cai, W.Y. Ruan and M. Li	785

Chapter 7: Power System and Energy Engineering: Its Applications

Analysis of Dynamic Characteristics of 1.5 MW Wind Turbine Tower P.P. Pan, C.Z. Chen, S.B. Yu and Q. Meng	793
Prototype Design of Rectifier Transformer for High Power Density X.D. Ding and Y.A. Wang	797
Grid-Connected Inverter with Harmonic Compensation for Distributed Power System L. Wang, W.X. Huang, F.F. Bu and Y. Hu	804
Parametrical Finite Element Modeling of Overhead Transmission Line-Towers System K.J. Xu, L. Yang, D.D. Wang, C. Zhou, S.Q. Zhang, Q.J. Peng and X.M. Rui	809
Maximum Wind Power Tracking Strategy of Wind Power Generation System Y.H. Huang, H.H. Li and G.X. Li	813
Wind Power System Optimization Control Simulation Y.H. Huang, G.X. Li and H.H. Li	817
Hierarchical Structural Model of AC/DC Power Systems K.F. Zhang and H.M. Zhou	821
Research and Design of a Power-Balance Controller in Stand-Alone Wind Power Generation System M. Ke and Q. Zhao	828
Research and Application of Wind-Solar Hybrid Power Supply System in Environmental Monitoring System C.W. Xie, Y. Gao and G.F. Zhang	833
Power Characteristic Analysis and Optimization of Point Absorber Wave Energy Converter X.B. Zheng, J. Jiang and L. Zhang	837
Newton-Homotopy Algorithm of Ill-Conditioned Load-Flow G.D. Gu and Y. Liu	843
Rapid Structure Analysis Method of Multi-Segment & Variable Taper Conical Wind Turbine Tower T.Q. Ma, S.R. Wang and C.Y. Xu	847
DC Bus Instability Driving by Photovoltaic Source with Constant Power Load M.N.M. Nasir, A. Jusoh and A. Khamis	853
Improvement of the Electric Energy Quality While Using a Super-Compensator A. Rahmouni, B. Mazari and C. Benachaiba	858
A Study on the Impact of Microgrid Stability Containing Distributed Power Y. Zhao, L. Liu and W.Y. Sun	865
Bees Two-Hive Algorithm for Optimal Power Flow N. Leeprechanon and P. Phonrattanasak	870

Cascading of Diode Clamped Multilevel Inverter Boosters for High Voltage Applications M.R. Rashmi and B. Anu	876
Simulation of Temperature Distribution in Current Transformers with Current Flow Z.H. Yan, X. Ren, H. Ren and W.D. Ding	882
New Method to Identify Transformer Inrush Current Based on FFT and SVM M.F. Gong, G.L. Li, W.H. Xia, H.L. Yan, J.W. Qu and X.Y. Wang	887
Comparison of Monitor Types in Personal Computer Set on Electrical Energy Saving and Side Effect on Power Quality C. Uyaisom, K. Nuntasud and P. Kerdlap	891
Optimal Location of UPFC with ATC Calculation N. bin Salim	896

Chapter 8: Robotics and its Applications

Cooperative Object Transportation Using Connected Robots G.H. Eoh, J.H. Oh, S.H. Lee and B.H. Lee	903
An Efficient Path Replanning Technique for EST-Based Robot Navigation in Dynamic Environments H.C. Lee, T.S. Lee, S.H. Lee and B.H. Lee	908
Advanced Waste Rock Exploring by Mobile Robot J. Konecny, M. Kelnar and M. Prauzek	913
Collision-Free Multi-Robot Navigation Using Autonomous Object Selection K.W. Lee, J.D. Jeon, D.J. Kim and B.H. Lee	918
Makespan Prediction Algorithm for Dedicated Robots Task Allocation J.D. Jeon, K.W. Lee and B.H. Lee	923
A Study on the PUMA560 Robot Motion in ADAMS/View C. Li, X. Han, C.Y. Wei and G.B. Zhao	928
Sliding Mode Path Tracking Control for Spraying Mobile Robots Based on Weighed Integral Gain Reaching Law X.M. Niu, G.Q. Gao and H.Y. Zhou	932
Kinematics Analysis for a 4-DOF Palletizing Robot Manipulator Y.G. Zhao, Y.F. Xiao and T. Chen	937
EKF-Based 6D SLAM for Air-Duct Cleaning Robot Using Inertial Sensor and Stereo Vision C. Wang, W. Sun, D.X. Bu and Z.W. Zhou	941
The Closed Method of Solving in Inverse Solution of Position in Delta Parallel Mechanism C.F. Kang and D. Feng	946
A Toy Robot via Cam Design as a Balance Module of Gravity Shifting P.S. Pa and J.B. Jou	950

Chapter 9: System Design, Modelling, Simulations and Optimization

Finite Element Simulation of In-Service Sleeve Repair Welding of Gas Pipelines A.R. Alian, M. Shazly and M.M. Megahed	957
Nonlinear Mathematical Modelling of Servo Pneumatic Positioning System D. Saravanakumar and B. Mohan	962
Modeling of Q – V Diagram Using SPICE for Electrostatic MEMS Converter Found in Energy Scavenging Systems M.S. Salem, M.S. Salem, A.A. Zekry and H.F. Ragai	967
The Development of Simulation Tools for Design of Waveguide Filter Using Resonant Iris Circuit S. Choocadee, S. Tantivivat and S. Akatimagool	971
Modeling and System Identification using Extended Kalman Filter for a Quadrotor System N. Abas, A. Legowo, Z. Ibrahim, N. Rahim and A.M. Kassim	976
A New Approach for Stabilization of Switched Discrete Linear Systems	982
An Interactive System for Concurrent Engineering Design C.F. Tan, V.K. Kher and S.S.S. Ranjit	990

Modeling of Flight Arrival Scheduling Based on Fuzzy Programming J.S. Chen and X.Y. Zhang	995
Parametric Modeling Technology for Transmission Line Towers S.M. Meng, W.H. Kang, P. Jiang, W.J. Liu and H. Guo	999
Fractal Analysis of Raceway Boundary in Blast Furnace Model Y. Sun, R. Chen, G.X. Wu and L.N. Sun	1003
Satisfaction Evaluation Model of Bus Rapid Transits Service H.Y. Wu	1008
STD Mapping Model Designing Based on Layered Mapping Theory Y.L. Chen, X. Ling and J. Li	1012
Research on the Mathematical Model of the Double Wishbone Independent Suspension Y.J. Chen, Y.J. Wang, H.J. Ju, D. Ning and G.H. Zheng	1017
Analysis of Strain-Stress of Cubic Hinge Sleeve X. Sun, B. Wang, Y. Zhang, F.P. Zhou and Y.S. Hu	1021
Optimized Design of Induction Cooker by Numerical Computation and Experimental Investigation D.L. Li and X.G. Yang	1025
Numerical Study of Frictional Resistance in Vertical Helically Coiled Pipe S.H. Zheng, J.G. Mu and W.C. Fan	1030
Comparative Study on Heat Transfer Characteristics of Three Kinds of Micro-Groove HEAT Pipes Y.B. Liu	1034
Finite Element Analysis and Optimization of the Truss of Installing Wave-Maker Based on ANSYS S.J. Wang, X. Xiong and C. Li	1038
Modeling of the Three-Phase Asynchronous Motor Based on MATLAB/Simulink H.J. Liu, J.L. Wang and F.D. Bao	1042
Computation and Comparison of Dynamic Viscosity Based on Quasi-Static and Dynamic FEM Analysis for AL7050-T7451 Z.H. Minhas and S. Qin	1046
Indirect Optimization for Finite-Thrust Orbital Interception Problem Y.Y. Huang and G.D. Chen	1051
The Motion Analysis on Lunge Material Mechanism in Sewing Machine J.H. Yang and B.D. Liu	1055
Improvement and Simulation Analysis of Threshold Denoising Algorithm Y.X. Liu, Y. Li, B.B. Dong, Y.Y. Cao and Y.L. Ma	1060
Three-Channel Control for the Depth of AUV and its Dynamic Performance Simulation P.H. Teng, Y.W. Zhang and E.H. Hou	1064
PNAVSIM: A Numerical Simulation Package for Pulsar Navigation L.W. Huang, B. Liang and T. Zhang	1069
Design of Powertrain Parameters and Simulation of Electric Power-Assisted Hybrid Electric Vehicle J.H. Li, X.C. Wu and Z.Q. Wan	1074
Simulation on the Burden Distribution by DEM Y. Sun, G.X. Wu, R. Chen, L.N. Sun and H.F. Li	1078
Research of Control and Calibration Method on Laser Simulator for Optoelectronic Confrontation HWIL Simulation System J.J. Wang and P.L. Zhang	1082
The Research and Simulation for Control Method of Active Power Filter H.B. Zhou, Q.Y. Liang and H.B. Li	1087
Vehicle Clutch Dynamic Simulation Based on Matlab/Simulink P.C. Shi and T. Fang	1092
System of Greenhouse Temperature and Humidity Monitoring Based on LabVIEW C.L. Chen, J.F. Jin, T.L. Li and T.Y. Xu	1096
Simulation Study on Travel-Driven System of HST Loader with Matlab/Simulink E.Z. Song, C.X. Ji, M.L. Yin, J. Sun and C.S. Yin	1100
The Simulation Analysis of Harmonics in Typical Rectification Circuit J. Zhou, G.Y. Han, S. Lu and J.H. Wang	1105

The Control Simulation of Parallel Hybrid Power Unit E.Z. Song, S.H. Yi, Y. Chong, S. Jun, J.J. Zhu and Z.H. Zhang	1109
A Strong Tracking Cubature Kalman Filter for Nonlinear Estimation Y.Q. Wang, F. Yang, Y. Liang and Q. Pan	1115
Dynamic Simulation Analysis of Belt Rupture for Belt Conveyor H.W. Ma, D.S. Li, X.H. Zhang and Q.H. Mao	1120
Simulation of the Integrated ABS and DYC Control for 4WID Electric Vehicle with Regenerative Braking F.G. Yang, J.H. Ruan and Y.B. Li	1125
Defect Free Casting by Using Simulation Software C.M. Choudhari, K.J. Padalkar, K.K. Dhumal, B.E. Narkhede and S.K. Mahajan	1130
Design of a New Five-Axis Linkage CNC Machining Center X.G. Liu, C.G. Deng, Y.H. Liu and Q.Y. Zhao	1135
Design and Analysis of Nonlinear Autopilot for Tactical Missile L. Wang and Z.K. Qi	1139
A Design Reuse Process in Reduction the Low Yield Rate for Display Panel P.S. Pa	1144
Calculation Model of Exergy Cost Based on Thermoeconomics Structure Theory and Thermoeconomics Accounting Mode S. Liu and P.H. Wang	1148

Chapter 10: Data and Intelligent Information Processing: Its Applications

Application of Differential Transform Method to Buckling Problems at Pined-Pined Boundary Conditions L.F. Han and S.Y. Wu	1155
Design of Precision Breeding System for Pigs Based on DDE W.X. Zhu, C.Y. Sha, W. Hao and Y. Chang	1159
The Design of a Data Acquisition System for Wave Energy Conversion Efficiency Measurement System Based on the Serial Communication S.J. Wang, G.D. Wang and C. Li	1163
The Extraction of Differential MFCC Based on EMD Y.Y. Chu, W.H. Xiong, W.W. Shi and Y. Liu	1167
The Precision Breeding System of Pig Based on RFID W.X. Zhu, W. Hao and B.H. Wang	1171
A Study on GDOP for Vector-Based Tracking Loop GPS/INS Receiver H. Wang, X. Guo and Y.L. Jun	1175
The Design of Elevator Monitoring Terminal Based on the GPRS Q.Z. Fang, Y.Z. Ge and H.Y. Xu	1180
Delay-Dependent Stability Criteria for Time-Delayed Systems C.H. Song	1184
A Speed-Up Way of Template Matching Using Normalized Cross-Correlation F. Chen, C.J. Zhang, B.W. Zhao and J.F. Shi	1188
Dynamic Obstacle Detection Using Visually Informed Scan Matching T.S. Lee, H.C. Lee, W.S. Yoo, D.J. Kim and B.H. Lee	1192
An Iris Image Acquisition Method Based on Embedded System Q.J. Sun and Z. Ma	1197
Positive Solutions for Nonlinear Lidstone Boundary Value Problems L. Wang and L. Li	1201
Method of Forecast Wind Speed Based on Wavelet Analysis and Quantile Regression P. Lv, C.F. Jiang and B.W. Cui	1205
Stress Analysis for Electric Stop Valve of Nuclear Power Plant Considering Action of Preload and Stem Force J. Wang and J.H. Zheng	1210
QCSP Based Schedulability Test of Real-Time System J.Y. Zhang and Y.X. Chen	1214

Chapter 11: Signal and Acoustics Acquisition and Processing

A Method for Extracting Characteristic Frequency Components of Blood Flow Signals Based on Wavelet Transform	
R.F. Cui, S.T. Luo, L.Q. Lu, W.W. Zhou and Z.Y. Li	1221
Pipeline Leak Detection Based on Double Sensor Negative Pressure Wave	
C.X. Hou and E.H. Zhang	1225
Space-Time Adaptive Processing Used for Underwater LFM and CW	
W. Lv, Z.J. Wang, J.C. Li, M.Z. Wang, Q. Hu and B.M. Yang	1229
Short-Term Noise and the Robustness of Two Log-Periodogram Estimators in Long Memory Series	
L. Deng	1235
Research on Fault Diagnosis Methods for Mixed-Signal Circuits	
X. Zhou and X.L. Wang	1239
The Research Methodology of AR Spectrum Estimation to Stepped-Frequency Signal Processing	
J. Bai, W. Zhang and H.J. Sun	1243
Research of the Best Receive Principle Based the Binary Knowing Signal	
J.B. Chen, Y. Li, C.L. Xue and S.Q. Wang	1247
Based on the Max038 Digital Function Signal Generator Design	
Y.J. Wang	1252
Time Series Preprocessing and Forecasting Based on EMD	
G.C. Feng, P.J. Shang and X.J. Wang	1256
An Arc Fault Current Interrupter Based on Wavelet Transformation	
Z.Y. Cai and Y. Xu	1262
Reliable Sample and Order-Based Repeatable Analysis of Unstable Signal of Automobile Transmission	
J.M. Mei, F. Li and Y.K. Xiao	1266
Study on Acoustic Emission and Power Signals in Precision Cylindrical Plunge Grinding	
C. Jiang, H.L. Li, Y.F. Mai and Y.L. Chi	1270
Performance Improvement of Digital Phase Locked Loop Algorithm Using all Pass Filter and Low Pass Filter for Grid Connected Inverter Reference	
F. Yusivar, Y. Syaifuddin and A.N. Rahman	1274
Research on Interpolation Algorithm for DSSS Signal Receiver	
Z.Q. Yang	1279
Research on Coal and Gangue Identification Method Based on Infrared Thermal Wave Detection	
Y.D. Zhao and S.P. Hu	1285
Connected Stability Analysis of Delay Systems via the Matrix-Valued Lyapunov Function	
J.F. Sun, X.L. Wang and C. Chen	1288
Analysis of Acoustic Radiation of Submerged Damped Cylindrical Shell Combined with Thin Shell Theory and Elasticity Theory	
J.J. Zhang, X.M. Zhu and Z.Z. Liu	1293
Active Control of Sound Radiation Into an Enclosure Using Different Number of Actuators	
H.F. Cui and N. Chen	1299
A New Algorithm of Phase to Ground Fault Location for Electric Power Feeder	
Y.S. Wang and X.M. Liu	1304
Hardware-Software Complex of Transfer Analysis Features of NDT Objects	
H.W. Qin, H.F. Li and X.L. Wang	1311
Research of Special Form for Analysis Properties in Transmit Channels of NDT System	
H.W. Qin, X.L. Wang and Q.S. Du	1316

Chapter 12: Information Technologies and Networks: Its Applications

Adaptive Predict Control of Nonlinear System Based on a Modified Neural Network	
S.P. Nian, C.X. Hou, L. Chen, R.K. Gong and L. Peng	1323

Distribution Network Restoration Reconfiguration Based on an PSO-ACO Hybrid Approach	
M.G. Zhang and Y.Y. Lu	1327
Technology Development and New Issues of Distribution Automation in Smart Grid	
Y. Qu, J.Y. Liu, Y. Xiang and Z.B. Wei	1331
On the Simplification of Data Based on Standard MODBUS Protocol	
H.Y. Wang, Y. Zheng and T.M. Ge	1337
Design of Network Adapter Compatible OCP for High-Throughput NOC	
J. Wang and Z.J. Yang	1341
The Application of Global Forecast Function in the Power System Load Forecasting Software Development	
W.T. Zhang, R.F. An and B. Wu	1347
A MATLAB-Based Study on Approximation Performances of Improved Algorithms of Typical BP Neural Networks	
S. Ding and Q.H. Wu	1353
The Future Manufacturing System and Cloud Computing	
H.Y. Jeong and B.H. Hong	1357
Design and Implementation of Hybrid Micro Energy Harvester for Autonomous WSN Components	
M. Zaman, A.A.A. Rahman, A. Aziz, J.A. Ghafar and S. Islamn	1362
Design of Software for High-Speed Inkjet-Printing System Based on Distributed	
L.W. Qi and P.Y. Guo	1367
Research of FPGA Based LXI Bus Clock Synchronization Technology	
M. Li, Z.Q. Wang, G.H. Liang and Q. Gao	1371
A New Method of Distribution Network Fault Location	
Z. Tang and Q.Q. Min	1375
Vehicle Type Recognition Using in Geomagnetic Data Based on Neural Network	
R.Q. Kang, X.S. Li and H.J. Wang	1380
A Novel Architecture for Civil Aviation Aircraft Intelligent Landing Using Dual Fuzzy Neural Network	
K.J. Xu	1385
Based on the BP Neural Network VAc Synthesis Reactor in Temperature Control	
H. Meng, J. Ma, S.F. Bao and S.Q. Wei	1389
The Horizontal and Vertical Screen to Switch the Display Based on the Android	
X.D. Zhu and S.N. Yu	1393