

Table of Contents

Preface and Committees

Chapter 1: Materials Engineering

The Research of the Difference between Small-Strain and Large-Strain Formulations for Shape Memory Alloys J. Yao, Y.H. Zhu and Y.Z. Wu	3
Investigation of Annealing on the Structural and Optical Properties of Chemical Bath Deposited ZnSe Quantum Dot Thin Films L.Y. Chen and C. Fang	10
Intergranular Corrosion of Austenitic Stainless Steel S.X. Lin, W.K. Bao, J. Gao and J.B. Wang	14
Study on Transformer Silicon Steel Magnetic of Different Joint Forms B.D. Bai, B. Zhang, D.Z. Chen, W.H. Jia and B.Y. Qu	18
Flow Properties of Fluids Confined in Parallel-Plate Nanochannels Z.Q. Zhang, G.G. Cheng, J.N. Ding and Z.Y. Ling	22
Corrosion Behavior of Sm-Based Bulk Metallic Glasses in Salt Solution L.B. Li, J. Guo and F.P. Lou	26
Research on Corrosion Characteristics of Mild Steel in Sea Water at Weihai Y.G. Wang, X.H. Tong, Y. Jiang, Y. Liu and L.S. Zhu	31
Friction and Wear Behavior of Textured Al₂O₃/TiC Ceramic Surface Filled with MoS₂ Solid Lubricants Y.Q. Xing, J.X. Deng, Z. Wu and Y.S. Lian	35
Study on Accelerated Corrosion Electrochemical Behavior of Q235B Steel in Sea Water Y. Liu, X.H. Tong, B.G. Li, Y.G. Wang and L.S. Zhu	40
Study on the Reflecting Properties of PET Composites with TiO₂, Glass Beads and Fluorescent Brightener H.Y. Ji, Y. Liu, X.T. Zheng, L.M. Meng, D.M. Wu and H. Xu	44
Magnetic Analysis of Ferromagnetic Substance in the Process of Rotation Demagnetization X.Q. Zhu and D.M. Liu	51
Hot Compression Simulation of Ti75 Alloy Based on DEFORM-3D J. Fan	55
Crystal Growth of Ni on Liquid-Solid Interface L. Wang, T. Fang and Y. Qi	59
Alloying Element Nb Effect on Microstructure of Co-Al-W Superalloy by Vacuum Arc Melting Y.T. Xu, T.D. Xia, W.J. Zhao and X.J. Wang	63
Study on Controlled Decomposition and Reuse of Waste Thermosetting Phenol Resin Based on Physical Methods Z.W. Wu, G.F. Liu, Z.F. Liu and S.B. Pan	68
Difference in Electronic Structure between Diamond and Graphite J.H. Gong, S.X. Lin, W. Li and J. Gao	74
Numerical Simulation of the Effect of Ethanol on Diesel HCCI Combustion Using Multi-Zone Model S.W. Zhu, C.M. Wang, Y.J. Qian, L.J. Ou and H.C. Wang	78
First-Principles Study of TiC(111) Surface L. Wang, T. Fang and J.H. Gong	82
Coulstatic-Based Research on Corrosion Inhibition Mechanism of Three Inhibitors for Hot Dipped Coating Steels H. Ju and Y. Li	87
Study and Analysis the Fracture Mechanism for Fine-Blanking with Negative Clearance on 60Mn Z.M. Zhang, F. Li and H. Zhang	91

Compressive Strength Changing Law of Oil Well Cement Paste under Corporate Corrosion of HCO_3^- and SO_4^{2-}	
Y. Wang, Y.F. Chen, Y. Lu, H.F. Zhang and Z.G. Sun	95
The Water Adsorption Isotherm Models on Activated Alumina	
Y.F. Shi, X.J. Liu, H.J. Nie and Y.S. Liu	100
Comparative Analysis the Stainless Steel Surface Structure on Fine-Blanking with Negative Clearance and Common Blanking	
H. Du, F. Li and H. Zhang	105
Micro-Deposition of the Film Material Using Femtosecond Laser Pulse	
Y. Li, P.P. Sun and A.Q. Wu	109
The Anti Corrosion Performance of the Fracture Surface by Fine-Blanking with Negative Clearance with ASTM-Gr.D	
J.H. Li, Q.H. Xiao, H. Zhang and F. Li	113
Simulation of the Diameters, Length and Content Effect on the Magnetic Properties of Glass-Coated Magnetic Alloy Microwires	
Z.Y. Sun, Y.J. Di and Z.Q. Zhong	117
Preparation of UV-Curable Nanocomposite Varnish with High Wear Resistance	
B.Z. Guo, Y. Zhao, H.B. Liu, Y.J. Huang, T.Y. Feng and Q.Z. Jiao	121
The Mo Loading Effect on SCR deNO_x Performance for V-W-Mo/TiO_2 Catalyst	
Y. Gao, T. Luan, T. Lv and H.M. Xu	126
Tunable Magnetism and Half-Metallic Stability in Si-Doped Hg_2CuTi-Type Ti_2CoGa Alloy	
B. Wu, Y. Feng, H.K. Yuan and H. Chen	130
Tribological Properties and Wear Mechanism of Self-Lubricating Ni-P/PTFE	
D. Xu, N. Li, J.J. Ma, G.M. Cheng and L.L. Wang	134
Research on the Cr (VI) Absorption by Activated Sludge	
Q. Li, S. Han, D.K. Hao, J.J. Wang, Y. Luo, Y.H. Qu, D.X. Song and X.Y. Hu	138
Precipitation Characteristics of Scaling on Copper and Brass from 0.5mmol/l CaCO_3 Solution at 60°C	
J. Sheng and H. Zhang	142
Dehydro-Aromatization of n-Hexane over Zinc Modified WC/HZSM-5 Catalysts	
A.P. Wei, M.Q. Shi, C.A. Ma and N.N. Chen	147
Synthesis and Characterization of Pt-Sn/WC(O)/C Catalyst for Ethanol Electro-Oxidation	
A.J. Zhu, Y.Q. Chu, C.A. Ma and Z.Y. Chen	151
Effect of Corrosion Inhibitor TG201 on Electrochemical Corrosion Behavior of Tubular Steel HP13Cr	
C.X. Yin, J. Zhang, Z.Q. Bai and B. Wei	155
Hydrogen Permeation Behavior of 95S3Cr Casing with Wet H_2S Environment	
Q.L. Zhang, Z.J. Ji, J. Zhou and X.Y. Chen	159
Experimental and Numerical Investigation of CO_2 Injection into Water-Saturated Porous Media: Effect of Capillary Pressure on Displacement Efficiency	
M.L. Zhao, D.Y. Wang, X.J. Ma and H.S. Xu	163
Kinetic Analysis of Paper White Mud Dissolution at Constant pH	
J.L. Zhao, B.Z. Zhang, K.H. Han, Y.J. Li and S.L. Niu	167
The Scattering of Carbon Nanotubes on the Gaussian Beam	
S.T. Xing, H. Yang, G. Zheng and H.M. Yang	171
Research on the Biofilm Accretion of Flotation Bio-Filter	
P.P. Li, X.F. Ning, K.P. Ye and G.N. Chen	175
Homogenization and Melt-Emulsification Techniques for Ibuprofen Particle Size Reduction: Effect of Tween 80 & Sonication	
S. Tuntarawongsa and T. Phaechamud	179
Reconstruction and Electronic Properties of Interface between Carbon Nanotubes and Ferromagnetic Co Electrodes	
N.T. Cuong, M.A. Mohamed, N. Otsuka and D.H. Chi	183
Network Formation in Various Dispersing Medium of Hydrophobic Colloidal Silicon Dioxide	
P. Toprasri and T. Phaechamud	188
Tuning Color of Charged Iridium (III) Complexes with a Spiro N,N'-Bidentate Ligand	
K. Mothajit, K. Wongkhan and R. Jitchati	192

Synthetic Glass Nanopore for Single Molecule Detection X.H. Sun, C.L. Gao and L.Q. Gu	197
Effect of Varying Dielectric Constant on Relative Stability for Graphene Nanoribbon Interconnects M. Farrokhi, R. Faez, S.H. Nasiri and B. Davoodi	201
Effect of Varying Aspect Ratio on Relative Stability for Graphene Nanoribbon Interconnects M. Farrokhi, R. Faez, S.H. Nasiri and B. Davoodi	205
Doping Effect on Crystal Structure and Magnetic Properties of Highly Al-Substituted Strontium Hexaferrite Nanoparticles E. Khorashadizade, H. Arabi and A. Yousefi	210
Properties of Thermal Conductivity on Polyimide/Clay Nanocomposite Foams E.Y. Kim, S.Y. Jeong, G.J. Shin, S.K. Lee and K.H. Choi	215
TEM Analysis of Structural Phase Transition in MBE Grown Cubic InN on MgO (001) by MBE: Effect of Hexagonal Phase Inclusion in an C-Gan Nucleation Layer J. Parinyataramas, S. Sanorpim, C. Thanachayanont, H. Yaguchi and M. Orihara	219
Dispersion of Multiwalled Carbon Nanotubes with Water-Soluble Polyaniline Blend Poly(Sodium 4-Styrenesulfonate) E. Detsri and S.T. Dubas	223
Effect of Milling Time on the Structural Properties of Titanium Dioxide Nanopowder N.N. Hafizah, M.F. Achoi, L.N. Ismail and M. Rusop	228
Size Effect of Uniaxial Compressive Strength of Limestone Z.H. Chen, C.W. Liu and J.W. Deng	233
Effect of ZnO Nanoseed Structure on the Growth Orientation of Vertical Array ZnO Nanorods via Hydrothermal Process S.T. Tan, A.A. Umar, M. Yahaya, C.C. Yap and M.M. Salleh	239
Post-Growth Annealing of (Ga, Mn)As under Sb Capping I. Ulfat, J. Adell, P. Pal, J. Sadowski, L. Ilver and J. Kanski	243
Synthesis of Carbon Nanotubes from Palm Oil Precursor by Aerosol-Assisted Catalytic CVD Method M. Maryam, S. Abu Bakar, M.S. Shamsudin and M. Rusop Mahmood	247
Density of ZnO Nanotip Array Controlled by ZnO Seed Layer M.K. Lee, N.R. Cheng, C.H. Fan and C.F. Yen	252
Green Synthesis of Silver Nanoparticles Using Two Lichens Species: <i>Parmotrema praesorediosum</i> and <i>Ramalina dumeticola</i> R. Mie, M.W. Samsudin, L.B. Din and A. Ahmad	256
Gold Nanoparticle Based Immunostrp Assay Method for Detection of Protein-A A. Zambre, N. Chanda, S. Prayaga, R. Almudhafar, R. Kannan, A. Upendran and Z. Afrasiabi	260
Carrier Transport Enhancement in Bulk-Heterojunction Organic Photovoltaics with Boron or Nitrogen-Doped Carbon Nanotubes H.I. Park, J.M. Lee, J.S. Park, K.E. Lee and S.O. Kim	267
Effect of Micron Size Ni Particle Addition on Microstructure, Thermal and Mechanical Properties of Sn-9Zn Lead-Free Solder Alloy M.M. Billah and K.M. Shorowordi	271
A Review on the Mechanical and Physical Properties of Natural Fiber Composites M. Zaleha, M. Shahrudin and I.M. Izwana	276
Investigation of Porous Block Porosity on Flow and Entropy Generation inside a T-Micromixer Using Lattice Boltzmann Method M.A. Delavar	282
A Fundamental Study on the Prediction of Preheating Temperature of Silicon Nitride Ceramics by Using HPDL K.S. Kim and C.M. Lee	287
Mechanical Response of Laminated Composite Cylindrical Shell Subjected to Radial Patch Loading F. Firouzabadi, A. Ayob, S.S. Teshnizi and G. Sharifishourabi	292
Study of Synthesis of Novel -Valerolactone-Based Polyurethanes M. Chalid, H.J. Heeres and A.A. Broekhuis	297
Effect of Strain Rate Upsetting Process on Mechanical Behaviour of Epoxy Polymer S.S.R. Koloor, B. Abdi, M.R. Abdullah, A. Amran and M.Y.B. Yahya	303

Hyperelastic Analysis of High Density Polyethylene under Monotonic Compressive Load M. Khalajmasoumi, S.S.R. Koloor, A. Arefnia, I.S. Ibrahim and J.M. Yatim	309
--	-----

Chapter 2: Applied Mechanic and Mechanical Engineering

A New Method of Eliminating Outliers in Data Processing of Tracked Vehicle Vibration Signal W.W. Lv, L. Gu, X.T. Huang and H. Jiang	317
Optimization of the Frontal Rail Based on Composite Material H.T. Yu, L. Liu, G.F. Zhao and Z.P. Zhang	321
Research for the Turning Vehicles ESP Control Performances on the Yaw Elastic Restriction Vehicle System G.Y. Wang, L. Zhang, G.Y. Chen and Z.F. Zhang	325
Study on Particulate Accumulated Characteristics of Diesel Particulate Filter D.H. Jiang, G.T. Yao, X.Y. Zi, H.W. Liu and M. Mao	331
Performance Improvement and Lightweight of Engine Hood Structure C.D. Wan	336
1.25MW Wind Turbine Vibration Performance Study of the Internal Cabin F. Yang, C.H. Yu and J.L. Dong	340
The Performance Indexes and the Influence Factor of PCP B.X. Meng and H.Z. Wen	347
Response of Blade Thickness to Hydraulic Performance of Stamping and Welding Multistage Centrifugal Pump J.G. Mu, B. Zhu, S.H. Zheng and J.J. Gan	351
A Novel Micro Check Valves Used for Interstitial Fluid Sampling Device B. Huang, H.Z. Xi, Y.X. Liu and Y.F. Yao	357
Friction and Forward Slip in High-Speed Cold Rolling Process of Aluminum Alloys Q.Y. Wang, Y. Zhu and Y. Zhao	361
Rolling Force Prediction Method Based on Fuzzy Identification Z.Y. Wang and Y.G. Li	365
Bending Vibration Analysis of Thick Honeycomb Sandwich Panel W.D. Shen, S.C. Wang, J.L. Wang, J.F. Xu and S.H. Song	369
Finite Element Analysis of Tube Tower for Vertical Axis Wind Turbine B. Liu, Y.Y. Zhang, F. Zhao, Y.J. Gong and C.L. Meng	373
A New Mistuning Form Existed in Periodic Structure-Force Mistuning A.L. Wang, J. Chen and Q.J. Wang	377
Optimization Research of Process Parameters for Laser Cladding Valve Parts Based on Genetic Algorithm J.B. Wang and J.S. Yin	382
Finite Element Analysis of the Pump Rigidity G.Y. Ma, W. Yao, J. Gao, P. Wang and J.B. Wang	387
Study on Characteristics of Gas Flow Velocity in Catalytic Converter with Porous Z.J. Cai, W.M. Kang, B.W. Cheng and Y.B. Li	391
Comparison of One-Unit Ball-Rod-Spring Balancer with Traditional Ball-Type Automatic Balancer M.C. Wang and C.J. Lu	395
The Contrastive Analysis of Several Radiation Cooling Terminal Devices S. Bin and Y. Zhou	400
Study on the Meshing Feature and Contact Strength of WN Gear Driving in Load Bearing C.C. Li, D.H. Chen, Y.G. Li and X.K. Mu	406
Overview of the Diagnostic Methods of Engineering Components Damage Based on Modal Analysis H.C. Sun and Y.C. You	410
Verification of Surface Finish as an Indicator of Machinability in Drilling of Stainless Steel by DIN 1.4301 J. Jurko and A. Panda	415

Mechanism Investigations of Fluid-Solid Conjugate Heat Transfers for Vehicle Exhaust System G.Q. Xiao	419
A New Method of Calculating the State Feedback Gain Vector of Vibration Control System M. Yang, D.C. Zhang and X.X. Zhou	424
Mechanical Analysis: Solutions to Instantaneous Acceleration and Cushioning Time of Accelerometer's Collision Z.W. Zhang, X.X. Chu and Y.Z. Ni	428
The Reliability of Solder Joints in Fine Pitch 3-D Stack Package by Taguchi Method C.I. Chen, Y.Z. Liu and J.W. Chen	434
Calculation and Analysis of the Forces Created by Halbach Permanent-Magnet Electrodynamical Suspension Y. Chen and K.L. Zhang	440
Research on Equivalent Bending Stiffness of Conical Inflated Beam H.F. Tan and Z.Y. Du	444
Failure Analysis and Transmission Parameters Optimization Design of WN Gears Drive X.K. Mu, Y.G. Li, D.H. Chen and C.C. Li	449
Dynamic Finite Element Analysis and Experimental Study of Rotating Column in Cylinder Z.M. Li, J.B. Liu, M. Luo and Q. Zhang	453
Meshing Method of FEM in Large Complex Structural Simulations Y.H. Xue, B. Shao, Z.G. Wang and X. Jiang	457
Study of Side Thrust of Diesel Piston Based on Time-Domain Finite Element Method D.Y. Zheng, Y.P. Cao and W.P. Zhang	461
Rotor Profile Generation Method for Twin Screw Compressors Based on Bi-Direction X.M. He, M. Han, Y. Deng, Y. Lu and C.L. Hua	465
The Design of New Mechanism of Birdlike MAV H.Z. Zhai	470
Statistical Calculations of Grinding Abrasive Number Based on Normal Distribution D.X. Wang, P.Q. Ge, L. Zhang and Z.J. Zhu	474
Lightweight Design and Research of Box Girder for Double Girder Bridge Crane Q.X. Wang, X.F. Zhang and C.B. Sun	478
The Air Tightness Test Method of the High Speed Train T.T. Zhang and F. Wang	482
Analyses of Current Situation about Biomass Carbonization Stove Y.C. Li, S.M. Wan, L. Wang and J.C. Chen	487
The Finite Element Analysis of Machine Tool Column of NC Gear Shaper Based on HyperWorks X.M. Zhou, Q.H. Tian, Y.X. Du and R.L. Zhong	491
The Calculation Method and Experimental Research on Throttling Pressure Drop during Kill a Well H.X. Liu, X.M. Yang, C.T. Li and X. Cheng	495
Meshing Stiffness Analysis of Four Ring-Plate-Type Pin-Cycloidal Gear Planetary Drive X.Y. Zhang and X.J. Dai	499
A Modified Model of the Primary Shear Zone for Orthogonal Machining F.J. Zhou, X.L. Wang and Y.J. Hu	503
The Effects Research of Elastic Coupling on Torsional Vibration Test-Bed F. Wu, H. Liu and B. Zeng	507
Research on Dynamic Characteristics of Implement Mechanism of Mining Excavator W.K. Kong, J.X. Liu and M.H. Ma	512
Tool Wear of Diamond Tools in Ultrasonic Vibration Turning Titanium Alloys Z.M. Zhou, X.Y. Li, Y.X. Qu and J. Na	517
Research on Anti-Backward-Tipping Device of Luffing Jib Tower Crane B. Li, B. Cai, H.D. Liu, F.M. Wang and J.S. Zhang	521
An Improvement Design Research on the Structure of Precision Grinder R.Z. Li, P. Zhai, P. Wang and S.P. Zhai	526
Study of Dual-Fuel Engine Performance with Diesel-Natural Gas J.X. Zhang, Y.H. Zhao and X.L. Dai	530

Engine Fault Diagnostic System Based on Non-Linear Support Vector Machine G.H. Xu and J.X. Ye	534
Experimental Study of Cutter Wear Based on Turn-Milling Y.L. Cai, C. Huang and J.Y. Li	538
The Research of ELID Grinding Effect and Surface Quality on Carbonized Cold-Rolled Steel J.L. Guan, L.L. Zhu, H.W. Lu and Z.W. Wang	542
Optimization Design for Crank Arc Guide Bar Gathering Mechanism of Crab Claw Type Loading Machine Z.H. Luo and S.H. Li	547
Research of the Three Coordinates Miniature CNC Milling Machine Z.W. Sima, H.Y. Zhang and Y.G. Zhao	551
Preliminary Research of Crank-Group Driving Mechanism J.J. Cao, Y.Q. Wang and J.W. Sun	555
Analysis of Solid-Liquid Two-Phase Flow in Axial Flow Pump H. Hua, X.L. Wang, H.Y. Wang and X.B. Liu	559
The Mechanism of the Contact Resistance between Rail and Wheel in Bad Shunting Area Z.W. Huang, K.R. Jin and L.Y. Sun	565
Study on Radial Load in a Centrifugal Pump with Slope Volute Using CFD N. Zhang, M.G. Yang, B. Gao and Z. Li	571
Modeling a Finned Tube Evaporator for Engine Exhaust Heat Recovery E.H. Wang, H.G. Zhang and B.Y. Fan	576
Kinematics and Dynamics Analysis of Planar 3-RRR Parallel Robots Q.H. Zhang and X.M. Zhang	582
Available Heat Energy Analysis from Exhaust of Incinerator on Ship X.J. Liu, X.H. Kong and W. Ren	588
Development of High Precision Position Stage and its Performance G.Y. Pan	592
Clutch Product Rapid Variant Design Based on Tabular Layouts of Article Characteristics L. Wang, Y.R. He and Y.P. Gong	597
The Calculation Method of Earth-Rock Allocation Balance and its Application for the Pumped Storage Hydropower Construction F.L. Song, Q. Liu, W.H. Wu and W.Y. Yang	602
The Research of Mechanical Automated Stereo Garage of Automobile Z.L. Song, W.X. Ran and J.S. Wu	607
Static and Dynamic Characteristic Analysis of the Tower for Vertical Axis Wind Turbine Based on Finite Element Method Y.J. Gong, Y.Y. Zhang, F. Zhao, H.Y. Xiang, C.L. Meng and Y. Zhang	613
Research on the Influence Factors of Cavitating Jet in Jet Pipe Amplifier Nozzle X.H. Wang, Z.J. Li, S.W. Sun and G. Zheng	617
Fatigue Analysis of Wind Turbine C.Y. Ding, G.Q. Li and H.C. Guo	621
An Improved Shear Stress Transport(SST) Model for High Speed Flows J.Y. Liu and W.Q. Cheng	625
Matching Research on Commercial Vehicle Driveline Based on Cruise Z.P. Xia, P. Liao, H.J. Ni and Y.N. Yuan	630
Study on Efficiency Characteristic of Torque Convertor Transmission System Based on Power Split Principle L. Li and W. Li	634
Research on Spiral Motion of Guided Projectiles Based on Flight Data S.B. Zhang, X.C. Li, Z. Su and L.Y. Zhao	638
The Mechanical Model and Boundary Condition of Separated Zone Water Injection String's Axial Force H.Z. Wen, Z.C. Wang and F.X. Lv	644
Study of Diagnosis Algorithm for Coherence of Fuel Injection of High-Pressure Common Rail Fuel System H.L. Sang, G.Z. Yue, Z.H. Lv, S.Z. Li, Z.T. Zhang, T. Qiu, Y. Lei and J. Peng	648

Dynamics of Joints with Clearance for a Cantilever Beam Subjected to a Moving Mass G.L. Yang and W. Dong	652
Study on Crack Component Fatigue Life Analysis Based on SIF Fitting Y. Chen and Y.T. Sun	656
Laboratory Experimental Study on Advanced Water Injection D.Y. Yin, S. Wang, B. Ying and C.L. Zhang	661
The Design of Surfactant Multiplex System for Lowering Threshold Pressure D.Y. Yin, Y.Z. Zhou and C.L. Zhang	665
Shear Ram Speed Characterization for Copper Wire Bond Shear Test Z. Sauli, V. Retnasamy, A.H.M. Shapri, N.A.Z. Rahman, W.M.W. Norhaimi, S. Tanisellass and M.H.A. Aziz	670
Shear Ram Height Characterization for Copper Wire Bond Shear Test Z. Sauli, V. Retnasamy, A.H.M. Shapri, N.A.Z. Rahman, W.M.W. Norhaimi, S. Tanisellass and R. Vairavan	674
Abrasive Wear Mechanism in Near-Nano and Microstructured WC-Cobalt Coatings A. Mateen and T.I. Khan	678
Defective Casting Diagnosing via an Enhanced Knowledge Hyper-Surface Method N. Mohd Nawi, Z. Harun and N. Wahid	684
Boil-Off Gas Formation inside Large Scale Liquefied Natural Gas (LNG) Tank Based on Specific Parameters M.S. Zakaria, K. Osman and M.N. Musa	690
Effect of High Swirl Velocity on Mixture Formation and Combustion Process of Diesel Spray A. Khalid and B. Manshoor	695
Numerical Investigation of the Circle Grids Fractal Flow Conditioner for Orifice Plate Flowmeters B. Manshoor and A. Khalid	700
Studies of Relationship between Contact Width and Leakage on Large Size of New Metal Gasket M.A. Choiron, S. Haruyama and K. Kaminishi	705
Thermo Mechanical Analysis of SS304 Circular Grid Plate Hard Faced with Colmonoy S. Balaguru, K. Shashi, M. Vela and P. Chellapandi	710
Evaluation of Cutting Force and Surface Temperature for Round and Square Member in Laser Assisted Turn-Mill J.Y. Choi and C.M. Lee	718
Squeezing Impact Forces of the Deformation on a Cylindrical Roller I.K. Beisembetov, Y.N. Oteny, O.P. Muraviev, M.R. Sikhimbayev, B.N. Absadykov, B.S. Arymbekov, S.S. Ussupov, K.T. Sherov and Y.O. Tkacheva	723
Numerical Investigation on Laser Ablation Characteristics of PTFE in Advanced Propulsion Systems D.X. Zhang, R. Zhang, Z. He, J.J. Wu and F. Zhang	727
Mechanical Behavior of Composite Plate under Combined Impact and Internal Pressure S.S. Teshnizi, G. Sharifishourabi, Y.M. Yazid and A. Ayob	732
Aero-Thermal Performance of Purge Flow in Turbine Cascade Endwall Cooling W.G.W. Aizon and K. Funazaki	737
Linear Analysis of Crack Propagation in a Solid Rocket Propellant M. Gulzar	742
High Speed Experimental Study of Friction Induced Vibration in Disc Brakes K. Magaswaran, A.S. Phuman Singh and M.Z. Hassan	747
Extensive Tracking Performance Analysis of Classical Feedback Control for XY Stage Ballscrew Drive System L. Abdullah, Z. Jamaludin, T.H. Chiew, N.A. Rafan and M.Y. Yuhazri	750
Experimental Study on the Hydrodynamics of Swirling Fluidized Bed G.J. Jun, V.R. Raghavan and C.Y. Sing	756
Kinematic Analysis of a 2-DOF Planar Parallel Manipulator with Automated Selective Activation Mechanism to Avoid Singularities V. Upendran and A.K. Dash	761
Effect of Strain-Rate on Flexural Behavior of Composite Sandwich Panel B. Abdi, S.S.R. Koor, M.R. Abdullah, A. Amran and M.Y. Yahya	766

Finite Element Analysis of Curvature Precast Polymer Panel for Temporary Support of Tunnels	
M. Khalajmasoumi, S.S.R. Koloor, A. Arefnia, I.S. Ibrahim and J.M. Yatim	771
Comprehensive Study on Variable Pitch Vertical Axis Tidal Turbine	
K. Syed Shah and L. Zhang	778

Chapter 3: Electrotechnics and Electrical Machines

Latest Research Progress of Amorphous Motors	
G.Y. Ma, H. Zhang, J. Gao and H. Ru	785
Transient Electromagnetic Field Numerical Analysis of Self-Excited Retarder	
X.J. Yang, R. He, F. Wang and Y.Z. Feng	789
Design Optimization of a Dual Function Piezoelectric Actuator	
Y. Bai, S. Tuncdemir, J. Wang, J.F. Guo and K. Uchino	795
Research on a STM32F Based Digital Integral Technology for Rogowski Current Transformer	
Y. Li and Y. Xie	799
A Novel Single-Stage PFC Based on Active Clamp Forward Converter	
Y.X. Zhu, Q.H. Xiao and S.X. Tong	803
Electric Field Distribution Analysis of $\pm 1000\text{kV}$ DC Wall Bushing during Polarity Reversal	
L. Zhang, Q.M. Li, L.N. Zhang and Y.D. Cong	807
An Improved Dynamic Surface Control Approach and Applications to the Control of DC-DC Power Converter	
W.L. Li	811
Analysis on Electric Field Distribution of $\pm 1000\text{kV}$ DC Wall Bushing with Considering Space Charge	
L. Zhang, Q.M. Li, L.N. Zhang and L. Cao	815
Study on Reliability of Control and Protective Switching Device	
S.Z. Huang, Q.Y. Guo, J.T. Hu, M.J. Zhang and Y.J. He	819
5A 1300V Trenched and Implanted 4H-SiC Vertical JFET	
G. Chen, X.F. Song, S. Bai, L. Li, Y. Li, Z. Chen and W. Wang	824
Research on Programmable Logical Relay Protection	
L.K. Liang, Y.Y. Zhang and X.C. Zhang	828
Novel Multi-Finger Power HBTs with Non-Uniform Segmented Emitter for Thermal Stability Enhancement	
D.Y. Jin, D. Lu, W.R. Zhang, Q. Fu, Y.J. Zhang and X. Zhao	832
Design of Portable On-Board Charger	
D.L. Cheng, W.R. Jiang and J.W. Mei	837
Working Parameters Selection of Bladder-Type Accumulator under the Different Conditions	
X.M. Wu and Y.F. Yang	841
The Study of Movement Encoder with Low Cost and High Performance	
X.W. Wang	845
The Analysis and Research of Electric Dynamic Load Simulator	
X. Liu, R.F. Yang and J.F. Jia	849
Electric Vehicle Charging Station Load Forecasting and Impact of the Load Curve	
J. Wang, K.H. Wu, F. Wang, Z.H. Li, Q.S. Niu and Z.Z. Liu	853
Research on Vibration of Transformer with DC Bias	
B.D. Bai, B.Y. Qu, D.Z. Chen, B. Zhang and W.H. Jia	859
New Method to Identify Sympathetic Inrush in Transformer Based on Hilbert Huang Transform	
M.F. Gong, W.H. Xia, G.L. Li, X.Z. Bai and L.B. Li	863
The Impact of Electric Vehicles Fast Charging on the Grid Voltage and Current Fluctuations	
Z.H. Li, Q.Z. Jian, H. Chen, X.L. Du and Z.Z. Liu	868
Researches on the Characteristics of Vacuum Switching Arc in Short-Gap	
G.H. Qiao, H.J. Dong, M. Li, W.L. Dong and X.W. Zhou	872

Research on BFV-SVPWM Control Strategy for Two Double-Y Shift 30° PMSM Series-Connected System X.J. Shi, L.S. Liu and S.L. Zhou	876
Analysis of Vibration and Noise in Transformer under DC Bias B.D. Bai, J. Zhang, G.H. Yang and J.Y. Wang	880
An Analytical Method to Calculate the Eddy Current Losses of Transformer Shielding Coil B.D. Bai, Y.Y. Gao and J.Y. Wang	884
Development and Application of Low-Speed and High-Torque Permanent Magnet Synchronous Motor J.G. Cui, W.S. Xiao, J.B. Zhao, J.X. Lei, X.D. Wu and Z.G. Wang	888
Three-Dimensional Magnetic Field Analysis of Poly-Magnet Line-Start Permanent Magnet Synchronous Motor Y.J. An, D.X. Pei, L.P. Xue and Y. Li	895
Research on Enhanced Magnetism and Demagnetization Armature Reaction of Double Salient Electro-Magnetic Motor L. Zhu, X.C. Zhao, H.S. Hu and W.X. Huang	899
Analysis and Research on Influence of Seam on Power Transformer's Capacity on Restraining DC Bias D.Z. Chen, B.D. Bai, B. Zhang, W.H. Jia and B.Y. Qu	903
Effect of Stator Structure and Field Analysis of a New Type Single-Phase Induction Motor H. Zhong, X.H. Wang, C. Zhang and M. Yin	907
Design and Experimental of High-Performance Interior PMSM with the Aid of Identical Polarization Embedding Y.J. An, L.P. Xue, Z.J. Meng and L.M. Zhou	911
Power Transmission Analysis between Two Flexible Subsystems Coupled by a Stiff Junction J. Lin	915
Modal Analysis of 160KVA Dry-Type Transformer Based on ANSYS B.D. Bai, G.H. Yang, B.Y. Qu and J. Zhang	919
Design of Parallel Interleaved-Phase-Shift-PWM Inverters with Voltage Feedback Control J.W. Chen, Y.H. Liu, C.H. Chen, Y.L. Yueh, Y.C. Tzeng and J.S. Syu	923
Generation Oscillating Switching Impulse Using Power Transformer X.T. Wu, P. Ding, F. Guo, J.F. Liang, J.H. Li and Y.M. Li	929
Static and Dynamics Analysis of 2.0MW Generator Frame C.Y. Ding, L.P. Dai and H.C. Guo	933
Magnet Design of Liquid Metal Magnetohydrodynamic Generator Driven by Wave Y.Y. Xu, J. Bai, Y. Peng, L.Z. Zhao, R. Li, B.L. Liu and J. Li	937
Reflection of Conductive Plane Covered by Double Inhomogeneous Plasma Slab F. Yan, Z.C. Yuan, Y. Wang, S.L. Gong and Z. Li	941
Electromagnetic Field Analysis of Hybrid Excitation Vehicle Generator with Low Voltage and High Current Y.J. An, L.M. Zhou, L.P. Xue and Y. Li	945
Electromagnetic Susceptibility Analysis Method of Electro-Explosive Devices D.C. Qin, D.L. Su and N.K. Wu	949
Voltage Waveform Control of Three-Phase PWM Inverter Based on the Output Harmonic Current Feed-Forward Compensation W. Tao, A.M. Soomro and X.Z. Liao	953
Multi-Peaked Velocity Spectrum of a AC-Electric-Field-Induced Electrolytic Flow with Microelectrodes A. Sethi, P. Parikh, S. Benedict, S. Deb and S. Banerjee	957
Laguerre Function's Based Model Predictive Control of Three Phase Induction Motor B. Asad and K.M. Hasan	961
Electronic Control Unit Design for a Retrofit Fuel Injection System of a 4-Stroke 1-Cylinder Small Engine M.T. Muslim, H. Selamat, A.J. Alimin and M.F. Hushim	968

Chapter 4: Energy and Power Engineering

State Recognition for Main Bearing of Wind Turbines Based on Multi-Fractal Theory Z.Q. Sun, C.Z. Chen and B. Zhou	975
Characteristic Parameters Research on the Secondary Thermal Ignition of Gasoline-Air Mixture in Cave Depots Y.H. Ou, H.B. Qian, Y. Du, R. Fan and X.S. Jiang	979
Analysis and Design of Conditioning Circuitry Used for Energy Scavenging Device Y. Cheng, C.H. Yu, J.X. Huang and L. Zhang	983
Conditioning Circuit of Energy Harvesting Device in Substations Y. Cheng, C.H. Yu, J.X. Huang and L. Zhang	987
Ion-Electron Interaction Contribution to the Helmholtz Free Energy for Fully Ionized Hydrogen Plasma X.R. Zheng, C.L. Tian, N. Wu, B. Wu and X.B. Wang	991
Research on Integrated Optimization for Production Process and Steam Power System Y.M. Sun, R. Ding and Q.Q. Li	995
The Study on 20W/40 Heavy Duty and Super-Charged Diesel Oil J.X. Zhang and Y.H. Zhao	999
Development of Diesel Engines' Thermal Balance Test and Analysis System Y.D. Lv, Y. Cheng and Q.W. Li	1004
Researched on Maximum Power Point Tracking of PV Power System W.M. Chen, S. Chen, N. Xie and H. Cai	1009
Research on Reclassification of Power Users for TOU Power Price Based on Fuzzy Clustering L. Luo, B.C. Jiang and L.K. Liang	1013
Solar Wireless Charging Circuit System Designing S.P. Li and X.F. Chen	1017
Research on Capacitance Current Treatment Methods in Mine High-Voltage Power Grid D. Xu and N. Guo	1021
Design and Experimental Research on Evaporation-Type DPF Regenerative Burner H.W. Liu, G.T. Yao, D.H. Jiang, X.Y. Zi and Z.R. Guo	1025
Reactive Power Compensation of Distribution Network Based on Immune and Particle Swarm Optimization Algorithm W. Cui, L.C. Li, L. Zhang and Q. Sun	1030
Cell Performance of ABPBI-Based High Temperature PEM Fuel Cells W.M. Yan, H.H. Chen, G.B. Jung, C.I. Lee and C.C. Yang	1034
Performance Study of Brushless Doubly-Fed Machines in Variable Speed Constant Frequency Wind Power Generation Y. Zhang and F.X. Wang	1039
Research of the Wind Power's Transient Stability Y. Zhou, Z.J. Wang, S.M. Liu and X. Sun	1043
Comparisons of the Power-Feedback MPPT Algorithms for the Photovoltaic Systems T.C. Yu, Y.B. Lin and Y.C. Lin	1047
Study on Power Converting System of Liquid Metal MHD Generator Driven by Wave Energy Y.Y. Xu, J. Bai, Y. Peng, R. Li, L.Z. Zhao, C.W. Sha, W.D. Wei, B.L. Liu and J. Li	1052
The Comprehensive Analysis of Grid Connected Wind Power H. Liu and X.N. Lv	1056
A New Method to Detect Harmonics and Inter-Harmonics Based on Hilbert Marginal Spectrum M.F. Gong, G.L. Li, W.H. Xia, Q.X. Liu and J.J. Wang	1060
Investigation of Impact Test of Power Battery under Different Environment Temperatures H.W. Wang, J. Liu, H.Q. Xiao and C. Wang	1064
Analysis and Optimization of Magnetic Energy Converters for Wireless Sensors in Substation Y. Cheng, J.X. Huang, C.H. Yu and L. Zhang	1068
Modal Parameters Identification of Transmission Tower Based on Improved Stochastic Subspace Identification X.F. Liu and X.L. Lu	1072

An Improved Method for Short-Term Power Load Forecasting Based on Fractal Extrapolation	
Y. Liu, M.Y. Zhai, L.P. Lu and Y.X. Liu	1077
Advanced Metering Infrastructure for Distributed Generation Energy Cooperation Management	
H.B. Sui, Y. Sun, W.J. Lee and M. Liu	1081
Influence of Pressure on the Performance of Heat Exchangers in Ammonia-Water Based Power Cycles	
K.H. Kim and C.H. Han	1085
Electricity Energy Saving Assessment for Induction Motors towards Sustainable Energy Practice in Indonesian Small and Medium Industry	
Y. Tanoto	1090
A Systematic Approach and Genetic Algorithm Method to Power System Stabilizer Design for Wind Turbine Equipped with DFIG	
G. Sayyad, A. Khodabakhshian and R. Hooshmand	1095
Electricity Generation of the Water Weighted Sun Tracking System in Sirindhorn Solar Power Plant	
M. Hongkammeung and T. Wongwuttanasatian	1100
Producing Power Using Stirling Engines by Tapping Heat from the Condenser of Power Plants	
N. Sharma, A. Goel, A. Ghosh and A. Kohli	1106
Research on OPPC Application in Low Voltage Circuit of Liaoning Power Grid	
F.B. Meng, H.H. Zhao and J. Wang	1110
Adjusting the Transient Stability of Power System Using STATCOM-SMES Combined Compensator	
J. Ghahramani and S.S.K. Madahi	1115
Experimental and Numerical Study of the Energy Absorbed with Various Thickness of Thin Rectangular and Square Sections	
S. Dehghanpour and S. Dehghanpour	1120

Chapter 5: Measurements, Monitoring and Sensor

Alignment Method for FOG Single-Axis Rotation-Modulation SINS	
F. Liu, W. Wang, K. Li and L. Wang	1127
Research on Spectrum Domain White Light Interference Demodulation Mechanism of the Optical Fiber Sensing Coal Gas	
M.R. Zhou, D.Y. Ling and Y.L. Ye	1132
Application of Image Processing in Plasma Jet Morphological Analysis	
X.J. Tian, H.J. Dong, D.P. Yin and Z.Y. Zhao	1136
An Algorithm for Airborne Conflict Detection Based on Support Vector Machine	
Y.L. Jiao, X.J. Zhang and X.M. Guan	1140
A Novel Hardware Implementation for Specular Intensity of Phong Shading Used in Embedded Graphic Applications	
B.C. Li, J.Z. Wei, Y.S. Chang, W. Guo and J.Z. Sun	1146
Research on Fault Detection Method of Converters	
W.Z. Ma, K.C. Chen, Y. Shan and Y.L. Wang	1150
Binocular Vision Measurement of Distance Based on Vehicle Logo Location	
A.L. Hou, J. Chen, Z.J. Jin, Q. Liao and Y. Geng	1154
Vacuum Circuit Breaker Fault Diagnosis System	
Y.H. Zheng	1158
Online Fatigue Monitoring System for Steam Turbine Rotor in Power Plants Considering Sub-Synchronous Oscillation	
S. Liu, B. Li, H.L. Zhang, C. Wang, Y. Shi and D.M. Xie	1162
A New Moving Human Detection Method in Color Video Image	
T.N. Wu, Y.R. Wu and Y.Y. Wu	1166
A New Camera and Projector Calibration Method Based on Discrete Computation	
X.J. Zhao and C.R. Zhang	1171

Texture Defect Detection Using Gabor Filters P.F. Li, H.H. Zhang, X.J. Kang and J.F. Jing	1176
Implementation of Fixed Sampling Period M/T Method Based on VHDL S.T. Xia and X.J. Li	1180
Test Model Designed for Tire Pressure Monitoring Control System E.H. Xing, J. Li and R. Wang	1184
Detection for Heading and Attitude Signal Conversion Equipment of Aircraft Based on Virtual Instrument Technology X.Y. Lv, Y.Z. Li and L.M. Chang	1188
Application on Sample Inspection Technology of Highway Electrical and Mechanical Engineering Detection J. Chen and J.H. Yu	1192
Leakage Line Detection Based on Improved Grey Absolute Relation Degree Model J.W. Zhao	1198
Route Identification in Intelligent Traffic System Based on CMOS Image Sensor T. Wang, G. Tian and C. Han	1202
Design of Interior Off-Line Temperature Detector for the Ultrahigh Pressure Vessel J. Xin, W.T. Yang, B.Y. Zhao and G.P. An	1206
Design of Karl Fischer Moisture Virtual Analyzer Based on LABVIEW and MCU Y.Z. Tian, Z.X. Jin and P.C. Wang	1213
Research and Optimization on the Venturi Tube Dynamic Throttling Element of New Flowmeter J.M. Ding, X.B. Zhang and L.D. Kou	1218
FFU Motors Group Control System Based on Wireless Sensor Y.W. Wang	1222
Full-Isolation Load Equivalent and Parameter Measurement Instrument Development J. Yang, J. Liu and Z.C. He	1226
A Self-Integrating Rogowski Coil for Lightning Current Sensor X.T. Wu, P. Ding, F. Guo, J.F. Liang, J.H. Li and Y.M. Li	1230
Decoupled Adaptive Tracking Algorithm for Multi-Sensor Measurement Fusion L.W. Fong	1235
Research on a Novel Federated Least Square Filter Based on Integrated Navigation H.P. Liu, K. Zhang and H.N. Li	1239
Research on Inductive Oil-Water Interface Level Sensor B.S. Zhang, H.L. Zhang, P. Zhang and C. Meng	1244
A New Anti-Interference Magnet Sensor T.L. Wang and Z.Q. Feng	1248
The Study of the Principle of Entrainment Effect of the Gas-Electric Measurement P.F. Zhao, X. Zheng and D.S. Wang	1252
System for Wave Compensation of Deep-Water Exploration Extraction Equipment Z.X. Chen and S. Liu	1256
An Efficient Sleeping Scheduling for Saving Energy Consumption in Wireless Sensor Networks L.P. Lu, M.Y. Zhai, Y. Liu and X.D. Sun	1261
Sensor Fault Detection, Diagnosis and Validation - A Survey Z.G. Yao, L. Cheng and Q.L. Wang	1265
Development of Feeding Rate Detection Sensor Based on Wireless Technology L. Wang, X. Wang and S.M. Wang	1272
A Research of the Positioning System for Rail Transit Based on Wireless Sensor Networks L.X. Hu, X.X. Wang and X.B. Bian	1276
A Technical Research of Glass Thickness Detection Based on CCD Displacement Sensor W. Wang and Z.B. Wang	1280
A Kind of Wireless Sensor Networks Applied in Public Services C. Cui, C.Y. Wang and L. Wang	1284
Development of Multivariate Measurement and Control System of Threshing Cylinder in Combine Harvester X. Wang, S.M. Wang and B. Miedzinski	1288

Beer Brewing Control System Based on DS18B20 S.H. Wang, S.W. Chen and X. Yan	1292
Speech Endpoint Detection Based on EMD and Spectral Entropy in Noisy Environments Y.L. Liu, D.X. Zhang and M.W. Ji	1296
Flexible Packaging Liquid Milk Quality Testing Instrument Based on Virtual Instrument Y. Wang, R. Shi and W.J. Lu	1300
The Measurement of Small Cylindrical Pieces Based on Digital Image Processing X.J. Tian, H.J. Dong, D.M. Li and X.B. Zhang	1304
Noninvasive Alcohol Detection Using Near-Infrared Spectroscopy Based on Partial Least Squares and Monte-Carlo S.T. Luo, G.Q. Chen, R.F. Cui, W.W. Zhou, L.Q. Lu and Z.Y. Li	1308
Study of Chassis Dynamometer for Hybrid Electric Vehicle S.P. Zhao and M. Tian	1312
Design of WSN Sensor Node for Solar Photovoltaic Modules P. Yang, C.Y. Shen and W.W. Shi	1316
MVC Design Patterns in the Airport Power Supply Monitoring Equipment Troubleshooting of the Application of the System X.B. Wei, Y. Zhu, X.S. Zhao and W. Zhang	1320
Design on the Remote Heating Furnace Monitoring System Based on ZigBee Technology Z.P. Chen and J.S. Miao	1324
Intelligent Card Heat Meter System Design Based on Singlechip PIC16C72 J.P. Liu	1328
Research on FFT and FBG Mechanical Vibration Monitoring System L. Zhao, C. Wang, L. Min and S.J. Li	1332
Study on the Testing System of Far-Field Laser Energy Density Distribution X. Yang, L. Song and J. Duan	1338
Method of Health Performance Evaluation and Fault Prognostics for Electronic Equipment F.X. Lou, X.H. Chen, Y.L. Xu, J.Z. Sun and F.W. Wu	1343
Earth Station Tracking SIGSO Satellite: Analysis and Discussion Z.Q. Hu, C. Lü and J. Pei	1347
Super-Heater Tube Wall Temperature Measurement Test and Analysis of 600MW Boiler Z. Wang, C. Pan and H.C. Xu	1352
An Infrared Thermal Image Processing Framework for Defect Detection of a Metal Part with Rough Surface J. Xie, C.H. Xu and G.M. Chen	1356
Research and Manufacture on the Detection System on the Rifle Curve, Straightness and Roughness of the Firearm Bore Wall P.R. Chen, K. Mao and Y.M. Sun	1361
The Method of 1394b Bus Transmission Cable Electrical Characteristics Testing L. Ma and Y.F. Yin	1365
The Study of Error Separation in On-Site Measurement Based on Bayesian Network L.W. Yan and Q.B. He	1369
An Improved Mono-Station UWB TOA/AOA Positioning Method X.D. Tu, H. Zhang, X.R. Cui and X. Liu	1373
Monitoring Ground Deformation Using Extracted DEM from Stereo-Pair Images of ALOS/PRISM J.G. Lv, D.H. Yang, F. Yuan and M.H. Yang	1377
The Application Research and Experiment Analysis of Wire Rope Fault Detection G.H. Gao, Q. Wang and X.L. Huang	1381
Optimization of Cylindrical Ion Traps for Testing Low Mass Ions Z.F. Zhao, J. Jiang and Z.Q. Zhou	1385
Research on Rail Surface Defect Inspection System Y. Hu, J.X. Mao and J.P. Mao	1389
Fault Diagnosis for Level Control System Based on IDEF K.L. Zhou and R.S. Guo	1394
Study on Precision Scanning Measurement Based on Acousto-Optic Deflection Technology X.H. Ding, Y.J. Ren and X.Y. Yang	1398

Study of a New Real-Time Monitoring Method on the Underground Mining Activities X.Z. Meng, Z. ZHANG and Z.S. Wang	1402
Development of Pumping Wells Electrical Facility Remote Monitoring Terminal Based on DSP S.Z. Yu, G.S. Liang, W.B. Lu and C. Zhang	1406
Performance Loss Analysis for Neglecting the Weibull Clutter Texture in Wideband Radar Spread Targets Detection X.D. Meng, G.Z. Feng, L. Wang and Z.M. He	1410
Performance Analysis of Ground Moving Target Detection for Airborne MIMO Radar C.C. Li, J. Li, C.H. Li and W.J. Huang	1414
Design of Ultrasonic Measurement System for BRRPO M.M. Qu, P. Zhai and S.P. Zhai	1419
Study on Detection Methods for Chlorine Precipitation during Biomass and Coal Co-Combustion Y.Z. Wang, L. Jiang, M.Z. Yue and S.F. Bian	1423
An Automatic Measurement for Pipeline Thickness Detection Using Ultrasonic Method B. Dai and M.L. Ma	1427
Carbaryl Detection by Gold Nanoparticles Electrodes for Fruit Application Model P. Kumlangdudsana, L. Dubas, A. Tuantranont and S.T. Dubas	1437
Design, Simulation and Characterization of Moly Permalloy Based Electromagnetic Sensor M. Palianysamy, M. Raman, S.N. Mohyar, W.M.W. Norhaimi, R.M. Hatta and Z. Sauli	1441
Defect Detection of Metal Injection Modeling by Micro Computed Tomography W.Y. Huang, C.D. Chen, Y.N. Chen, W.J. Shih and C.H. Chang	1445
Research of Faulty Sensors Data Reconstructed for Liquid-Propellant Rocket Engines Y.J. Li, X.H. Peng, Y.Q. Cheng and J.J. Wu	1449
Design of Remote Pressure Monitoring System L. Chen, K. Li and X.W. Xie	1454
A Review of Vibration Monitoring as a Diagnostic Tool for Turbine Blade Faults A.M. Abdelrhman, M.S. Leong, S.A.M. Saeed and S.M.A.A. Al Obidi	1459
A Novel Lane Departure Warning System Based on Surrounding View Z.C. Yang, Z.C. Hu, J.X. Na and T. Wang	1464
Tracking Using an Inertial Measurement Unit (IMU) and GPS H.M. Magboub, M.A. Msallem and N. Ali	1469
A Review of Acoustic Emission Technique for Machinery Condition Monitoring: Defects Detection & Diagnostic S.M.A. Al-Obaidi, M.S. Leong, R.I.R. Hamzah and A.M. Abdelrhman	1476
Dynamic Monitoring in Ad Hoc Network H. Shohreh, Z. Mazdak and H. Roza	1481
UAV Collision Detection Algorithm Design Based on Circle Overlapping Test N.F.M. Radzi, M. Mubin, N.A. Rahim and N. Mokhtar	1487

Chapter 6: Electronic and Radio Engineering

Flexible Colorization for Greyscale Videos Y.T. Kao, H.J. Lin and C.M. Chiang	1495
Readout Integrated Circuits with Pixel-Level ADC for Ultraviolet FPA Applications B. Xu, Y.G. Yuan, D. Ma, N.B. Cai and X.Y. Li	1499
Research of Reliable Design of Printed Circuit Board Suited for Smart Grid C. Liu, Z.C. Huang, P. Wu, Z.G. Wu and L. Chen	1503
Design and Implementation of a 12-Bit 100MS/s ADC X.N. Fan, H. Zheng, Y.T. Sun and X. Yan	1507
The Research and Design of Card Reader Based on RFID X.L. Wang and J. Tu	1511
A Digitally Controlled Oscillator for ADPLL Application X.L. Wu, F.N. Wang, Z.T. Lin and J.N. Chen	1515
Process Antenna Effect Elimination in Ultra Deep Submicron X.L. Wu, Z.T. Lin, J. Meng and J.N. Chen	1519

Research on FPGA-Based Three-Level Power Amplifier for Active Magnetic Bearings W.T. Yu, S.Q. Liu and H.W. Li	1523
The Embedded Design of Vibrator Sweep Signal Generator Based on ARM9 Y.Y. Shen and G.M. Zheng	1527
A Novel High-Pass Filters Implementation by Fully Differential Op Amp Integrators H.D. Zhang, H. Bao, D.G. Chen and J. Yu	1531
Calculation of the Transmission Frequency and Modulation Based on PD5000 J. Xiao, Y.Q. Xia, D. Li and P.J. He	1535
The Key Techniques on Micro-Assembly of Micro-Radio Modules W. Li and J. Wang	1539
Design of Data Transfer System Based on PCI Express Interface Applied in High-Speed Railway X.B. Zhou, M. Xia and H.L. Cheng	1543
Research on Tuning Characteristics of High Precision F-P Cavity M.F. Wei, H.Q. Wang, F. Yang and H. Wen	1547
Research on Carrier Phase Smoothing in GPS Relative Positioning W.Z. Ma, W. Zhang, Z. Wang and Y.R. Li	1552
Research on Acquisition and Tracing Algorithm of GPS Receiver W.Z. Ma, Z. Wang, Y.R. Li and W. Zhang	1556
Research on TWACS Interference Suppression Based on the RLS Algorithm M. Chen, W.B. Lu, C. Zhang and L. Zhang	1560
The Design of Contactless IC Card Reader in ETC D. Li, Y.Q. Xia, P.J. He and J. Xiao	1564
Design of Redundant Parallel Power Supply Based on Integrated DC/DC Modules R. Li, R. Ding, Z.J. Min and H.M. Yuan	1568
A High-Bit-Rate (64/67) DC-Balance Line Code Scheme Based on Guided Scrambling X. Yang, J.P. Xiong, C. Ma and H.B. Jia	1572
A High Accuracy Direction-Finding Method of 2-D Multi-Beams Z.G. Wang and F. Wang	1577
The Research of Video Signal Capture and Processing Technology in Microteching System X.E. Ye and Y.F. Zhu	1582
A Fully Integrated 2.45G Semi-Active RFID Tag IC Y.Z. Zhang, S.L. Zhang, L.H. Mao and S. Xie	1586
Design and Implementation of a Fractional Frequency Divider for Dual Mode Wireless Receivers X.N. Fan, B. Li, W.W. Zhu, L. Yu and Y.J. Wang	1591
The Prediction of Indoor Radio Waves Propagation Characteristics Based on FDTD Algorithm L. Ma, P. Zou and X.P. Zhou	1595
Target Localization for Distributed Multiple-Input Multiple-Output Radar Using Capon Algorithm with Diagonal Loading J.L. Chen, J.Q. Li and Y.P. Zhu	1599
G_m-C Complex Band-Pass Filter with Tuning Circuit in 0.18μm CMOS X.N. Fan, K. Bao, R. Wu and J.B. Liu	1605
A 75dB Programmable Gain Amplifier for Dual Mode Wireless Receivers X.N. Fan, K. Bao, D. Chen and L.Y. Ma	1609
Analysis of the Impact of Plasma Sheath on GPS Antenna J.F. Liu, G.B. Wan, J.S. Zhang and X.L. Xi	1614
Design and Experimental Research on a Miniaturized Archimedean Spiral Antenna M. Jiang and L.Z. Song	1618
Design and Analysis of a CPW-Fed Broadband Conical Conformal Antenna Z.H. Hu, Y.H. Jiang and X. Ling	1622
Analyzing p-MOSFET Lifetime by Employing R-D Model & MOS Device Theory S. Manzoor, N.M. Karim and N. Soin	1626
Current Delivered by an STM Tip in Landauer-Büttiker Formalism U. Satpathi	1630
High Speed Data Transmission Using Coding Y. Hwegi and N. Hassen	1635

Design of Quantum Dot Based LASER with Ultra-Low Threshold Current Density M.A. Humayun, M.A. Rashid, F.A. Malek, A.N. Hussain and I. Daut	1639
Improved Particle Swarm Optimization (PSO) for Performance Optimization of Electronic Filter Circuit Designs C.W. Kien and N.S. Chin	1643
Design and Analysis of Low Power CNTFET TSPC D - Flip Flop Based Shift Registers T. Ravi and V. Kannan	1651
Design and Analysis of N-Type CNTFET Based 2 X 1 Multiplexer Y. Varthamanan and V. Kannan	1656

Chapter 7: Computer-Aided Design and Technology

Convection-Enhanced Intratumoral Nanoparticle Drug Delivery Modeling L.J. Zhang and M.Y. Jiang	1665
Screw Algorithm Optimized with Instantaneous Signals J.F. Chen, X.Y. Chen and X.F. Zhu	1671
The Research of Quantitative Analysis Methods on Product Form Information Based on the Cross-Section Diagram Set Z. Tang, M.Y. Cai, S.Z. Wang, B. Sun and Y.M. Hao	1675
Coupled Simulation Study on the Working Device of the Excavator Based on VL Motion S.X. Jin, H.P. Chen and G.J. Chen	1679
Simulation Research on Hydraulic Support Column System Based on AMESim J. Zhu, F. Yuan and H.X. Wu	1684
Simulations and Experiment Analysis of a Piezoelectric Micropump Y.F. Guan, M.G. Shen and L.L. Han	1688
Feature Modeling and Classification of Halftone Image Based on Statistical Method Z.Q. Wen, W.Q. Zhu, Y.X. Hu and Z.Y. Peng	1693
Modeling and Simulation for Hydraulic Breaker Based on Screw-in Cartridge Valves X.H. Ye, X.L. Miao and Y.W. Cen	1697
The Simulation Research on Ultrasound Signal Propagation Model for Oil and Gas Pipeline Corrosion B. Shen, Z.Y. Zhang, Q.W. Li, M.X. Li and B. Yang	1702
Reverse Design and Application of Irregular Planar Part Based on Image Processing J.J. Yin, J.Q. Lin, S.M. Gauri and S. Li	1706
Development of Road Traffic Safety Education System Based on Virtual Reality Technology X.J. Jiao and S. Chai	1710
BM3D Denoising Algorithm with Adaptive Block-Match Thresholds Y.S. Zhang, S.J. Zhu and Y.J. Li	1715
Numerical Simulation of Yarn Untwisting Mechanism in a Pneumatic Splicer Process X. Xing and G.M. Ye	1721
Research on the Protection of Out-of-Position Child Occupants Based on the MADYMO Model H.T. Yu, J.X. Cao, G.F. Zhao and Q.F. Wei	1725
The Numerical Simulation Research of Spiral Solid-Liquid Separators Y.J. Yan, Z.C. Wang, S. Li and X. Yan	1729
The Research and Analysis of Lexical Analyzer in Prolog Compiler D.C. Li, X.C. Cai, C.Y. Han and Y.X. Liu	1733
Energy Difference Based Speech Segregation for Close-Talk System H. Zhou, Y. Jiang, M. Jiang and Q. Chen	1738
Research on Fast Localization Algorithm of Low-Quality License Plate Images R.J. Song and W.W. Xie	1742
Optimal Transformation in Fruit Scans Registration H.J. Yang, D.J. He and P. He	1746
Research on Localization of Vehicle Backwindow for Binocular Distance Measurement A.L. Hou, Z.J. Jin, J. Chen, Q. Liao and Y. Geng	1751
Design and Simulation of the Novel Parallel Resonant Inverter Y.H. Yang, H.L. Gao, X.H. Wang, J.F. Tang and B. Huang	1755

Rapid Visualization of Global Ship Tracks Data Based on 3D GIS Q.W. Song, Q.H. Qiao and Q.Y. Li	1759
The Simulation of Semi-Active Suspension System Based on RBF Neural Network Sliding Mode Control H. Zhu	1763
Self-Tuning Fusion Kalman Filter for ARMA Signals W.Q. Liu, N. Han, M. Yan and G.L. Tao	1768
Seismic Signal Wavelet-Packet Denoising and Fast Spectrum Analysis S.C. Liu, E.G. Gao and C.S. Guo	1772
The Simulation and Experimental Research on Reverberation Time in Car Speaker Sound Field Z.J. Wang and C.G. Fan	1777
Representing the Object, Process and Designer in Designing Y.M. Hou and L.H. Ji	1781
Based on Man-Machine Interaction Interface Design of Product X.L. Ma, J. Sun and S.F. Shan	1785
Realization of 3D Embossment Effect Based on a Relief Image J.F. Jing, J. Lin, X.Y. Shi and H.Y. Cheng	1789
Research of Error Compensation Based on DR/GIS Integrated Navigation J.G. Xu, Z.L. Zhang, Z.F. Zhou and Z.X. Li	1793
The Development and Research on the Engineering Graphics Based on Computer Technique Era Z.R. Li, B.R. Li, L. Qin and J.C. Gong	1798
Life Cycle Assessment of Mechanical and Physical Method Used in Recycling Process of Waste Thermosetting Phenolic Laminated Plastic Based on GaBi Software Z.F. Liu, S.B. Pan, Z.W. Wu and Y.F. Zhan	1802
Automatically Generate Three-Dimensional Pipelines Based on GeoDataBase MultiPatch Model G.H. Li and H.J. He	1807
Aerodynamic Characteristics Numerical Simulation of the Protective Device of Ejection Seat J.L. Tian and L. Chen	1811
Simulation on Parameters Temperature Field by Gas-Solid Coupling in Goaf Y.H. Wang, Y.P. Qin, J.L. Zhang and J.L. Wen	1815
Cone-Beam CT Fast Reconstruction Method Based on the Minimum Three Dimensional Convex Hull for Actual Scan Data K.D. Huang, D.H. Zhang, M.J. Li and H. Zhang	1819
Tower Modal Parameters Identification Based on Polymax Method W.W. Yu, H. Tian, H.Q. Zheng and D.G. Chen	1823
The Research of Optimal Image Mosaic Method Based on Wavelet Transform X.X. Bu, H.X. Li and L.M. Deng	1827
ABS Simulation System of Automobile Based on Virtual Technology Z.S. Yin and Y.J. Wang	1831
Agricultural Transport Vehicle Maintenance Cycle Optimization Analysis and Modeling X.M. Qiao, H.H. Zhang and Z.L. Li	1835
Design and Simulation of a Type of Four Degrees of Freedom Parallel Robot Z.D. Xu and D.Z. You	1840
The Evaluation and Algorithm of CNC Machine Tool Module Combination Configuration Program Z.Q. Sheng, C.C. Liu, S.L. Dai and Y.C. Liu	1846
The Comprehensive Risk Analysis of Dam-Break Consequences Based on Numerical Simulation X.L. Wang, X.F. Ao, R.R. Sun and W.P. Guo	1850
Priority Weighted Fitness Model in Networks X.Y. Chen	1854
Image Restoration Method Based on Pre-Filtering for Cone-Beam Computed Tomography H. Zhang, Y.K. Shi, K.D. Huang and Q.C. Yu	1858

A Mutation Ant Colony Algorithm for the Generalized Assignment Problem under the Special Constraints	1862
Y.H. Guo and D.Q. Shi	
Technology Mapping for Heterogeneous FPGA in Different EDA Stages	1866
Q.R. Fan and F. Pan	
Query Optimization Based on the Simulated Annealing and Particle Swarm Optimization	1870
R.J. Song and Y. Wang	
A Novel Image Watermarking Scheme Based on MCA Neural Networks	1874
Y.M. Li and J. Luo	
Research on Distribution Algorithm of Parking Lot Spaces	1878
J. Zhang, Y.X. Dou and X.Y. Fan	
Modeling Method Based on Subspace Identification for Lime Kiln Calcination Process	1882
L. Zhang, B. Gao and Z.J. Bao	
Application of Differential Evolution Algorithm for Calibrating Design Seismic Response Spectra	1886
J.Y. Lan and Y.J. Lu	
Development of Automobile Simulative Teaching System Based on the ZigBee Technology	1891
J.W. Zhang, C.L. Si and X.M. Wu	
Optimized Spatial Query for Data Integration Based on Semantics	1895
S.Y. Qian and H.D. Zhu	
Mathematical Modeling and Experimental Research on Scroll Expander	1900
X.H. Yang, J.D. Wang, J.Z. Pan and X.J. Liang	
A Mathematical Model of Single Grain Forces in Grinding Process	1904
J.L. Jiang, P.Q. Ge, Y. Zhang and D.X. Wang	
QoS Routing Algorithm Using Competitive PCNN	1908
D.M. Zhou and H. Cai	
Integration Design of Space Structure Based on CIS	1913
P. Liu, Y.F. Gong, H.G. Jin and P.D. Yi	
Adaptive Time Delay Estimation Based on Robust Cyclic Correlation Estimator	1919
Y. Guo and C.Y. Meng	
The Research of Digital CR Medicine Image Adaptive Enhancement Method	1923
M.H. Zhang and Y.Y. Zhang	
Research on Distributed Resource Management System for Product Design	1927
S.F. Wang and M. Pan	
Simulation Study on Energy Feedback for Flame-Proof Integrative Variable-Frequency Motor	1931
B.D. Bai, W.H. Jia, D.Z. Chen and X.B. Wang	
Study on Real-Time Simulation on Hardware-in-the-Loop Platform for Single-Side Wheel Steering by Wire with dSPACE and Simulink	1935
Q. Li, Z.M. Sun and H. Ren	
Design, Simulation and Optimization of Electrothermal Micro Actuator	1939
A. Ali, R.A. Azim, U.S. Khan, A.A. Syed and U. Izhar	
Avionics System Simulation of General Aviation Aircraft Based on HLA	1944
Z.T. Qi, X.J. Zhang and D. Han	
The Reseach on the Environment Factors of the Infrared Radiation for the Targets on the Ground	1950
C.P. Mu, Y.Q. Chen, Z.J. Yuan and J. Song	
Configurable Software Development Environment Design for Measurement and Control System Based on Virtual Instruments	1954
L. Wang, H. Fu and S.M. Wang	
The Modeling and Simulation of Induction Motor Control System Based on Stator Flux-Oriented	1958
B. Juan and F.L. Shen	
Simulation and Analysis for New Contact System of Control and Protective Switching Based on Ansoft Maxwell	1963
Z.Y. Cai and Z.N. Guo	
The Modeling and Simulation of Super-Capacitor in Diesel Engine Starting Process	1967
Z.M. Cui and R. Wang	

Numerical Simulation for Fire Smoke of Subway Cross Transfer Station F. Wang and Y.H. Zhao	1971
Numerical Calculation for Complex Transcendental Equation T.L. Sun and H. Sun	1976
Different Variances Used for Analyzing the Noise Type of Atomic Clock J. Zhai, L. Dong, S.S. Zhang, F.M. Lu and L.Z. Hu	1980
Log Secure Access and Transmission Technology Research in a Virtual Environment X.P. Wang and W.J. Wang	1984
Study and Analysis Texture Mapping Technology Based on OpenGL J. Xu and X. Chen	1990
PWM Component Design Based on Avalon Specification G.M. Zheng and H. Zhang	1994
On-Ramp Fuzzy Metering and Simulation in Urban Expressway X.W. Chen	1998
An Improved Directed Acyclic Graph Support Vector Machines Based on Inter-Cluster Separability Measure in Feature Space Q. Ai, J. Zhao and Y.P. Qin	2002
Design of Double Delta-Doped $\text{Al}_{0.22}\text{Ga}_{0.78}\text{As}/\text{In}_{0.22}\text{Ga}_{0.78}\text{As}$ Pseudomorphic HEMTs Z.M. Wang, J.C. Mou, W.H. Yu and X. Lv	2007
Modeling and Characteristics Investigation of Three-Phase Step Motor Based on Matlab/Simulink S.R. Ning and Z.Y. Fan	2010
Simulation Analysis of Three-Phase Inverter DC Link Current G.Q. Chen and J.J. Huang	2015
Path Planning for Ground Simulation Object Based on A* Algorithm Z.Q. Zhao, Z.H. Liu and J.X. Hao	2019
Modeling and Simulation of PV Cell and its Application of MPPT Z. Gong, J.J. Wang, M.F. Gong, N. Liu and J.H. Yang	2025
DOA Estimation Based on the Multipath of the MIMO Radar Target A.G. Ji, T. Wang and Z.G. Zhu	2029
A Novel Hybrid Algorithm with Marriage of Particle Swarm Optimization and Homotopy Optimization for Tunnel Parameter Inversion J.P. Hu, Y.L. Liu, X. He and J.H. Wen	2033
Study on the Location Method Based on Seismic Wave Detection C. Xiong, B.W. Zhang, L. Zhang and C.T. Ma	2038
Compensating Impact of the Roll Variation of Airborne Platform on Laser Point Cloud from Airborne LiDAR J.J. Wang	2042
Deposit Digitizing for JiaYaShan Ore Block in LanPing Pb-Zn Mine Y.J. Li, W.C. Li and Y.F. Yan	2047
Research on Three-Dimensional Mechanical Model Exhibition System Based on WebGIS L.G. Zhang, J.L. Fan and G.Y. Shi	2052
The Virtual Manufacture of a Kind of Corn Stubble-Smashing Machine and Shallow Analysis M. Niu, J.Q. Liu, G. Meng and Y.Y. Shang	2056
Numerical Simulation of Impact Tension for Mooring Cable of Underwater Monitoring Platform K.D. He, Z.F. Fang, Y. Zhang and W.H. Yang	2060
A New Method of Integrate Simulation Based on ADAMS and Pro/ENGINEER G.L. Zhao, Y. Jiang, Y.J. Chen and Y.L. Ma	2065
An Improved Slope Classification Mapping Method J.Y. Li and Y.H. Wang	2069
Numerical Simulation of Pressure Limits of Gas Storage in North Area of Lamadian Oilfield D.Y. Yin, J.X. Lu, S. Wang and C.L. Zhang	2073
Analysis of LDMOS for Effect of Fingers, Device-Width and Inductance (Load) on Reverse Recovery M.S. Anwar, P.S. Permata, M.I. Siddiqui, J.R. Tsai, S.M. Yang and G. Sheu	2077

Numerical Investigation of Turbulence Models for Free Jet Flow B. Laribi, D. Belkacemi and H. Abdellah	2082
Numerical Investigation of Turning Diffuser Performance by Varying Geometric and Operating Parameters N. Nordin, V.R. Raghavan, S. Othman and Z.A. Abdul Karim	2086
Experimental and Numerical Investigation on Flowfield of Film Cooling from Multiple Holes K. Abdullah, K.I. Funazaki and H. Onodera	2094
Determination of the Significance of Tolerance Parameters on Robot Performance Using Taguchi's Tolerance Design Experiment S.D. Dao and K. Abhary	2100
Numerical Simulation of Combustion for Freely Falling Gelled Fuel Droplets under Normal Gravity Conditions Z.J. Liu, Z. He, X.P. Hu and J.J. Wu	2106
Modeling and Simulation of System Dynamics for Spacecraft Propulsion System Z. Yan, X.H. Peng, Y.Q. Cheng and J.J. Wu	2112
Design and Simulation of High Spectral Purity Numerically Controlled Oscillator Q.K. Omran, M.T. Islam and N. Misran	2117
Mathematical Modeling of Industrial Heat Exchanger System A.A.A. Emhemed, R.B. Mamat and D. Hanafi	2122
Matlab Routines Used for Real Time ETL Method R. Halenar	2125
Influence of Rotation Speed on the Sterilization of a Steamed Liquid Food Can Using Numerical Simulation J.H. Tang and I.C. Chuang	2130
Hardware-in-the-Loop Simulation for Automatic Rack and Pinion Steering System M.Z.M. Nasir, A. Dwijotomo, M.A. Abdullah, M.Z. Hassan and K. Hudha	2135
Identification of MR Damper Based on Normalized Bouc-Wen Model Using Neural Network A. Bahar, A. Chaibakhsh and S. Haqdadi	2140
Simulation of Mixed Convection around a Square by Using LBM A. Safdari, E.P. Kermani and C.S.N. Azwadi	2145
Explicit Dynamic Simulation of High Density Polyethylene Beam under Flexural Loading Condition M. Khalajmasoumi, S.S.R. Koloor, A. Arefnia, I.S. Ibrahim and J.M. Yatim	2150

Chapter 8: Control and Automation

Design of a CANopen Slave Node Based on AT90CAN128 Z.P. Chen and X.W. Liu	2157
PSO-Based State Feedback Control of Flexible Spacecraft for Attitude Tracking and Vibration Suppression Y.N. Yu, X.Y. Meng and L.C. Ma	2161
Research on Synchronization Control of Dual-Motor Driving for Large Rotary Car Dumper H.R. Jin, X.C. Lu, H. Zhang and Y.L. Yi	2166
Sliding Mode Controller Based on Fuzzy Neural Network Optimization for FSPM Z.F. Zhang, B.D. Bai and G.X. Zhao	2170
Research of Hanging Rail Car Network Control K. Xiao, H. Li and J.Z. Wang	2174
Achieving High-Performance Bulk Silicon Electrothermal Actuator on CMOS Substrate C.H. Cai and M. Qin	2178
Research on Control Strategy and Control Plan of Highway Monitor System J. Chen and Y.X. Liu	2182
Discussion on the Garbage Disposal Control System Based on DCS M. Xu	2188
Uncertain Chua System Chaos Synchronization Using Single Variable Feedback F.X. Chen, S. Zhai, G.J. Ji, L.J. Yu, S. Zhou and T. Zhang	2192

An Ordering Approach Based on Evaluative Function for Rectangular Packing Problem Y. Qi and J.M. Wang	2197
Study on Twin-Rotary Motion Control System Based on Siemens Technology CPU C.H. Pan, H. Li, S.M. Du and W. Gao	2201
Design of Intelligent Control Billboards Based on MCU J. Chen, Y.P. Wan, Y.M. Li, L.C. Liu, J. Li, D. Wang and T. Zhu	2205
Logic-Based Switching Adaptive Control of DC-DC Buck Converter B.B. Liu and W. Zhou	2209
Control Strategy for Input-Parallel Output-Parallel DC/DC Converters with Output Current Sharing B. Han, N. Dong and A. Mahmood Soomro	2213
Plate Width Control Based on Neural Network in Hot Mill S.R. Ning and T. Sun	2217
Research on Use Control Strategy of New Types of Vehicles Y.H. Zhao, X.L. Dai and C.L. Li	2221
Quick Motion Path Plan for Joint-Robot to Pick Tomato under Free-Obstacle J.J. Yin, C. Xie, C.Y. Wu, S.M. Gauri and S.X. Yang	2225
The Research Status and Development Trend of Fault Diagnosis System for CNC Machine M.Y. Ao and Y. Zhao	2229
Discrete Time Sliding Mode on Model Reference Adaptive System Based Sensorless Induction Motor Drive Y.J. Zhang, Y.K. Zhang and X.Z. Li	2233
Ball-Based Surface Machining System Used in Non-Contour Control S.H. Wang and L.S. Zhu	2239
Application of a Position-Force Control Method in a Master-Slave Teleoperation Construction Robot System L.T. Huang, T. Kawamura and H. Yamada	2243
Research on Cooperation Localization and Mapping for Hoisting Multi-Robot System L. Jun, Z. Bin and W. Xia	2248
No Steady-State Error Tracking Control of Multi-Axle Steering Vehicle X.J. Zhang, X.C. Gao and L. Yu	2253
Robust Control for Enhancing Anti-Interference Performance of Multi-Axle Vehicle X.J. Zhang, X.H. Gao and Y.F. Zhu	2260
The Optimized Point Stabilization Control for Robots Based on Bézier Planning Y.H. Du, W.Y. Zhang, X. Song, Y. Liu and R.K. Chang	2266
The Implementation of the Air Jet Loom High-Precision Weft Insertion Control System Based on FPGA R.H. Yu, Y.Q. Li, L.X. Li and J.B. Li	2270
AMPpred: An On-Line Predictor Design for Automated AMP Recognition Y.A. Pan, X. Xiao and P. Wang	2276
Inverse Kinematics and Dynamics of a 3-DOF Spatial Parallel Manipulator J.X. Yang, B. Zhao and C.L. Li	2280
Study on Velocity Smooth Method for Five-Axis CNC H. Wang, W.G. Wen and W.D. Cheng	2285
Welding Robot Applied in Delong Heavy Truck Weld Line P.M. Dong, D.Y. Chen, G.S. Shang, X.L. Dang and G.Q. Du	2290
An Approach to Automatic Great-Scene 3D Reconstruction Based on UAV Sequence Images Z.M. Xiong and G. Wan	2294
Globally Exponential Synchronization for the Genesio-Tesi Chaotic System via Feedback Control with Two States J.H. Guo and J.G. Jian	2298
Nonlinear Coordinated Control for SVC and Generator Excitation Based on Sliding Mode Dynamic Surface Method W.L. Li	2302
The Scheduling of the Elevator Group Control System Modeling and Simulation Based on PSO Q. Han and L. Zhang	2306

Adaptive Control of Hyper-Chaotic Systems Based on Dynamic Structure RBF Neural Networks	
J. Wang, H.X. Gao, Z.Y. Tan and J.F. Gao	2311
A Novel Digital Governor for Diesel Engine Based on Nonlinear PID Strategy	
Y. Zhou, Y.F. Zhang and H.K. Jiang	2315
Smart Slave Station Design of PROFIBUS-DP Based on DPC31	
Z.P. Chen and Q. Sun	2319
The Rotor Speed Control of 5MW Wind Turbine under Rated Wind Speed Using Adaptive-PID Controller	
Z.Q. Tan, C.C. Li, H.J. Ye, Y.Q. Zhou and H.L. Zhu	2323
EBD Control Research on Bisectional Roads for Electric Vehicles on Energy Regenerative and Feedback Friction Integrated Braking	
G.Y. Wang, L. Zhang, G.Y. Chen and Z.F. Zhang	2327
A Multiple Criteria Decision Method for Selecting Maritime Search & Rescue Scheme	
C.F. Guo, S.B. Zhang and Y.S. Jiang	2334
Application of Variable Blade Pitch Control on Improving the Performance of Vertical Axis Wind Turbine	
J.C. Cheng, S.J. Su and J.J. Miao	2339
Design of Emergency Power Supply Control System for Seismic Station	
Q. Gao, Z.J. Yao and H.W. Peng	2343
Automatic Radar Waveform Recognition Using SVM	
H. Gao and X.D. Zhang	2348
Electric Pitch Control System Based on Fuzzy Control with Variable Region	
H.Y. Dong, Z.H. Wei, X.G. Zhao and X.Q. Li	2352
Study of Angle Control on Double Micro Emitter	
Y. Wu, W. Yang and C.H. Shi	2357
Dynamic and Control Strategy of Payload Motion for Deployment System	
Z.F. Fang, B.F. Xiang, Q.S. He, D.X. Wu and H.P. Xiao	2361
Interoperable CNC Machine via Function Block and STEP-NC Data Model for Milling Operation	
D.M. Elias, Y. Yusof and M. Minhat	2365
Modeling and Fuzzy Control of a Crude Oil Preheating Furnace	
A. Chaibakhsh, M. Pourbeheshtian, M.J.J. Sigaroudi and H.R. Najafi	2370
Developing a Feature-Based System for Automated Machining Feature Recognition (ISO 10303 AP 224) of Prismatic Components	
C.W. Keong and Y. Yusof	2375
An Optimization Harmonic Elimination Control Technique for Cascade Multilevel Inverter	
B.Y. Wang, S. Zhai and X.Q. Zhu	2380
Theoretical Analysis of Friction Compensation Using Sliding Mode Control	
N.A. Rafan, Z. Jamaludin, T. Tjahjowidodo, L.S. Chey and T.H. Chiew	2385
A Review on Fault-Tolerant Control for Single-Link Flexible Manipulator System	
S.F.A. Latip, A.R. Husain, A. Sarayati and S.H.A. Razak	2389
Development of Antilock Braking System Based on Various Intelligent Control System	
V.R. Aparow, A. Fauzi, M.Z. Hassan and K. Hudha	2394
Ladder Logic Diagram Development for Programmable Logic Controllers via S-Method	
L.C. Yong, N. Saad, A.M. Idris and A.H. Syahmi	2399

Chapter 9: Manufacturing Processes and Technologies

Design Research on Low Speed and Overloaded Transmission System Based on Design Principle of Reverse Transformation	
X.C. Lu, J.W. Xu, C.J. Liu, H.R. Jin and J.F. Qu	2407
Natural Ventilation in Workshop with Different Horizontal Arrangement of Heat Source	
Y.X. Su and X. Wan	2411
Influence of Drawing Temperature and Die Clearance on Wall Thickness of AZ31B Deep Drawn Part	
S.X. Lin, C.L. Zhang, J. Gao and L.Q. Ruan	2415

Recent Development of Stacked Injection Molding J. Gao, G.R. Fei, P. Zhang, J. Huang and L.L. Xu	2419
Wet-Etching Characteristics of <111> Orientated Silicon and its Application H.Y. Yu and M. Qin	2423
Influence of Substrate Bias Voltage on Properties of Medium-Frequency Magnetron Sputtering WS₂ Soft Coatings Y.S. Lian, J.X. Deng, S.P. Li, G.Y. Yan and H.W. Cheng	2427
Computational Model of Work Roll Temperature Distribution during Hot Strip Rolling Process X.D. Li, Y.X. Shan and C.H. Guo	2432
Experimental Investigation on Micro Electrochemical Milling of Nickel-Based Superalloy Y. Liu and Y. bin Zeng	2436
Recent Development of the Bi-Color Injection Molding J. Gao, G.R. Fei, P. Zhang, J. Huang and L.L. Xu	2440
Multilayer Masking Technique for Deep Isotropic Silicon Wet Etching L. Nie, J.X. Yu and K. Zhang	2444
The Development of Hydraulic Mulberry Shoots Trimmer Intended for Micro-Farming Equipment D.L. Wu, X. Mao and J.P. Xu	2448
Study and Investigation on the Mach of Impeller Outlet and Diffuser Inlet in Stamping and Welding Centrifugal Pump J.J. Gan, J.G. Mou, S.H. Zheng and B. Zhu	2454
Soft Start Design of Controlled Transmission for Belt Conveyor X.H. Wang, F. Zhou and Z.Y. Fu	2459
Study on Tooth Profile Errors of Flexible Wheel Cold Rolling Machining X.H. Yang and S.Z. Lin	2463
The Gray Correlation Analysis of the Surface Medium Character of Adhering Casing X. Meng, C. Ai, M. Hao, W.C. Zhao and T. Li	2467
Coal Particles Cleanout Technology in Coal Bed Methane Wells B. Liu, Y.G. Qi, C. Wang, C.C. Xu, F.N. Zhang, J. Han and X.Y. Xiong	2470
Machine Slideway Wear to the Precision of the Whole Machine Impact L. Yang, J.Y. Wang, R.N. Wu and W. Wu	2474
Numerical Predictions and Verifications for Hydrodynamic Performance of Bidirectional Tidal Stream Turbine B. Guo, D.Z. Wang and J.W. Zhou	2478
Development of Energy-Saving Water and Electricity Separation Electromagnetic Heating Sink S.W. Wu, Q. Wei, C.Z. Hu and H.G. Cao	2481
Design of Transformer Silicon Steel Cutting Line Drive System Based on Friction Compensation C.Y. Ding and H.C. Guo	2485
Microwave – Induced Oxidation Progress for Treatment of Imidacloprid Pesticide Wastewater X.Y. Bi, H.Y. Yang and P.S. Sun	2489
Process Parameter Determination of AZ31B Sheet Forming under Mechanical Press J. Gao, C.L. Zhang, S.X. Lin and L.Q. Ruan	2493
Drawing Behaviors of ME20 and ZE10 Sheets under Mechanical Press S.X. Lin, J. Gao, J.H. Gong and C.L. Zhang	2497
Numerical Simulation of Coal Oil Water Slurry Gasification Process in New-Type Coal Water Slurry Gasifier H.L. Yu, F.K. Wang, G.F. Zhang and J.Z. Liu	2501
Galvanostatic Removal of Chlorides in Cast Iron Artifacts S.W. Guo and W.Z. Ou Yang	2506
Biocide Screening of Secondary Effluent of Sewage Treatment Plant directly Reused in Power Plant Circulating Cooling Water System and the Study on its Properties W. Qiu, P.Y. Xu, X.B. Dong and F. Zhang	2510
Leveling-Based Kanban Calculation in Production System Q.W. Deng and J.Y. Wang	2514

Pump Concrete Construction Technology L.G. Sun	2518
Research of the Operating Parameters from Reducing Industrial Water Conductivity through Electro Sorption Technology Y. Liu and J.B. Zhou	2522
Development of Assisted Software for TOFD Testing Q. He, Z.Y. Pan and Y.N. Zhang	2527
Design and Experimental Research on Isolation Mechanism for Opto-Electronic Platform in Moving Carries Z.B. He, J.H. Zhao, Y.L. Li, H.B. Bai and S. Tao	2531
The Effects of Parameter Settings on Shrinkage and Warpage in Injection Molding through Cadmould 3D-F Simulation and Taguchi Method M.H. Othman, S. Shamsudin and S. Hasan	2536
Performance Analysis of Wet Compression Process under Critical Conditions of Water Injection K.H. Kim and C.H. Han	2541
Sub-Index Derivation of Welding Health-Hazard Index (WHI) for Small and Medium Enterprises (SMEs) in Malaysia A. Hariri, M.Z.M. Yusof and A.M. Leman	2546
External Setup in SMED Improvement in an Injection Molding Manufacturing Company L.S. Nee, C.S. Hou, S.H. Yee, S. Razalli and S. Kamaruddin	2551
Comparison of STEP-NC with ISO6983 in Terms of Manufacturing Interoperability A. Afsharhaneai, Z. Leman and N. Ismail	2556
Trend in Sustainability of Facility Design and Production Planning in Manufacturing S.A. Hosseini, A. Nosratabadi, T. Nehzati and N.B. Ismail	2562
E-Manufacturing Challenges and Enablers S.A. Hosseini, A. Nosratabadi, M.A. Okhovat, T. Nehzati and N.B. Ismail	2567
Integrated System for Denture Design and Manufacturing W. Saidin, N. Kassim, Y. Yusof and Z.A. Rajion	2572
Dynamic Response of Laminated Composite Cylindrical Shell Subjected to Pure Impact F. Firouzabadi, A.B. Ayob, M. Moradpour, R. Heidarpour and N. Deirram	2577

Chapter 10: Miscellaneous Researches for Tecnical Sciences

The Effects of the Parameters on the Performance of HT-PEMFC J.J. Zuo, H. Sun and X.N. Zhao	2585
Characteristics of Heat Dissipation from a Block Heat Source Module in a Three-Dimensional Cabinet to Ambient Natural Convective Air Stream Y.L. Tsay and J.C. Cheng	2589
Considering the Influence of Chemical Reactions between Detonation Products on Specific Heat Ratio Calculating of the TNT Explosive with Small Explosive Charge Volume Ratio W. Zhong and T. Zhou	2593
Fractal Character of Structural Control on Uranium Mineralization in South China Y.S. Xie, K.X. Tan, L. Chen, W. Huang, K.G. Hu and X.C. Wang	2597
Research on System Reliability of the Minghe Aqueduct in the Middle Route Project of the South-to-North W.Y. Ma, Y.Y. Cheng, P. Liu and Z.L. Gao	2601
Interference between the Gas Wells in the Method of the Pesudo-Pressure D.Y. Yin, W. Zhou, J.X. Lu and C.L. Zhang	2606
Comparison Research of Street Lamps: Characteristic Parameters and Lighting Performance of Light-Emitting Diodes, High Pressure Sodium Lamps and Ceramic Discharge Metal Halide Lamps M. Li, Q.Y. Han, W. Li, S.J. Shi, H.J. Zhang, J. Liu, F.S. Li and S.D. Zhang	2610
Comparative Analysis on Noise Processing of Vacuum Switching Arc Images H.J. Dong, W.L. Dong and D.S. Wang	2615
Technical Measures on Decreasing Harm to Slope Stability in Chamber Blasting B.F. Duan, L. Li, H.C. Li and H. Wu	2619

The Atmospheric Propagation Simulation Characteristic of the Solar Blind Ultraviolet Light	
L.Q. Zhang	2623
Improved Grey Correlative Method for Risk Assessment on Mine Ventilation System	
L.Y. Wu and Y.Z. Yang	2629
Using Grey System GM(1,1) Model to Predict the Drug-GPCRs Couples	
X. Xiao, J.L. Min and P. Wang	2634
The Research on the Model for Calculating Relative Acoustical Amplitude on Interface I Based on Attenuation Theory of Acoustic Wave	
C. Ai, X. Meng, M. Hao, W.C. Zhao and H.Z. Zhao	2638
Study on Calibration Technique of Commercial Vehicles SCR System Based on MAP Diagram	
G.T. Yao, C.L. Deng, X.Y. Zi, H.L. Pang and Z.R. Guo	2643
Wavelet Based Separation for Synthetic Topographical Characterization of Surface Prepared by Abrasive Water Jet	
S.L. Wu and J. Valicek	2648
Bionic Shape Design of Quantify Products Based on Genetic Algorithm	
N.C. Guo	2653
Solar Straight Thermal Circumfluence Closed-End Seawater Desalination System Analysis	
H.X. Dong, N. Li, M.C. Fan, Y. Wen and J.Q. Dai	2658
A Similarity Measure between Fuzzy Sets	
G. Zheng	2663
An Inclusion Measure of Fuzzy Sets and its Properties	
J. Wang and Z.W. Chen	2667
Exergoeconomic Analysis of Parallel Polygeneration System with CO-Riched Gas once through	
Y.H. Hao and J. Feng	2671
Risk Assessment of Transmission Lines Based on Complex Network and Fuzzy Probability	
P. Liu, Q.C. Zhang and X.T. Zhang	2680
Comparison of Treatment Method of Plane Nodes in Truss Structure of Transmission Tower	
L. Li, M.J. Song and G.L. Du	2684
The Design on the Improvement of the Electric Scooptram's Cable Arrangement Device	
Y.Y. Han, Z.G. Zhang and K.G. Zhu	2689
Change of Landscape Pattern and its Impact in the Distribution Region of <i>Tetraena mongolica</i> Maxim.	
J.H. Zhen	2694
Research and Analysis of the Economy and Environmental Benefits of Electric Propulsion Systems in Marine	
J.H. Zong, L. Mei, D.Z. Wang, Y. Zhang and D. Wang	2698
Power Economic Dispatch Problems Considering Prohibited Operating Zones and Spinning Reserve: A Hybrid Differential Evolution	
C.L. Chiang	2701
Analysis on Slagging Property of Coal-Fired Boiler and the Countermeasures	
C.Y. Wang, X. Lu, G. Wei and S.W. Yang	2708
The Study on Establishing the Baseline Mode of Coal Mine Area Soil Heavy Metal Pollution	
L.Q. Shi, D.K. Ni and J.G. Cheng	2712
A Study on Cumulative Effect of Production Blasting Vibration on Slope Failure in Xiaolongtan Coal Mine	
Y. Yang, G.H. Wang, D. Liu and S.W. Wang	2716
Research on Tidal Drainage Effect of Confined Aquifer	
X. Liao, C.P. Liu, Y. Shi, Y.D. Tang, F. Wan and X.D. Bai	2721
The Analysis on the Tectonic Subsidence of Linnan Sag Located in Huimin Sag during the Depositional Stage of Es₄	
Q. Sun, L.Q. Shi, S. Chen, D.J. Xu and M. Qiu	2725
Study on Geological Structural Characteristics in Zhaoguan Mine Field	
M. Qiu, L.Q. Shi, G.R. Wang, D.J. Xu and Q. Sun	2729
Near Infrared Cut-Off Characteristics of Various Perovskite-Based Composite Films	
J.Y. Kim, S.Y. Jeong, G.J. Shin, S.K. Lee and K.H. Choi	2733

A Multi-Agent Model for Supply Chain Based on Coordination Center L. Lin and L.F. He	2737
Using Dbcupe Topology for NoCs R. Mosafaie and R. Sabbaghi-Nadooshan	2741
Layer-by-Layer Surface Modification of Fruits with Edible Nano-Coatings P. Kittitheeranun, S.T. Dubas and L. Dubas	2745
Self-Assembly Nanofabrication via Mussel-Inspired Interfacial Engineering Y.J. Choi, H.M. Jin, B.H. Kim, J.Y. Kim and S.O. Kim	2749
Fuzzy Comprehensive Evaluation for IT Project Risk Management X.Y. Tang, Y.N. Jiang and J. Jian	2753
The Application of BIM Model in M/E/P Construction Coordination Y.J. Chen, C.W. Feng and K.W. Lee	2760
Group Technology Utilization inside New Software Application K. Monkova and P. Monka	2765
Disaster Management Issues in Ad-Hoc and WSNs with Healthcare and Communications Viewpoints S.M. Edam and G.X. Kang	2770
Airline Revenue Management: Optimization Using Origin-Destination Strategy Controlled by Nested Heuristics A.J. Raj, G.K. Nithyanandam and S. Jayaraj	2775
Manufacturing and Innovation Ability Education of University Students Majored in Mechanical Engineering J. Sun and Q. Xiao	2779
Audio Watermarking Based on Wavelet Transform M.A. Osman and N.H. Ali	2784
Attendance System Based on Biometric Security S. Danishkumar and R.S. Sanmathipriya	2789
Case-Based Expert System to Support Electronics Design in Mechatronic System S. El-Nakla	2793
Mazdak Technique for PSNR Estimation in Audio Steganography Z. Mazdak, B.A.M. Azizah, M.A. Shahidan and S.C. Saman	2798
Behavior of Pulverized Coal Combustion in Air and in O₂/CO₂ Condition C. Adi Surjosatyo and Y.S. Nugroho	2804