

Table of Contents

Preface and Organizing Committees

Chapter 1: Material Engineering

Investigation on the Electric-Field-Induced Metal-Insulator Transition in Vo_x -Based Devices

Q. Wang, K.L. Zhang, F. Wang, K. Song and Z.X. Hu 1

Application of PLC in Material Automatic Sorting System

M.Z. Zhang and Q. Wang 5

Research on Elasticity Characteristic of Equivalent Bio-Material

C. Xie, S. Chen and D.Q. Lin 10

Experimental Study on Continuous Preparation of Ultrafine Silicon Nitride Powders in Transport Bed

S.W. Yin, L. Wang, L.G. Tong, F.M. Yang and Y.H. Li 14

Influence on Electric Field Distribution of GIS Basin Insulator for Insulated Material Epoxy Resin with Different Mean Molecular Weights

Y.H. Gao, F. Liu and Y.F. Gao 19

Luminescent Property of $\text{Al}_2\text{O}_3:\text{Ce}^{3+}$ Thin Films

S.F. Yan and K.G. Miao 23

The High Frequency Pulse Effect and Verification in the Welding Process for High-Strength Aluminum Alloy

S.B. Yan, Y.L. Song, J. Zhang and L.L. Bai 27

The Combined Effects of the Environment and Sliding on the Pd-Ni Plated Connector Materials

G.K. Zhi and J.X. Liang 32

Chapter 2: Acoustics and Noise Control

An Improved High-Accuracy CORDIC Algorithm for DSC in Endoscopic Ultrasonography System

Y. Li, Y.X. Hao, M. Li, Y. Wang, X.D. Chen and D.Y. Yu 37

A Study on the Acoustic Characteristics of the Counter-Phase Muffler

Y.L. Shao 41

Robust Adaptive Beamforming Imaging Approach for Stepped-Frequency through-the-Wall Radar

S.M. Li and X.F. Liu 45

Study on Multi-Crystalline Silicon Textured by Ultrasound

Y. Chao, L.Q. Wu and X.L. Luo 50

The Acoustic Emission Diagnose and Analysis of Journal Bearing's Inner Ring Looseness Fault by Truck Wheel

H.C. Cai, D.F. Wang, Q.Y. Xu and Z.D. Shang 54

Analysis of the Automobile's External Aerodynamic Noise Field Characteristics Based on CAA

Z.Y. Zheng and R.X. Li 58

Design and Experimental Model Test Research for Three Dimensional Heterotypic Interception Structure

Q. Yang, H. Cha, X.D. Ma and G.Q. Dai 63

Confirmation Research on Robustness Speaker Based-on Normalized Autocorrelation Voice Selection

C. Gu and S. Wang 68

OCDs Reliability Screening Using Normalization Variance of Noise Spectrum

Q.Z. Zhou, J. Gao, N. Lei and D. Wu 72

Acoustic Sensitivity Analysis Using the Distributed Source Energy Boundary Point Method

L.T. Chen, J. Chen, B.R. Zhang and W. Zhang 76

Fast Multipole Boundary Element Method for 3-Dimension Acoustic Radiation Problem

B.R. Zhang, J. Chen, L.T. Chen and W. Zhang 80

Chapter 3: Aerodynamics

Effects of Atmospheric Turbulence on High Resolution SAR Performance	
Y.K. Bi, J.P. Sun, X. Han and Y.P. Wang	86
The Effect of Platform Swinging by Stratosphere Wind on a HAPS-CDMA System	90
Influence of Variable Swirl Intake Manifolds for DI Diesel Engine on in-Cylinder Air Motion	
X. Xin, D.X. Liu, L.Q. Wang and L. Wang	95
Aerodynamics Analysis in a Human Vocal Folds Model	
D.F. Chen, X. Gao, W.T. Chen and X.Q. Han	99
Videogrammetric Measurement for Model Displacement in Wind Tunnel Test	
Z.Y. Zhang, S.L. Wang and Y. Sun	103
The Application of I²C Bus Digital Sensor in Airflow Measurements	
Y.G. Guo, D.Z. Ren and L.P. Xu	108
Optimal Maintenance Interval for Wind Turbine Gearbox	
M.N. Deng, Y.H. Yu, L. Chen and H.S. Zhao	112
Research on Stator Winding Inter Turn Short-Circuit Faults of Aeronautical Fault-Tolerant Machine Based on Maxwell 2D	
M. Zhang, Y.M. Zhang and J.T. Tong	119
Finite Element Analysis for MW Wind Turbine Tower	
R.S. Zhu, Z.Z. Zheng, Y.M. Liu, J. Shen, Y. Xiao, D.X. Jiang and J. Chen	124

Chapter 4: Applied Mechanics

Calculation on the Internal Force of Deeply Buried Anti-Slide Pile by Using Finite Difference Method Based on the m-k Type Method	
Q.Y. Fan, M.Q. Wang and S.C. Xu	128
Application of Su-Field Analysis Method to the Innovation of Decision-Making	
D.L. Fan, J.W. Hu and H.L. Yu	135
Stress-Strain Analysis of Back-up Roll with Roll-Sleeve	
Z.Y. Zhua and D.Y. Sun	139
Development of Test Bench for Coordinate Control between ABS and Regenerative Braking	
R.G. Wang, B. Wang and H.W. Sun	143
The Research of High-Precision Interpolation for Complex Trajectory of SCARA Robot Based on NURBS	
L. Zhao, K.Q. Chen and Z.Z. Zhang	147
Application of Synchronous Rectifiers in Power Supply for Unmanned Aerial Vehicle	
H.N. Chen, Y.M. Zhang and H.J. Wang	154

Chapter 5: Automation, Mechatronics and Robotics

Automatic Monitoring System for Coal Mine Safety Based on nRF24E1	
Y.L. Zhu, W.H. Zeng and L.Q. Xie	158
An Open Communication Architecture for Multi-Robots in Complex Environment	
D.Q. Duan and C. Wang	162
An Improved Method for Visual Word Generation Based on Kernel Function	
H.X. Wang, K.J. Yang and F. Gao	166
Design of ROV Training Simulator	
X. Ge, W. Guo and Z.Y. Li	170
The Design and Simulation of Predictive Control Algorithm Achieved by the DCS Algorithm Module Combination	
Q.Q. Quan	175
The Research of Humanization Design for Coal Mine Machine	
Z.L. Xia	179
A Novel Dictionaries Preconditioning Algorithm for Compressive Sensing	
C. Zhang, Y. He and B. Li	183
Minimality and Closure of Random Exponential Systems	
F. Yan, X.L. Liu and S.M. Zhang	188

Analysis and Finite Element Method Simulation of Rear Sub-Frame Hydroforming Process Z.D. Qu	191
Modeling Method for Complex Structure System in Finite Element Simulating Analysis X.L. Zhang, Y.H. Hu and S.F. Chai	195
Design and Implementation of Short Messages Analysis System Based on Multidimensional Data Modeling J. Lin	200
A Model of Tactic Threat Assessment in PAAIS H. Yu and T.A. Wu	204
The Automatism Capture the Account Parameter in Engineering Figure Using Computer Q. Li and J.Z. Li	208
Relationship between the Least Mesh Numbers of Models and Distance of Viewpoint in Efficient Real-Time Rendering L.H. Yang, X.D. Sun and H.B. Zhang	213
Designing and Kinematics Analysis on Running Mechanism of Biped Robot for Water-Running L.S. Xu, J.H. Zhao, B. Li and F. Xu	217
Delay-Dependent Non-Fragile Robust H_∞ Control for Switched Systems with Multiple Time Delays N. Zhang, M.C. Fu and T. Zou	222
Robot-Assisted Upper-Limb Fuzzy Adaptive Passive Movement Training and Clinical Experiment L.Z. Pan, A.G. Song and G.Z. Xu	227
Research on Mobile Robot SLAM in Dynamic Environment B.F. Chen and Z.X. Cai	232
Detecting Centroid for a Quadruped Robot with Hand-Fused Foot Based on ARM X.J. Wang, Z.L. Yang, X.Q. Zeng and Y.X. Zhang	239
Research on the Cross-Octant Strategy for Spatial Curve Interpolation Based on Open-Architecture CNC System Y.Y. Liu, J. Han, G.Z. Zhang and H.P. Zhu	243
High Accuracy Analysis of SCARA Industrial Robot Based on Screw Theory L. Zhao, M. Su and Y.C. Miao	249
Servo Motor Control Lifter Systems by Digital PID Control Method M. Yue and B.G. Wang	256
Valve Control System of Oil Depot Based on AnyCAN5000 Y.Q. Li and R. Wang	260
Adaptive Iterative Learning Control for Robot Manipulators with Initial Resetting Errors J.M. Wei and Y.A. Hu	265
 Chapter 6: Automotive Engineering	
Robust Optimization Design on Vehicle Divided Steering Linkage H. Zhu and Y. Zhang	270
Present Condition and Outlook about SVG Y. Zhao and P.P. Yang	274
Application of CAN Bus in Automobile Power Window Control System Y. Wang and J. Wu	278
The Research of Commonly Used Technologies and Application Fields on Data Mining J.L. Meng, Y.Y. Yang and W.H. Niu	282
Research on the Model of Instantaneous DUO and Simulation S.Y. Shi, D.C. Fu, W.F. Tang and W.D. Huang	286
(t,k,n) Multi-Blind Proxy Signature Scheme on Elliptic Curve G.L. Liu, S.X. Xie and W. Fu	291
Driver Maneuvers Reconstruction Based on Vehicle Traveling Data Recorder H.T. Zeng, H. Zhang, H.J. Wu and Z. Yu	295
Comparation between GA and PSO Controller Optimization for PMSM Driving P. Zhang and Z.Q. Song	300

Design and Application of Var Compensation Method for Traction Power Supply Systems of Electrified Railway	
L. Wei, J.S. Xiao and D.Y. Geng	304
Fuzzy Control Strategy and Simulation for Dual Electric Tracked Vehicle Motion Control	
Z.Y. Chen and G.Y. Zhao	309
Research of Automobile Quality Fault Diagnosis Method Based on CBR	
F. Zhang, Z.D. Zhou and X.J. Liu	313
A Mobility Pattern Aware Clustering Mechanism for Mobile Vehicular Networks	
Y. Shi, L.H. Zou and S.Z. Chen	317
Study on Single Shaft Balance of Single-Cylinder Engine Based on Coupling of Optimization and Virtual Simulation	
X. Han, J.S. Lin and A.J. Ji	321
Research on State-Space Mapping Algorithm from the Vehicle Unsteady Constraint Test System to the Independent Vehicle System	
G.Y. Wang and J.L. Zhang	326
Energy Regenerative Braking Feedback Lockup Electromechanical Integrated Brake System for Vehicles	
G.Y. Wang, J.L. Zhang and H. Xiao	332
L_2-Norm Optimal Trajectory Planning for Mobile Ground Vehicles in a Dynamically Changing Environment with both “Hard” and “Soft” Obstacles	
J. Yang and M. Dong	339
Design of Electromagnetic Smart Car System	
M.J. Ye and C.H. Hu	343
Configuration Design of Modular 3-PRS Parallel Robot and Dynamic Simulation Analysis	
J.T. Lei	347
Research on Designing on-Line Testing System of Automobile Engine Box	
Y.J. Li and B.G. Wang	353
Control of Clutch on DCT during Start Process	
H.F. Kong, X.P. Li and W. Bao	357
Research on the Changing Regularity of Ionic Current and Cylinder Pressure when the Gasoline Engine Knocks	
Y.G. Sun, Z.C. Yuan, L.Y. Li, S.Y. Li and M. Liu	361
The Modal Analysis for the Separate Frame Construction of a SUV	
F. Huang, L.J. Wang, Z.Y. Chen and L. Du	365

Chapter 7: Ballistics

Unscented Particle Filter Algorithm for Ballistic Target Tracking	
J.W. Zhao, M.J. Zhang, Y.G. Yan and Y.P. Yan	369
Sensitivity Analysis of Ballistics Performance with Respect to Statistical Design Parameters	
C.Q. Liu and W.C. Luo	373
Research on the Location of Fire Station Based on GIS and GA	
W. Zhang and J.C. Jiang	377
A Method of Image Texture Feature Analysis Base on Wavelet Decomposition and its Application	
Y.B. Li, B.G. Wang and W.W. Li	381

Chapter 8: Biomechanics

Dynamical Behaviors for a Predator-Prey System with State-Dependent Impulsive Effects	
L.Z. Dong and L.S. Chen	385
Numerical Simulation of Gas Flow in a 48 t/h Biomass Fired Grate Boiler with Inner Dust Removal Device	
Y. Zhao, N. Wang, Q.L. Chen, T.C. Wang, W.Y. Liu, Q. Lu and C.Q. Dong	391
Research on TG-DTG Analysis and Combustion Kinetics Characteristic of Biomass Fly Ash and Ash	
J.J. Zhang, X.M. Zhang, D.L. Jiang, Y.F. Zhao, Z.F. Zhang, H.W. Song, Q. Lu and C.Q. Dong	396
The Drying Characteristic of Biomass with High Moisture Content	
X.Q. Wang, S.Y. Feng, S.H. Su, Z.B. Zhang, Q. Lu and C.Q. Dong	401

Verification of Model Reliability in a Double-Grate Biomass Boiler Y. Zhao, T.C. Wang, N. Wang, Q.L. Chen, Z.H. Ge, Q. Lu and C.Q. Dong	406
The Preparation and Characterization of Organic–Inorganic Hybrid Material Amino Monolithic Column for Capillary Electro Chromatography B.H. Li and B.J. Tian	410

Chapter 9: Biomedical Engineering

Characteristics of Anaerobic Co-Digestion of Corn Straw and Cabbage for Biogas Production Y.F. Zhao, S.G. Yang, J.H. Li, Y.M. He, Q. Lu and C.Q. Dong	414
Comparison of Three Types of NH₃-SCR Catalysts S.H. Su, S.Y. Feng, Y.F. Zhao, Q. Lu, W.L. Cheng and C.Q. Dong	418
Overview of Chemical Characterization of Biomass Fast Pyrolysis Oils Q. Lu, Z.B. Zhang, C.J. Zhang, S.H. Su, W.Y. Li and C.Q. Dong	422
Adapted Genetic Algorithm and 5 Levels Control Combined Low-Speed Improvement Direct Torque Control W.R. Wang, X.X. Liu, H.B. Wang and X. Zhu	426
Design of Bioreactor Control System for Ligament Tissue Engineering X.D. Wu and X. Wang	430
Implementation of Rail-to-Rail Operational Amplifier for Biomedical Applications M.C. Lee, Z.R. Yang and Z.J. Hu	434
A Design of the Device for Lower Limbs Rehabilitation and Simulation Analysis Y. Wang, Y. Zhang and J.F. Li	438
Design of Diseases and Pests Therapeutic Instrument of Solar in Greenhouse Y.Q. Wang, N. Chong, S.Y. Wang, L. Zhang and J.F. Xiong	442
Synthesis and Performance of Molecular Imprinted Polymers as Drug Release Controller H.J. Chu, H.L. Wei, J. Zhu and C.P. Nong	446
Study on Compound Cross-Flow Liquid-Liquid Extraction for Separating Methylal-Methanol Azeotropic System J. Lin, Q.Q. Huang, J.J. Zhu and Z.G. Gu	450

Chapter 10: CAD/CAM/CIM

Modeling and Simulating on Star Map Genetation for All-Sky H. Jiang, Y. Xue, G.B. Liu and X.Y. Fan	454
An Improved <i>LMS</i>_Newton Algorithm and its Analysis R.M. Lian	458
Application of Robust Extracting Outliers Algorithm in Fermentation Process Data Preprocessing X.R. Zhang and B. Chang	463
A New Self-Organizing Migrating Algorithm Based on Dynamic Hybrid Migrating S. Peng and Y.X. Li	467
Exponential Sampling: A Gibbs Phenomena Removal Model for Finite Rate of Innovation Sampling Framework H. Qian and L. Yu	470
Mathematical Modeling: A Brilliant Future of Electric Vehicles M.M. Lin, S.T. Yu and Y.L. Ying	475
Analysis of Manufacturing Systems with Parallel Unreliable Machines and Finite Buffer Based on Matrix-Analytic Method J.L. Liu and A.G. Wu	479
The Semantic Retrieval Model of Manufacturing Resource Based on Rules and Similarity J.Y. Wei and P.S. Zhong	483
Efficient Minkowski Sum Computation of General Ployhedra J.F. Zhang, X.J. Guo and Q.J. Geng	487
Integrated Environment for PDM, RE and CAD/ CAM System Y.F. Tong, Y.C. Yang, H. Tian and D.B. Li	491
The Design of Improved Normalization Algorithm for Drop Analysis Q. Song, L.Y. Guo and Z.L. Chen	495

The Modeling of Thread-Rolling Die-Plates Based on the “Design Table” Functions in CAD/CAE/CAM	
Y.J. Jiang	499
Computer Aided Automotive Interior Design for Kansei Engineering	
L.H. Zhu, H. Zhao, X.C. Yin, L.J. Zhu and L. Zhang	504
Research on Technologies of Process Integrated Control for Multidisciplinary Collaborative Design	
H.Q. Liu, G.J. Chen, S.H. Su and Y.P. Gong	508
 Chapter 11: Machinery and Machine Design	
Computer Animation of Dismantling and Assembling for a Gear Oil Pump	
C.G. Yin	515
The Simulation of the Planting Movement for the Dibble-Type Transplanter	
Y.C. Chen, X.Y. Qin, L. Liu, S.J. Hu and K. Wu	519
A New Method to Reduce the Interconnection Transients of Induction Generators	
K. Zhu, X.H. Lu and B. Zhang	524
Analysis and Design of a Novel High-Power W-Band Spatial Multilayer Doubler	
J.Q. Deng, W.S. Jiang and Y.M. Ning	529
Engine Indication System Simulation of General Aviation Aircraft Based on GL Studio	
J. Liu and X.J. Zhang	534
DMC Based MPC Control of Refrigeration System	
W.P. Zhai, A.G. Wu and Y.W. You	539
Texture Segmentation Using Active Contours Driven by Local Steerable Features	
D. Lee and H.B. Wang	543
Exact Analysis of a Two Stage Production Line with Parallel Unreliable Machines	
J.L. Liu and A.G. Wu	547
A Generic Model for Spiral Groove Grinding	
Y.M. Lu	551
Online Calculating Models of Temperature and Thermal Stresses for Turbine Rotors	
H.L. Zhang, D.M. Xie, C. Nie and Y.H. Xiong	557
A New Feedback Gain Designing of Speed Adaptive Full Order Observer for High Speed Operation of Induction Motor	
O.Y. Yi and M. Maerz	561
Dynamics Analysis of Double-Tamper Mechanism for Asphalt Paver	
J. Sun and G.Y. Xu	566
Multi-Fractal Based Fault Diagnosis Method of Rotating Machinery	
S.Q. Zhang, Y.Z. He, J.M. Zhang and Y.C. Zhao	571
Dynamic Model of Compression Refrigeration System with a High Pressure Receiver	
W.P. Zhai, A.G. Wu and Y.W. You	575
Load Rotational Moment and Power of Centrifuges with Rotational Arms	
Y.H. Yin, Y.D. Liu and X.L. Wang	580
Modeling and Simulation of NC Precision Sphere Grinding Machine Feed Drive System	
D.D. Li, M.M. Xu, L.M. Xu and D.J. Hu	585
Research on a Novel 3-DOF Planar Parallel Manipulator Driven by Three-Slider and its Larger Workspace Analysis	
J.M. Deng, W. Wang, H.P. Shen, Z.H. Ma, Y.F. Li and S.L. Duan	590
Study of the Squeeze Film Damper of Larger Flow Rate High-Speed On/Off Valve	
H.B. Jiang, J. Ruan, M.M. Wu and T. Wang	594
The Design to Impeller of Desulfurization Agent Powder CaCO₃ Grader and Establishing for its Math Model	
J.S. Liu and L. Zhong	599
Simulation and Analysis of Special Motor of the Hydraulic Motor-Vane Pump Based on Ansoft	
Q. Qi and H. Ji	603
Dynamic Model of Gears with Trapped Oil and Coupled Analysis in External Spur-Gear Pump	
Y.L. Li, K. Liu and F.C. Sun	610

Characterization of Global Form Deviations for Spiral Bevel Gear and Correction of Machine-Setting Parameters Z.S. Xu, L. Jin and J.T. Tian	616
The Experimental Research of a Piezoelectric Linear Motor Y.P. Mo, H. Jin, P.F. Xu, D.L. Jiang and Y.J. Liu	621
Modeling and Experimental Study on Grid-Connected Inverter for Direct Drive Wind Turbine L.W. Zhou, S.Q. Shi and L. Li	625
The Application of Hydraulic System in Wind Turbine H.M. Sun, M. Gao and S.L. Nie	630
A New Application Research of Time-Base Following Control in Non-Circular Contour Turning Lathe X.P. Yao, X.Y. Yao and F. Zhu	633
Experimental Study of the Counter Dual-Swirl Air Blast Atomizer N. Zhao, Y.G. Yu and Q. Zhang	637
Heavy Driving Drum Parametric Modeling Analysis System Development Y.C. Guo, Z.F. Wang, K. Hu and G. Cheng	641
The Dynamic Fault Tree Analysis of Not-Cutting Failure for MG550/1220 Electrical Haulage Shearer W.H. Wang, D.K. Zhang, G. Cheng and L.H. Shen	646
Research on Support Distribution of the Handling Equipment for 500-Meter Long Rail J.X. Kang and L.K. Zhang	650
Dynamic Analysis and Simulation of Sliding Vane Compressor T. Ke, Z. Jun and T. Fang	654
Parameter Analysis and Optimal Design for Mobile Claw-Pole Alternator X.H. Bao and M.Z. Liu	658
Modeling and Development of Gap Adjustment Automatically Technology for Offset Machine Z.Q. Gao, Y.M. Wang and J.J. Bai	662
Excavator Operator Mechanism and Hydraulic Integration Model Construction and Simulation Based on Modelica Y.P. Gong, X.J. Bian and G.J. Chen	666
The Optimization Design of Mechanical Structure Based on CAE Technology G.C. Hu and J.H. Liu	672
Acoustic Simulation for the Gearing Engagement System H.K. Li, J. Ding and C. Guo	677
Reliability Design of Agricultural Products H. Wang	681
Straightness Apparatus in the Automatic Control Design Deep Hole L.Y. Shu and Y.P. Ning	684
Research on Double Helical Lines Milling Process of Carrying Bag Cleaning Machine T. Ke, Y.T. Wang, Z.Y. Wang, C. Wang and P. Zhang	687
Stress and Strain Analysis of First Stage Rotating Blades of Flue Gas Turbine Blades G.Q. Lin and M.T. Wang	691
The Structure and Two-Phase Flow Analysis for a New SVLX Static Mixer Q. Wu, N. Li and Q.L. Li	696
Research on Spiral Bevel Gear Tooth Surface Reconstruction Based on NURBS L. Yang, S.N. Ren, Z.Y. Wang and P. Zhang	701
Research on Computer-Aided Design of Axial Turbine Blades with Ultra-Low Specific Speed Y.Y. Liu, J. Han, G.Z. Zhang and W.G. Ye	706
Performance Predication and Axial Force Study on Deep-Well Centrifugal Pump L. Zhou, W.D. Shi, W.G. Lu and H. Li	711
Application of Single Neuron PID in the Control of Loader Working Device H.P. Chen, J.H. Liu, G.J. Chen and Y.P. Gong	715
Research of Optimization Design of Structural Concept about Portal Frame D.N. Li, J.Y. Wu and C.E. Chen	719

Chapter 12: Computational Mechanics

A Multi-Objective Memetic Algorithm Based on Chaos Optimization P. Ammaruekarat and P. Meesad	725
A Comparison of Accuracy Based on Data Imputation between Unconstrained Structural Equation Modeling and Weighted Least Squares Regression N. Phothi and S. Prakanchaoen	730
Design of Heat Metering System Based on MCS-51 X. Zhang and W.G. Chen	734
Design of Can Bus Clock Synchronous System Based on STM32 B.H. Liu, X. Zhang and W.G. Chen	738
Design of Optical Access Network Implementing DVB Business and IP Business W.F. Sun and Y.Z. Li	741
Research and Design of Color Restoration Algorithm for Demosaicing Bayer Pattern Images B. Zhu, D.S. Wen, W. Gao, Z.X. Song and H. Li	745
A Novel Method of Impedance Measurement Used in Islanding Detection Based on Controllable Short-Circuit Technology K. Zhu, X.H. Lu and B. Zhang	752
A New Method of Orthogonal Grid Generation K. Ma and W.L. Wei	757
Nonlinear Dynamics of a Slender Flexible Cylinder in Axial Flow J.D. Jin, N. Li and Z.H. Qin	761
3-D Finite Element Simulation of Impact Damage of Laminated Plates Using Solid-Shell Interface Elements C. Wang, H. Zhang and G.Y. Shi	766

Chapter 13: Internal Combustion Engines

Energy Analysis of Gas Engine Driven Heat Pump N. Jiang and Z.L. Gao	771
Modeling and Simulation of Stick-Slip Motion for Pneumatic Cylinder Based on Meter-In Circuit P.F. Qian, G.L. Tao, J.F. Chen and B. Lu	775
Numerical Simulation of Valve Timing and Size on a Compressed Air Engine Performance Y.J. Qian, C.J. Zuo, Z.F. Chen, H.M. Xu and M.L. Wyszynski	781
Combustion and Emission Characteristics of CNG Engine at Idle Conditons Y.T. He and N. An	786
Simulation on Effect of EGR on Oxy-Fuel IC Engine X. Yu and Z.J. Wu	790
Two-Stroke Engine with Fuel Semi-Direct Injection Using FAI System M.M. Wu, Y.X. Yang, D.G. Xi, P. Zhang and Z.G. Jin	796
The Study of Optimization Design of Engine Exhaust Manifold Based on Finite Element Analysis W.F. Zhang, M.H. Yang and M.M. Wen	800
Hybrid Fuzzy PID Control for Synchrodrive System of Dual Linear Motors R.Y. Wan, Y.Z. Zhang, H.H. Sun, W. Zhou and Z.J. Chen	804
Separation Study on Spectral Wear Signal for Engine Z.Y. Xu and Q.S. Xu	809
Adaptive Prediction of Transient Air Fuel Ratio Based on Forgetting Factor Algorithm for a Coal-Bed Gas Engine Q. Teng, X. Gong and P. An	814

Chapter 14: Marine System Design

An Investigation into the Impact of Fishery on Buried Depth of Subsea Pipeline S.R. Cao, J.X. Yu, Z.F. Du and G.Z. Zhang	820
Inter-Modal Couplings between Two Sea Subsystems with an Arbitrary Interface L. Ji and Z.Y. Huang	824

Chapter 15: Material Science and Processing

Adsorptive Removal of Methylene Blue by Ginkgo Leaf Powder J.X. Mu, M.J. Shi, X.Y. Wu and J.Y. Li	829
Pulping Utilization of <i>Spartina alterniflora</i> (Common Cordgrass) Based on Fiber Characteristics L.F. Wu, Z.J. Xu, Z.D. Qin, G. Duns and J.S. Chen	833
Ash Characteristics Analysis during Co-Combustion of Biomass and Coal S.F. Bian, Y.Z. Wang and S.L. Tian	838
Polaron to Bipolaron Transition in Conjugated Polymers L. Wen	842
Study on the Inclusion Interactions of β-Cyclodextrin with Oleic Acid by Competitive Inclusion Method X.F. Xu, J.J. Guan and R.J. He	847
Experimental Study on Preparation and Pb^{2+} Adsorption Capability of Ferric Salt Modified Sands C.S. Ding, X.Y. Ma, Y.L. Zhou and P. Ning	852
Preparation of Sands Modified by Aluminous Salt and its Adsorption Capability of CD^{2+} C.S. Ding, Y.P. Fu, Q.F. Zhu and J. Fu	856
Theoretical Investigation of ZnSe Epitaxy Growth on GaAs(001) Substrate L.Y. Chen, X.Q. Chen and D.L. Zhang	860
The Design of Optical Fiber Fault Locator Based on FPGA Y.J. Wang and L.N. Zheng	864
Numerical Simulation of Particle Mixing Feature for a Gas-Liquid-Solid Three Phase Flow in an Impeller-Driven Stirred Vessel R.Q. Liang, F.S. Yan, J.H. Ji and J.C. He	869
The Transient Temperature and Thermal Stresses on Metal Material Irradiated by Multi-Pulse Short Power G.Y. Xu	873
Polymer-Liquid Crystal Composites and Applications Y.L. Gao, D.L. Zhang, Y.J. Shi and F. Ye	879
Effect of Ta_2O_5 Addition on the Electrical and Physical Properties of Lead-Free $0.98(Na_{0.5}K_{0.5})NbO_3-0.02(Na_{0.5}Bi_{0.5})TiO_3$ Piezoelectric Ceramics C.H. Wang	883
Reliability Analysis of the Diamond Saw Blades Based on ANSYS Y.F. Zhang, Z.N. Qi, X.Y. Lang and M. Zhao	887
Tribological Properties of the Overbased Calcium Sulfonate Complex Greases Z.Z. Wen, Y.Q. Xia and X. Feng	891
Effect of Substrate Temperature on the Preparation of $Cu_2ZnSnSe_4$ Thin Films L. Han, Z.S. Chen, L. Wan and J.Z. Xu	895
Numerical Simulation of Hydroxyapatite Particle Impacting on Ti Substrate in Cold Spraying L. Zhang, W.T. Zhang and Z.Y. Wu	900
Study Analysis on Purification of Alumina Electrolytic Flue Gas by Bag Filter J.Q. Wang and F.Y. Kong	904
Preparation and Characteristics of Multilayer Magnesium Diboride Superconducting Films via CVD Method S. Wang, Z.Y. Zhou, F.S. Yang, J. Yang and X.H. Fu	908
Contact Stresses Analysis between Glass Panel and Upright Fitting Roller Gabled with Different Hyperelastic Materials L.P. Chao, M.C. Hsiao, I.J. Chen and H.Y. Wu	913
Optimal Design of Disc Cutter Structure Parameter Based on Genetic Algorithm Y.M. Xia, F. Wu, L. Cheng and Z.H. Zhang	919
A Method of Machining Micro Hole and Micro Cavity in Ceramics J.Z. Li, T. Wu and L. Zhang	923
Influence of Material Microstructure on Micro EDM J.Z. Li, F.H. Shen and M.G. Guo	927

Temperature Field Analysis on Cooling Stave Material and Stave Body F. Wei and J. Chang	931
The Optimal Design of Reinforcement Rib Based on the Orthogonal Test and Finite Element Analysis L.Y. Su, X.S. Li, X.F. Yin and X.Y. Feng	935
Study on Hot Compression of Ti₃Al Alloy Based on DEFORM-3D J. Fan	938
Strengthening Mechanisms of Vanadium Micro-Alloyed Reinforcing Steel Bar L.J. Li, X.D. Huo and L. Guo	942
Effect of Hardness of Needle-Sealing Surface of Pintle Nozzle on Cavitation Erosion H.Z. Wo, Y.F. Zhang, X.G. Hu and Y.F. Xu	946
Study of Reactive Plasma Sprayed TiN Electrocatalytic Carrier Coatings L.H. Gao, J.X. Zhang, Y.C. Dong, Y. Yang and D.R. Yan	950
Dynamic Analysis of the Diamond Saw Blade Cutting Granite Based on LS-DYNA M. Zhao, X.Y. Lang, F.L. Qi and D.L. Lei	955
Isothermal Extrusion Study and Simulation of Magnesium Alloy for Hilt of Electric Screwdriver C.T. Li, C. Wang and Y.M. Hu	959
Research on Water-Lubricated Bearing Applied in Propulsion Improvement of Certain Type of Motorboat F.L. Li and T. Han	965
Study on Gyroscopic Effect of Magnetic Flywheel Rotor X.L. Wen and C. Cao	970
Study on Numerical Simulation Technology Based on ANSYS of Fracture Behavior in Metal Forming Process Y.G. Shi, B.J. Yao, Q.L. Zhang and X.H. Mei	976
Preparation of Silicon Nan Spheres by Using Electrical Discharge Machining Method W. Zhang, W. Wang, J. Hong, Z.W. Zhang and Z.X. Liu	980
The Forecast for the Abrasive Wear of Metal Materials Against Plant Abrasive Based on the Grey Markov Model X.P. Huang, J.L. Huang, J.F. Wu and K.P. Zhang	984
Preparation of Magnetic Chitosan/Iron (II, III) Oxide Microspheres and Application in Adsorption of Cr (VI) B. Hu and J.L. Li	989
Preparation and Characterization of Nanocomposite Ni-Al₂O₃ Thin Films by Ultrasonic-Electrodeposition Technology J.D. Wang and F.F. Xia	994
Prediction of Nano TiN Particles Content in the Ni-TiN Composite Coating Based on AR Model F.F. Xia, C.Y. Ma and J.D. Wang	998
Prediction Model of the Charpy Impact Toughness of Deposited Metals of Welding Materials L.G. Tong, L. Bai, H.S. Ding, L. Wang, S.W. Bai, Y.L. Sui and J.F. Yu	1001
Research on Non-Linear Decoupling for Multi-Dimensional Force Sensor Y.S. Zeng	1005
Study of Transmittance of CdS Thin Films Prepared by Spray Pyrolysis G.M. Wu, Z.Q. Zhang, Y.Y. Zhu, Y. Cao, Y. Zhou and G.J. Xing	1011
Advances in Research on Left-Handed Met Materials Y.B. Ding and G.P. Zhang	1016
Eutectic Growth Mode of Al-Si Alloy Solidified under High Pressure L.X. Li, M. Li, H.X. Wang and Z.J. Yang	1020
Additives Applied for Preparation of Superfine Mg(OH)₂ Particles by Light-Burned MgO at Low Temperature Q.G. Kong, H.Y. Qian, H.N. Xiao, K. Liu, J.K. Wang, J. Zhu and J. Li	1026
Wrinkle Formation and Imprinting of Gold Film Deposited on Polydimethylsiloxane Z.C. Chang, C.B. Lin, J.S. Ho and W.H. Yang	1031
A Density Functional Study of Ho-Doped Si_n (n=1-12, 16, and 18) Clusters Z.L. Liu, H.K. Yuan and H. Chen	1035

Preparation and Research of AuNi Cathode Catalyst for Direct Methanol Fuel Cell S.H. Yan, W.L. Zhu and S.C. Zhang	1039
Preparation of High Compression Strength Silicon Hybrid Material at Low Temperature through Sol-Gel P. Cui, Z.Q. Zhang and Y. Dou	1044
Effect of Pore Size on the Hydrophilicity in Dark of TiO₂ Films Q. Wang, C.P. Lin and P. Cui	1049

Chapter 16: Mechanical Design

Fire Fighting of Wind Extinguisher with CO₂ Gas Assisted C.S. Liu	1054
Characterization of Novel Perovskite-Type La_{0.6}Sr_{0.2}Ca_{0.2}Co_{1-γ}Fe_γO_{3-δ} Cathode Materials Prepared by Solid State Reaction for IT-SOFCs C. Li, J. Zhao, L.L. Kong and Y.C. Ma	1058
Fatigue Property of Welded Joints of Ti₆Al₄V Titanium Alloy in Corrosion Environment J.C. Bao, J. Zhao and J.P. Li	1062
Oxidation Chlorination of Thiophene in Coking Benzene M.Y. Ling and H.H. Chen	1066
Research on Hysteretic Phenomenon of Metal Rubber H.R. Hao, H.B. Bai and D.W. Li	1070
Comprehensive Sewage-Treating Technology Using Bio-Tank of Glass Fiber Reinforced Plastics on Intensive Scaled Swine Farm Q.X. Xu, X.F. Guan and B. Lin	1075
Two-Dimensional Irregular Packing Algorithm for Strips Cutting Technology in Sheet Steel Industry M.X. Pan	1080
Two Novel Adams Model Encapsulation Methods in HLA Based Collaborative Product Development C. Ma, T.Y. Xiao, W.H. Fan, H.B. Sun and Y.C. Yue	1085
Diagnosis and Prediction for Equipment Efficiency Based on OEE in FCC M6 Welding Workshop Y.H. Ma, Y.B. Zheng, Y. Zhang, Y. Jiang and L.L. Zhao	1092
The Study of the Disabled Traffic Products Based on Product Safety Z.H. Ye and X. Li	1097
Dynamic Elasto-Plastic Analysis on the Steel Spatial Arch Truss with 30m Span and 0.2 Rise-Span Ratio H.W. Li, Y. Shi and J. Liu	1101
Dynamics Simulation of Beam-Carried Cranes Based on Virtual Prototyping K.A. Liu and Q.J. Li	1105
The Study of Signal Characteristics of Critical Sensors on a Coal-Bed Gas Engine J. Luo, Q. Teng and P. An	1109
3D Rebuilding for Impeller of Centrifugal Pump Based on ICT X.P. Jiang, W.D. Shi, W. Li, H.L. Liu and M.G. Tan	1114
Critical Rotation Speed Calculation and Application Development of Multi-Stage Centrifugal Pumps for Mining W. Li, W.D. Shi, X.P. Jiang and Y. Xu	1119

Chapter 17: Mechanical Power Engineering

Research of Project Investment Control Based on Life Cycle Theory J.L. Peng and X. Li	1123
Effects of Fillet on Kinematic Characteristic of Internal Gear Couple W. Song and H. Zhou	1128
The Research about the Inverse Kinematic of the Tricept Mechanism Based on Pro/Engineer X.H. Huang, J.C. Xu, W. Dai and C.S. Wang	1132
A Study of Bag-Breaking Device Based on Whitworth Mechanism Q. Ying and X.Y. Cheng	1137

Research on the Characteristics of PMSM Vector Control System Based on Speed Sliding Mode Controller	
H. Fan and Y.C. Wang	1142
Modelling and Simulation of Particle Breakage in Jaw Crushers	
L.M. Zhao, L.J. Chen, D.B. Zhang and Y. Li	1148
Modal and Transient Response Analysis for Complex Gear-Bearing System	
J.L. Ge, G.L. Yang and J.W. Hao	1152
Comprehensive Analysis of Wheel Drive Motor Torque Characteristics	
Q. Sun, S.G. Zuo, C.G. Ma, F.H. Zhang and S. Meng	1156
The Inner Hole Precision Detection of Precision Machining Zirconia Ceramics Spindle	
F. Lu, S.C. Chen, S.H. Li, K. Zhang and Y.H. Wu	1161
Research on Periodic Motion Stability of Gear Dynamics with Friction	
J. Wang, J.H. Zheng and F.S. Xu	1166

Chapter 18: Mechatronics

A Novel Method of PAPR Reducing for OFDM Systems	
S.L. Sun	1172
Mechanism of Improving Mechanical and Electrical Properties of Fe₄₀NiCrSiAl Alloy Induced by Laser Shock Wave	
R.F. Chen, Y.Q. Hua, H.X. Liu and Y.X. Ye	1177
Study on Dual-Loop Controller of Helicopter Based on the Robust H-Infinite Loop Shaping Method	
Z.Y. Lang and A.G. Wu	1182
Simulation Modeling of Dynamic and Flexible Scheduling about Large-Sized Components Producing Workshop Based on Cellular Automata	
Y. Chen, X.J. Qiu, S.Y. Zhang and J.S. Lu	1186

Chapter 19: MEMS and Nano Technology

Study on the Effect of ZnO Buffer Layer Thickness on the Properties of MgZnO Film	
X. Dong, H. Wang, J. Wang, Z.F. Shi and S.K. Zhang	1192
A New Real-Time Position and Orientation Tracking System for Endoscopy	
L.K. Liu, Z.Z. Ouyang, S. Wang, Y. Wang, X.D. Chen and D.Y. Yu	1196
Realization of Two-Axis Macro-Micro Dual-Driven System	
F. Fei, X.L. Bai and B.F. Ju	1200
Research on High-Precision Automatic Inner Diameter Measuring System for Coaxial Transmission Line Outer Conductor	
L.J. Zhan, B.G. Wang and H.Y. Ye	1205
Energy Saving Design of Personal and Consumer Electronics Products	
N. Ni, H.H. Huang, Z.F. Liu and G.F. Liu	1210
Analysis and Calculation of the Allowed Values of Contact Pressure in the Process of Circuit Breaker Closing Work	
X.Q. Ye and T. He	1214
Isolation Performance Evaluation of Compressor Vibration Isolating Systems Based on LMS Test. Lab Signature	
L. Zhang, H. Chen, Y.J. Gong, H. Wu and S. Zhang	1220
The Selection Model of Equipment Resource Based on AHP and Grey Correlation Analysis	
J.Y. Wei and P.S. Zhong	1226

Chapter 20: Multibody Dynamics

Contact Stress Analysis of Multilayered Strands	
X.Z. Zhao, W. Peng, S.Q. Zhang and M.S. Yang	1230
Dynamic Response Analysis of Cantilever Beam under Moving Mass by Time-Discontinuous Galerkin Finite Element Method	
J.W. Hao and J.L. Ge	1234

Chapter 21: Nanomaterial Engineering

Research on Initial Allocation and Fairness of Carbon Trading J.R. Tang, X.D. Gao and X.F. Wu	1239
Analysis of Dispersion Characteristic of Microstrip Lines on Ferrite and Silicon Structures with Spectral-Domain Method H. Yang, Z.Y. Chen and K.Y. Lv	1244
Preparation of Submicron Electrode for Electrochemical Micromachining by Multi-Step Electrochemical Etching Y. Liu and L.S. Zhu	1250
Study on the Preparation of Dy-Doped TiO₂ Nanotube Arrays and its Visible Light Responsive Photocatalytic Properties Z.B. Wang, L.Y. Su, Y.J. Guan and S.L. Bai	1254
Nanometer Titanium Dioxide Powder Preparation and its Performance S.F. Yan and X.H. Xiong	1258
Experimental Research on Buckling of Nano-Thin Film under Impact Load P. Li, L. Li, J.W. Tong, S.B. Wang, M. Zhang, J. Zhang and H. Sun	1262
Preparation of AlNPs/CMCN Composite Nanofibers by Electrospinning L. Xie, Z.Q. Shao and S.Y. Lv	1266
One-Step Synthesis of Fe₃S₄ Micro-Crystals and its Facile Transformation to Fe₇S₈ Micro-Crystals B.X. Yuan, H.H. Fu and W.L. Luan	1270
Influence of MoS₂ on the Microstructures and Properties of Ni-Based Alloying Coating B. Han, M.P. Xue, W. Yong and M.F. Yu	1276
Electrochemical Properties of Highly Ordered TiO₂ Nanotube Arrays as an Anode Material for Lithium-Ion Batteries L.L. Wang, S.C. Zhang and X.M. Wu	1281

Chapter 22: New and Renewable Energy

Analysis on Efficiency of Power Generation for Various Sun Tracking and Fixed Solar Cells under Different Sunshine Environment C.C. Wang and K.J. Lin	1286
Wind Energy Resource Assessment for Wind Farm H.Q. Ma and Q.F. Wang	1295
Study on the Design Process Based on Green Design Y. Shu and X.F. Xiong	1298
The Effect of the Ratio of H/W on the Performance of the Hybrid Wall Powered by Solar Energy B. Liu, J.H. Chen and R. Bennacer	1302
Comparative Analysis of Heat Transfer Characteristics for CO₂ and Conventional Refrigerants J.L. Yang, Y.T. Ma and M.X. Li	1306
On the Corrosion Behavior of Refined Bio-Oil during Rubbing Process Y.F. Xu, W.D. Li, X.G. Hu and Q.J. Wang	1310
Energy Factor Analysis in Modular Product Q.D. Ke, H.C. Zhang, G.F. Liu and B.B. Li	1314
Study on Parametric Design of ITER Cryostat Based on CATIA J. Ge, H. Zhao, Y. Zhang and Y. Zhang	1318

Chapter 23: Noise and Vibration

The Adaptive Filtering Algorithms for Engine's Noise Cancellation in Speech Signals X.Y. Zhao, H.Y. Wang, D.Y. Fu and H.S. Zhou	1323
Nonlinear Spectral Subtraction Method for Elimination of Aircraft Engine's Noise from Degraded Speech Signals X.Y. Zhao, H.Y. Wang, S.Y. Tong, D.Y. Fu and H.S. Zhou	1327
Quantitative Analysis of Noise Impact on Duffing Chaotic Detection System Using Lyapunov Characteristic Exponents W.J. Hu, Z.Z. Liu and Z.H. Li	1331
Research on an Improved Control Strategy for Harmonics Restraint of DFIG System Y.F. Meng, Z.R. Dong, S.J. Hu and H.H. Xu	1338

Study on the Mechanism of Ultrasonic Vibration Aided Electrical Discharge Milling in Deionized Water	
W.J. Chang, J.H. Zhang, T. Zhu, T. Wang and X.H. Shen	1344
The Dynamic Analysis and Optimization Technique of Non-Stationary Random Vibration	
Z. Qin and W.T. Xu	1348
Study on the Influence of the Quantity of Grooves on Performance of New Balance Drum	
H.Q. Lu, J.G. Mu, S.H. Zheng, J.J. Zhao and H. Wang	1352

Chapter 24: Electromagnetics

The Design of Electromagnetic Flowmeter in Partially Filled Pipes	
K.X. Wei and S.R. Hao	1357
Speed Estimation Method for Sensor Less Control of AC Motor Drives Based on Stator Field Orientation	
S.Q. Chen, F. Li and Y. Long	1361
Electromagnetic Analysis of Frequency Selective Surfaces Using the SSED Method	
W. Xue, C. Liu, N. Zhu and X.X. He	1365
A Method of Stabilizing Semiconductor Laser Power	
Q.P. Yuan, T.M. Zheng, Z.R. Tong, X.F. Yang and Y. Cao	1370
Design of A 3-10 GHz Low Phase Noise YIG-Tuned Oscillator	
D.B. Li and W.S. Jiang	1374
Study of Structure and Optical Properties of Magnetron Sputtered ZnS Thin Films by Annealing	
R.F. Chen, J. Yu, Y.Q. Hua, R.L. Xu and H.X. Liu	1379
Damage Efficiency Research of PCB Components under Strong Electromagnetic Pulse	
F. Xie, B. Cao and C.L. Liu	1383
Effects of Aperture Amount and Offset on Couplings of Strong Electromagnetic Pulse	
X.P. Zhu, B. Cao and C.L. Liu	1387
Error Compensation of 3-Axis Magnetoresistive Magnetometer	
L.B. Ding, H. Zhang and J.J. Liu	1391
Electromagnetic Properties of Ca-Substituted Magnetic-Dielectric Composites	
H. Zhong, H.L. Wang, J. Yang and Y. Shi	1396
Optimum Design of a Magnetic Circuit in a Magneto-Rheological Damper	
G.J. Yu, C.B. Du and Z.Q. Li	1400
Feedback Linearization for Sliding Mode Control of CNC Electromagnetic Levitation System	
Y.Z. Zhang, R.Y. Wan, Z.J. Chen and Y.T. Wang	1404
Anti-Scaling Effect Comparison of High-Frequency Electromagnetic Pulses Stimulation in Different Processing Chambers	
L. Xiong, Y.M. Wu, Z.H. Xi, L.L. Shi and X.F. Miao	1408
Study on Electric Field Characteristics of Converter Transformer on Valve Side Winding	
Y.H. Gao, G.W. Liu, Y.B. Li and Y.F. Gao	1413
Study on SASS with Magneto-Rheological Fluid Damper Based on Improved Variable Universe Fuzzy Control	
G. Xia, W.W. Chen, X.W. Tang and Q.M. Wang	1418
The Electromagnetic Compatibility Design of Restrained Image Transmission Equipments	
X. Yang, L. Song and W. Wang	1422
Study of a New Electromagnetic Weft Insertion Mechanism Based on the PLC	
S.M. Luo and B. Zhang	1426
Electronic Structure and Magnetic Properties of Ga-Doped Heusler Alloy Co₂FeSi	
Y. Feng, B. Wu, H.K. Yuan and H. Chen	1430
Ferromagnetism and Electronic Structure in Nitrogen-Doped ZnO Nanowire: First-Principle Calculation	
Y.Q. Liao, H.K. Yuan, A.L. Kuang, B. Wu, Y. Feng, Z.L. Liu and H. Chen	1435
The Electronic and Magnetic Properties of Chemically Decorated Boron Nitride Sheet	
Q. Zhou, W. Jiang, A.L. Kuang, H.K. Yuan and H. Chen	1439

Chapter 25: Composite and Smart Materials

Adsorption Properties of Phospho-Polypeptide on Synthetic Hydroxyapatite Biomaterials X.Q. Shen, Y.J. Du, Y.Y. Zhou, S. Wang, B. Liu and Z.J. Li	1445
Synthesis and Humidity Controlling Behaviors of Sepiolite/Poly (Sodium Acrylate-Acrylamide) Composite J.H. Wang, F. Dong and S.P. Ren	1448
Preparation of Tetragonal and Hexagonal Calcium Zincate S. Li and Y.Y. Zhou	1454
The Evolution of Free Electron Density during the Interaction between Femtosecond Pulse and Lithium Niobate Crystal B.Y. Tan, S.G. Zhang, Z.W. Zhang and S.B. Jiang	1458
Design and Properties of Multifunctional Lubricant K.H. Hu, G. Chen, Y.K. Cai, J.S. Zheng and A.B. Xu	1462
Study on the Friction and Wear Behaviors of Cu/PTFE Self-Lubricating Composites T. Xie, Z.X. Xu, Z.M. Yan, G. Chen, M.H. Jiao, J.W. Yu and Y.G. Yin	1466
The Pulverization and its Dynamic Model of Waste Thermosetting Phenol-Formaldehyde Resins S.X. Song, J. Hu and Z.W. Wu	1470
Design and Analysis of Ultra-Low Speed Movement Equipment System F.Y. Dai, W.G. Ji and J.S. Cao	1475
Study of Cutting Composite Materials with Low Pressure Abrasive-Water Jet Z.L. Zou	1480
Liquid Flow Characteristics in Microchannels Y.F. Liu, H.W. Li, J.W. Zhang and J. Xue	1484
Research on the Properties of NiZnO Thin Films X. Dong, J. Wang, H. Wang, Z.F. Shi and L. Zhao	1491
Effect of Supports on Stress Distributions in the Adhesive Joints X.C. He	1495
Dew Points of C₄F₈/N₂ Gas Mixtures K. Li, W.H. Niu and G.Q. Zhang	1499
RDX-Based Energetic Material Cook-Off Characters in Different Clearances X.Q. Zhi and S.Q. Hu	1503
PVA/PVAm Hydrogel Membranes for Removal of Metal Ions from Aqueous Solution Q. Chen and L. Zhu	1507
Effect of Modified-Silicon Rubber on Thermal Degradation and Anti-Droplet Properties of Polyamide 6/Melamine Cyanurate Flame Retardant Composites N. Feng, J.H. Liu, H. Uyama and W. Liu	1511
Sintering, Microstructure and Dielectric Properties of Ca-Al-B-Si-O Glass/Al₂O₃ Composites with Various SiO₂ Content M. Liu, H.Q. Zhou, H.K. Zhu, M. Liu and J.X. Zhao	1516
New Liquid Crystalline Material with an Azo Group in the Molecular Core S. Chen, S.P. Li and X. Wang	1520
The Toughening Mechanism of Polyamide 6/EPDM-M/Nano-CaCO₃ Ternary Composites with Sandbag Microstructure Y.J. Wang, Y.X. Dong, Y.Q. Shi, S. Chen and X. Wang	1523
Gelator <i>In Situ</i> Modify PMMA S. Chen, J.M. Xu, G.D. Tang and X. Wang	1528
The Structures and High Temperature Properties of FeMnCrNiAl/Cr₃C₂ Composite Coatings by High Velocity Arc Spraying Y.J. Chao, J.J. Weng, S.G. Liu, J. Li and J.P. Sang	1532
Preparation of TiO₂/CNTs Nanocomposite and its Photocatalytic Activity for Methyl Orange in Aqueous Solutions X.H. Zhang, S.J. Hu, S.P. Tong, Y. Cheng, D. Chen and G.H. Li	1539

Chapter 26: Dynamics and Vibration

On the Dynamical Behavior of Three Species System with Time Delays D.N. Sun and Z.K. Wu	1544
---	------

Research to Blasting Vibration Distribution of an Open Pit Mine Based on Wavelet Packet Theory	
Y. Yang, W. Sun and S.F. Li	1547
The High Resolution Three Lateral Logging Response Research Based on MATLA	
Z.X. Han, Y.N. Li and J. Wu	1556
Study of Large Scale Measurement Method Based on Leapfrog Principle	
L.J. Zheng, X. Li, L.L. Qin, H.B. Chen, X. Gao and R.R. Yuan	1560
A New Spacecraft Attitude Controller Considering Variable Saturation Limit of Flywheels Output Torque	
L. Tian and S.J. Xu	1564
Simulation and Experimental Study on the Impact of Breadth of Back Blade on Axial Force Balance	
H. Wang, J.G. Mu, M.Y. Su, S.H. Zheng, J.J. Zhao and H.Q. Lu	1568

Chapter 27: Energy Engineering and Management

The Design Practice and Implementation of a Flyback Converter	
T.Y. Ho, C.H. Lin and L.H. Yang	1573
Discussion of Energy Consumption Analysis Method on Energy System	
C.J. Zhang, L.G. Wang, L.N. Wu, T. Liu, Q. Lu and C.Q. Dong	1578
Approach to Energy Optimization Axiomatic Design Based on Design Unite	
D. Zhou, G.F. Liu and P. He	1582
A Decision-Making Model of Energy-Saving Design and a Case Study	
P. He, G.F. Liu and D. Zhou	1586
The Application of Functional Safety Standards on the Safety Management of a Chemical Process Tank	
Y.L. Zhang, C.L. Gu and Y.J. Ding	1590
Groundwater Numerical Simulation in Cool Water Well Coal Mine	
Y.J. Liu, G.D. Liu, Y. He and Z.Q. Nie	1596
Power Quality Disturbance Research of Grid-Connected Wind Generation Based on Fractional Fourier Transform with Wavelet Entropy	
H.L. Chen and Y.L. Sun	1600
Economic Analysis of Solar Energy/Air Compound Source Heat Pump System	
T. Liu, Z.G. Zhang and W. Zhang	1605
Analysis of Energy Efficiency of Solar Energy/Air Source Compound Heat Pump System under Heating Condition	
B.B. Hou, Z.G. Zhang and W. Zhang	1609

Chapter 28: Engineering Materials

Application of Magnetic Material in Magneto Suction Cupule of Crane	
J.L. Ma, W. Wang and W. Li	1613
Bearing Performance Analysis Based on ANSYS of Continuous Deep Beams with Opening	
J.Y. Liu and H.X. Liu	1617
Experimental Research on Concrete Confined by Width and Spacing of Straps of GFRP Sheets	
H.X. Liu and D.M. Wang	1621
Modality Analysis Based on FEM of RC Deep Beams with Opening	
H.X. Liu and Z. Bi	1626
Numerical Analysis of Shear Lag Effect for Concrete Huge Section Box Grider	
M.Q. Zhu, H.Q. Huo and S.H. Wu	1630
Experimental Research on Superlong Deep-Hole Drilling Processing Technology for Beryllium Bronze	
Z.F. Liu and R.L. Li	1634

Chapter 29: Fluid Dynamics

Application Comparison about Sediment Deposition in Outer Channel by Three-Layer Mode and Analog Analysis Mode	
X.X. Feng, Z. Liu and X.K. Wang	1638

Numerical Study of XCP Probe's Fluid Dynamic Characteristics N. Liu, R. Zhang, W.Y. Chen and M.M. Zhang	1645
The Heat Exchange and Stress Distributing of Expansive Soil in Site D.J. Wei and X.G. Zhang	1650
Effect of Oil and HPAM in Polymer Flooding Wastewater on the Desalination Process by Electrodialysis M.J. Deng, W.X. Shi and S.L. Yu	1654
Paper Based Microfluidic Device Using Surface Acoustic Wave as Driving Source A.L. Zhang and Q.J. Han	1658
Colon-Targeted Drug Delivery Microparticles Prepared Using Electrohydrodynamic Atomization D.G. Yu, X. Wang, P. Lu, X. Chen, H.P. Zhao, X.Y. Li, W. Qian, Y. Li and Y.Z. Liao	1663
Upwinding Meshfree Point Collocation Method for Unsteady Magnetohydrodynamic Flow at High Hartmann Numbers X.H. Cai, C.Y. Shi and G.L. Wang	1668
Mesurment Instrument of Quantitative Fluorometry Intensity Based on Stoke's Shift C.J. Zhang and Q. Wu	1672
Numerical Analysis of Spraying Hole Improving Permeability and its Application in Outbursting Coal Seam B.J. Yun, Y.P. Cheng, J.Z. Liu and X.J. Li	1676
Compound-Fault Diagnosis of Bearing Based on Order Tracking Wavelet Packet and Rough Sets G. Tian, H. Tian, G.S. Liu, J.H. Zhao and L.P. Luo	1681
3D Numerical Simulation of Fluid Flow and Heat Transfer for Asymmetric Spiral-Gear Inserts in a Tube D.Q. Peng, W.Q. Wang, T.L. Yu, B. Wei, Y. Zhou and J.S. Tang	1686
The Impact of Balance Hole Radial Position of Centrifugal Pump on Axial Force and External Characteristics J.J. Zhao, J.G. Mu, S.H. Zheng, H.Q. Lu and H. Wang	1691
Key Technologies Related to High Vacuum Dry Pump J. Li, S.Y. Gan, P. Liang, J.X. Dai, D.P. Chen and T. Zhao	1696
A New Design for Liquid Mixing System Y.X. Tong	1700
Numerical Simulation on Flow Structure of a Steam-Jet Pump Influenced by Primary Nozzle Geometries X.C. Dai and J. Huo	1703
Recycling Experimental Research of Thermosetting Phenolic Plastic Waste Based on Mechanical Effects Z.W. Wu, Z.F. Liu and J. Zhao	1708
Experimental Study of Mechanical Properties of Fiber of Deep-Sea Mooring Cables G.L. Zhou, L. Li, S.J. Li and S.B. Wang	1712
Fraction of Multiphase Flow Measurement System Design and Application X. Bing, Q. Ping and Z. Kai	1716

Chapter 30: Fuels and Combustion

An Experimental and Computational Study of Interaction between Water Mist and Gas Jet Flame X.J. Huang, X.S. Wang, J. Lu, Z.J. Ding and G.X. Liao	1720
Application of the Tabu Search Algorithm on Solving the Optimum Heating Institution of Reheating Furnace Y.J. Yang, Z.Y. Jiang, X.X. Zhang and P. Jin	1725
Numerical Study on the Interaction of Water Mist with a Fire Plume X.D. Zhao, H.L. Xu and X.S. Wang	1730
Research on Influencing Factors of Methane/Air Combustion in the Ring Porous Medium Burner J.R. Xu, J.M. Zhao, S.S. Xu and G.Q. Wang	1734
Numerical Simulating for Pulverized Coal Combustion and SNCR Reaction Process J.R. Xu, J. Wang and C.K. Ming	1739

Effect of Gasoline Fumigation on Diesel Engine Performance and Emissions L.J. Ou, C.M. Wang, Y.J. Qian, W. Huang, S.W. Zhu and J. Sun	1744
Study on Fuel Economy and Exhaust Emission of Lean-Burn PFI Engines X.B. Yuan, Z.J. Li, S.S. Chen and Y. Zhang	1749
Structure Optimization of Space Helix TWT Based on Thermal Analysis J.F. Ruan, J. Yang, G.Q. Lv, G.S. Deng and L. Liu	1753

Chapter 31: General Mechanics

A Methodology for Deliberating Prediction Criteria C.Y. Lim, V.K.T. Khoo and B. Belaton	1758
Discussions about the One Time Rotation of a Body of Revolution to the Designated Position P.B. Dong and S. Li	1762
Dataflow Errors Detection in Business Process Model A.E. Rgibi, S.Z. Yao and J.J. Xu	1765
Mechanical Model's of Conical Valve's Spool-Seat Contact Pairs Based on the Hertz Theory H.B. Jiang, J. Ruan, H.M. Xu and T. Wang	1770
Research on the Propagation Process of One-Dimensional Stress Wave inside the Projectile J. Li, Q.L. Ning and C. Liu	1775
The Simulation of the Influence of Honed Edge Radius on the Cutting Force and Torque in Drilling 42CrMo with K-Grade Carbide Drill Bit T. Wang, Y.S. Ke and Y.D. Zhou	1779
Hoop Membrane Stress Analysis of Elbow-Pipe under Single Internal Pressure X.H. Li	1785
Research on the Engagement Effect of Wedge Tooth X.G. Jian, H.S. Jia, Y.M. Bian and L.D. Shi	1789

Chapter 32: Geomechanics

The Application of GPS in Glacier Flow Velocity: A Case Study of Qiyi Glacier L. Liu, Z.F. Jing and X.J. Zhang	1794
--	------

Chapter 33: Heat and Mass Transfer

Influence of Working Fluid Thermophysical Property on Thermal Performance of Flat-Plate Closed Loop Pulsating Heat Pipe Q.P. Wu, R.X. Wang, Y.J. Li, R.J. Xu and Y.Z. Li	1799
Optimization Design of Heterogeneous Injection Mold Cooling System L. Ren and W.X. Zhang	1805
The Simulation and Analysis of Heat Transfer Process of Honeycomb Regenerator Y. Tian, X.L. Liu, Z. Wen, X.H. Feng, Z. Li and H.Q. Yong	1810
The Optimization of Bimaterial Microcantilever Design for Radiant Heat Flux Measurement B. Liu, C.F. Tao and X.S. Wang	1816
Temperature Field Analysis of Dispensing Jet Based on GMA S.J. Zhang, G.L. Deng and C. Zhou	1821
Inverse Identification of Heat Boundary Conditions for 2-D Anisotropic Coating Structures H.L. Zhou, H.S. Han, C.Z. Cheng and Z.R. Niu	1825
Preparation and Characterization of Injectable Hybrid Hydrogels Based on Photopolymerization H.L. Wei, Z.X. Zhao, H.J. Chu and J. Zhu	1829

Chapter 34: Instrumentation and Control

Camera Self-Calibration with Planar Pattern Using Genetic Algorithm C.H. Kao and R.C. Lo	1833
Using Optical Flow under Bird's-Eye View Transform to Estimate the Height of Objects around a Vehicle F.C. Lei, C.Y. He and R.C. Lo	1839

Theoretical and Experimental Study on Exclusive-OR Gate Difference-Frequency Mixer J.F. Dong, W.Y. Zhang and G.X. Zhang	1846
Study on the Fuzzy Assessment of Indirect Application Effect of ERP System Y.F. Lu, M. Lu and F. Peng	1850
The Research of the Flotation Recovery Prediction Methods Based on Advanced LS-SVM Y. Zhang, J. Zhu and T. Liu	1854
Research of Mining Subsidied Land Reclamation System Based on GIS D.B. Yang, W.X. Zhang and Q. Yao	1858
A Successive Approximation Approach of Nonlinear Optimal Control with R-Rank Persistent Disturbances S.Y. Ma	1862
Modeling of Dynamic Game-Based Route Guidance System Y. Wei, Q. Shao and Y. Han	1867
Application of VE in the Products Function Innovation X.M. He and X.M. Ji	1872
A Stable Narrow Line-Width Dual-Wavelength Fiber Laser Based on Nonlinear Polarization Rotation with a High Finesse Ring Filter X.F. Yang, L. Peng, Z.R. Tong, Y. Cao and F.J. Dong	1876
The Influence of Modulation Voltage Flyback to LFMCW Radar'S Beat Signal J.W. Leng and F. An	1880
A Camera Calibration Method Based on Free Points J.L. Zhang, K.B. Fan and Y.J. Wang	1885
Research of Tower Crane Suspended Climb Supporting System B. Li, L. Li and L. Bo	1889
The Design of Computer Control System for Grinding-Classification Process Z.A. Yu, W.Q. Tan and Z.H. Xie	1894
Adaptive Sliding-Mode Control with Self-Tuning Fuzzy Compensation for a Piezoelectric-Actuated X-Y-Z Table J.W. Liang, H.Y. Chen and C.Z. Wu	1898
Control System of PDP Lighting Inspection Machine R. Liu, G.X. Liu, P.J. Chang, W.H. He and Z.J. Huang	1903
The Development of ESP Control System Based on the Fuzzy-PID Control Strategy L.M. Wang, L.H. An, L. Tan, Z.L. Wu and L. Li	1907
Study on Combine Harvester Speed Control Based on Optimum Threshing Power Consumption Model D. Chen, F. Kang, Q.Y. Zhu and S.M. Wang	1911
The Research and Design of Elevator Automatic Rescue System J.Y. Lin, Y.J. Ji and C. Wu	1915
Dynamic Model of Thermoelectric Cooler and Temperature Control Based on Adaptive Fuzzy-PID S.J. Song and J.J. Wang	1919
Performance Analysis of Radar and ESM Track Association Algorithms Y.J. Tu, G.M. Huang, J.H. Li and Q.L. Ge	1925
A NURBS Interpolator Using Multiprocessor on Chip for High Performance Motion Control W. Tang, X.D. Zhang, Y. Ding and J. Jing	1929
Study on Current Detecting and Control Method for STATCOM across Transformer C.P. Wang, X.G. Yin, J. Liu and Q. Xiong	1933
Parameter Optimization of PID Controller Based on an Improved Particle Swarm Optimization for the Induction Motor X.B. Shi and W.X. Lin	1938
Comparison of Different Controllers for Automotive Electronic Throttle Based on Rapid Control Prototype Technique X. Ye, Y.Q. Peng and Y.C. Hui	1943
The Research of Driving Force Distribution under Identical-State-Control while 4WID-EV Driving Straight M.H. Zhao, L.D. Wang, C. Liu, R.X. Chen and S. Yang	1948

Research on Anti-Collision Technology among Tower Cranes G.M. Lv, J. Wang and Q. Zhang	1953
Wheeled Crane Hybrid Power Control System Design X.M. Zhou and D.X. Zhou	1958
Modeling and Variable Structure Control of Autonomous Underwater Vehicles with Moving Mass E. Zhao and B.W. Song	1963
A Buck Converter Based Reduced Voltage Starter for DC Oil Pumps J.W. Li, N. Ju, P. Li and J.P. Xing	1968
Direct Adaptive Control of Faulty UAVs via Quantum Feedforward and Fuzzy Feedback F.Y. Chen, B. Jiang and C. Jiang	1973
Anti-Explosion Control System for Fine Powder Processing X. Bing, Q. Ping, X.C. Qian and Y.F. Hong	1978
Circulation Distribution of High Specific Speed Mixed-Flow Pump C.L. Wang, C.J. Li, J. Ding and D. Liu	1982
Modeling and Control of Forward Converter Q. He	1986

Chapter 35: Microwave

Broadband Transition between Substrate Integrated Waveguide (SIW) and Rectangular Waveguide for Millimeter-Wave Applications K.D. Wang, W. Hong and K. Wu	1990
Compact CPW-Fed Multiple Broadband Planar Monopole Antenna C.S. Chuang and Y.J. Chang	1994
Application of the Wavelet Transform for Defect Detection in Prestressing Strands by Guided Wave Technique J. Xu, H.F. Xiong and X.J. Wu	1998
Test System for DT-100 Short-Wave Radio's Power Amplifier Based on LabVIEW L.Y. Cui, X.Q. Zhang and S.Q. Gong	2002
Fatigue Damage Characterization of Magnesium Thick Plate Using Nonlinear Rayleigh Wave S. Su and B.S. Yan	2006

Chapter 36: Non-Destructive Evaluation

Estimation of Core Losses on Electrical Steel Laminations in Wind Generators Using Epstein Frame and Expanded GSE Method W.C. Tsai and B. Chen	2010
Nondestructive Testing of Bridge Cables Using Magnetostrictive Guided Wave Technique J. Xu and X.J. Wu	2015
A Sound Sources Locating Method of Constrained Least Squares Based on Time Delay Estimation S.J. Su and H.L. Zhang	2019
Acquisition of FDM Signal by Using Sound Card Based on LabVIEW X.Q. Yin	2023
Half-Band Filter Design Based on MATLAB and FPGA J. Wu and C.F. Zhang	2027
Performance Evaluation of Engineering Project Risk Based on Factor Analysis C. Kai	2031
Polarization Multiplexing, Angle Multiplexing and Circumrotation Multiplexing Holographic Recording Experiments with 3-Indoly-Benzylfulgimide/PMMA Film Z.Y. Zong, N. Menke, B.L. Yao, Y.L. Wang and Y. Chen	2035
Parameter Design Method of Stepped-Frequency Radar to Suppress Clutter Y. Wang, H.Y. Su, H.C. Zhu and Q. Yuan	2042
Civil Aeroengine Fault Diagnosis Based on Fuzzy Least Square Support Vector Machine H.C. Qu and X.B. Ding	2047
A Parallel Method for Segmenting Intravascular Ultrasound Image Sequence Z. Sun and C. Liu	2051

Data Acquisition for Output Signal of Linear CCD G.S. Xu	2056
An Improved Interrupted Sampling Repeater Jamming to SAR H.C. Hu, X. Jia, J.L. Wu, G.P. Zhang and Y. Gao	2060
Carrier Phase Method for Indoor Pseudolite Positioning System X.G. Wan, X.Q. Zhan and G. Du	2064
Realizes Data Structure and the Algorithm Dynamic Synchronized Visualization X.B. Yang and B.Z. Chen	2068
Research on Relationships among Three Parameters in Short-Term Traffic Flow Forecasting X.P. Xiao, Y.C. Hu and H. Guo	2072
Microarray Data Classification Based on Evolutionary Multiple Classifier System Z.G. Gu and K.H. Liu	2077
Geometric Features Sensitive Mesh Segmentation Orient to Patch-Based Fitting X.J. Zhao, M. Lu and J.H. Gong	2081
RFIDTango: A Scenario-Based Massive RFID Data Generator F.Q. Xie, Z.H. Li, Q. Chen, Y.M. Nie and S.L. Peng	2086
Triangle Rectangle Method for 2D Irregular Cutting-Stock Problems W. Zheng, B. Li, K.R. Yang and H. Li	2090
Intermittent Intensity Clutter Removal of Wind Profiling Radar Based on FrFT J.Q. Li, X.H. Qin and Y.S. Zhang	2094
An Continuous Wavelet Transform-Based Detection Approach to Traffic Anomalies D.D. Jiang, C. Yao, Z.Z. Xu, P. Zhang, Z. Yuan and W.D. Qin	2098
Application of Image Enhancement Algorithm in Multi-Phase Flow CT System M. Ma, J.J. Ji and C.X. Zhang	2103
Image Processing and Recognition System Based on DaVinci Technology for Coal and Gangue Y.D. Zhao and M.F. Sun	2107
Inspection of Fabric Defects Based on Compactly Supported Biorthogonal Wavelet Transform S.Y. Chen and M.Q. Xu	2111
Research on Small Signal Stability of SVG DC Voltage close Loop Control C.M. Zha, Y.S. Zhu and Q.Y. Xu	2115
Modeling and Analyzing of Short-Range Air Defense Operation Based on Petri Net Z.S. Zhou and H.B. Fang	2120
Research on Anti-Collision Technology with Multiple Tags for RFID System Z. Hong, X.H. Zhang and J.L. Guo	2124
Application of Frequency-Domain Blind Deconvolution in Mechanical Fault Detection N. Pan, X. Wu, Y.L. Chi, L. Chang and X.Q. Liu	2128
Design of Stabilized Platform Controller for Mobile Satellite Communication System T. Yuan and Y. Wang	2133
Measurement on the Dielectric Constant of Grass with Rectangular Waveguide at C Band C.L. Xian, Y. Chen, L. Tong and M.Q. Jia	2138
Pulse Power Supply Control System X.J. Zhang and N. Shen	2143
The Design of the Weak Signal Conditioning Circuit Y. Wang, J.F. Li and Y. Zhang	2147
Research for Vision-Based Mobile Robot Self-Localization Strategy G.H. Li, Z.J. Jiang and B. Pan	2153
Wavelet-Based Filtering Method for Sleep EEG Signal H. Qiang, R. Yang and G.D. Zhang	2160
On Image Decompression with Embedded Characteristic Information X.Z. Li and D.Y. Yang	2166
A USB Interface High-Speed Data Acquisition System W. Cui, L. Chen and X.G. Li	2170

Chapter 37: Automobiles

The Design and Implementation of the Automobile Wiper Test System Based on Hall Sensor and LIN Bus	
Y.C. Jiang and G. Zeng	2175
Performance Parameter Estimation of the Parallel Hybrid Electric Vehicle	
Y.P. Zheng, T. Tian and Z. He	2180
Research on Coordination of Evacuation of Human and Car Simulation Optimization Method	
Y.L. Ma and J. Wang	2185
Simulating Research of Integrated Control for Automobile Steering Stability	
C.L. Shi and C.H. Liu	2190
Review on Automobile Steering-by-Wire System Development	
Z. Cong, X. Jian and M.N. Iqbal	2194
Optimization of Suspension Roll Center Height for Vehicle Handling Stability	
L. Zhang, Q.D. Wang, L.H. Zhu and K.J. Luo	2198
Design of VCU for Pure Electric Vehicle	
H.F. Kong, Q.G. Ge and S.L. Xia	2203
Numerical Simulation Key Technical Research of Hot Bend-Forming of Auto Windshield	
Q.L. Zhang, Y.G. Shi, Y.Y. Wen, Y.H. Tang and J. Bo	2207
Depleting Mode Control Strategies for Plug-in Hybrid Electric Vehicles	
B.Z. Zhang, H. Zhao and A.D. Yin	2211
Analysis and Research on Braking Safe Performance of Long Distance Bus	
A. Xu and X.M. Qiao	2216
Design of AC Charging Point for Electric Vehicle	
L.B. Ding, H.X. Ma and H. Zhang	2220
Design and Development of the Stiffness Test System for Car Body Based on Multifunction Data Acquisition Device	
S.J. Su, J. Zhang, L.L. Wang and C.Y. Wu	2225
Temperature Rise Presentation of Motor of Electric Automobile	
S. Meng, S.G. Zuo, C.G. Ma, F.H. Zhang and Q. Sun	2230

Chapter 38: Manufacturing and Production Processes

AE Regularity of Coal Failure Shear Deformation Localization under Triaxial Dynamical Loading	
F.H. Ren and X.P. Lai	2235
Influence of Element Number on Shape Accuracy in Multi-Point Stretch Forming of Air Craft	
J.L. Wang, Z.Y. Cai, M.Z. Li and H. Yang	2240
A Wavelength Interleaved DWDM ROF System with 60GHz Optical OFDM Signal	
Y.H. Ma, C.X. Zhang and P. Zhang	2245
The Algorithm of Points Set Extracting from 2D Voronoi Diagram Based on Crystal Growth	
X.Y. Wu, Y.F. Zhu and T. Jing	2249
The Experiment of Development on Practical Electricity-Saving Socket	
S. Yuan, L.Z. Zhao, Y. Wang and Z.R. Tong	2253
Influence of BaB₂O₄ Glass on the Synthesis of Ba₂Ti₉O₂₀ Ceramics	
M. Xiao, C.R. Jia, C. Liu, M. Yu and Q. Song	2257
The Method Based on Structural Evolution for Recovering Erosion Thickness	
S.H. Jiang, H.T. Zhou and C.H. Song	2261
Research on Machining Ellipse Gyre Surface with the Ball-End Cutter	
H.J. Wang and Z.Z. Wang	2266
Study on Mechanism of Electrochemical Micro-Machining of Titanium Alloys	
G.Q. Cao, Y.T. Dai and L. Yao	2269
Non-Isothermal Simulation of Melting Process in Twin Screw Extruder Based on Two Typical Screw Configurations	
C. Liang, B. Luo and K.S. Wang	2273
Measurement and Research of Oscillating State of Hydraulic Oscillation in Slab Continuous Casting	
Y. Ma, Y.C. Wu, W.L. Chen, X.F. Wang and Y.P. Zhao	2280

Optimization Design for the Large Gantry Machining Center Crossbeam Q. Huang, W.F. Chen, W.H. Ye, P.H. Lou and S.H. Liu	2284
Overview of Energy Consumption Model for Manufacturing Processes B.B. Li, H.C. Zhang, Q.D. Ke, L. Ding and L. Zhang	2288
Simulating Research on Rod String's Gyro Effect Caused by Eccentric Rotation in Circular Tube S.M. Dong, W.S. Zhang, G.H. Chai, M.M. Xing and H. Zhang	2294
The Optimization Design of the Rotary Worktable for Vertical Lathe Based on Structural Bionic Method Q. Zou, X.B. Wang, X.G. Liu and G.N. Shi	2301
The Effects of Load on the Radial Bearing Properties of Pre-Loaded Cylindrical Roller Bearings Y.G. Wei and M. Sun	2306
A Method of Reliability Sensitivity Analysis for Gear Drive System C. Li, G.B. Zhao and X. Han	2311
NC Machine Position Accuracy Testing and NC System Error Compensation Analysis K. Zhang, Z.X. Cui, L.Y. Gai, P. Ge and D.G. Cai	2316
Study on Objective Design for Innovative Product C.L. Yin, L. Zhu and F.R. Kong	2321
Research on Prediction of Microstructure Evolution during Mobile Steering Arm Forging Process by FEM W.L. Chen, L.J. Peng, Y. Ma, S.Y. Wang, Z.J. Li and T. Tang	2326
Multi-Axial Fatigue Life Model Evaluation and Life Prediction for Turbine Disk J.H. Zhang, F. Lv and W.P. Ma	2330
Coupled Bending-Torsional Vibration Analysis of Rotor System with Two Asymmetric Disks J.H. Zhang, Z.P. He, W.P. Ma, L. Ma and G.C. Zhang	2335
A Method to Design Common Product Platform Based on Structure Matrix Analysis B. Zhu and H. Li	2340
3D Numerical Simulation of the Airflow in a Pneumatic Splicer X. Xing and G.M. Ye	2345
Numerical Model for Collision Damping of Blades' Tips X. Jin, M.Z. Zhang, H.W. Li and X.M. Zhang	2349
The Key Technology Research of Metal Bellows' Virtual Design Y.G. Shi, B.J. Yao, L.F. Wang, Q.L. Zhang and Y.L. Che	2354
Neural-Fuzzy Variable Gap Control Method for GMAW Pipe-Line Welding with CCD Camera H.L. Hu, J. Li, F. Li, W. Zhu and H.Q. Pang	2358
Modeling and Simulation of the Dynamics of the Milling of Ball End Milling M.Q. Sun	2364
Technology and Application of Oil Sludge Pyrolysis in Rotary Furnace W.F. Wang, W.D. Du, L. Tang and P. Liu	2371
A Study of Particle Size Distribution from a Low Temperature Combustion Heavy-Duty Diesel Engine D. Yu, Y.Q. Pei, S.Z. Pan, T. Li, Z.Q. Han, Q. Zhan, S.L. Wu and E.X. Liu	2379
Preparation and Property Study of PMMA/ASA Alloy G.D. Tang, S. Chen, Y.Q. Shi and X. Wang	2383
Numerical Simulation of Precision Forming for Blade Rotor Based on DEFORM F. Liu and L.Y. Zhang	2388
The Preparation of pH- and Thermo-Sensitive Chitosan-Based Hydrogels by Michael-Type Addition Reaction H.L. Wei, C.C. Ma, H.J. Chu and J. Zhu	2392
Preparation and Photocatalytic Activity of TiO₂/Fe₂O₃ Nanocomposite S.J. Hu, X.H. Zhang, Y. He, X.C. Hu, L. Cheng and G.H. Li	2396

Chapter 39: Robotic Automation and Control

The Design of Temperature and Humidity Control System in Multi Incubators Based on Fuzzy Control	
R.L. Wang	2400
Performance Dynamic Tracking and Analysis System of Road Traffic Signs	
J. Ma and W.Y. Su	2404
A Mobile Robot for Replacing Electric Vehicle Battery	
X. Wang, J.L. Zhao, S.Y. Lu and L. Tan	2409
Design and Field Test of Virtual Instrument Based Monitor and Control System for Combine Harvester Automation	
D. Chen, S.M. Wang, Y.C. Ding and F. Kang	2413
Laser Navigation System Applied to Weeding Robot	
Z.J. Chen, K.L. Shan and Q.Y. Guo	2417
Application of Intelligent AutoCAD in Ultrasonic Inspection of the Welds	
G.Q. Cao, L. Yao and Y.T. Dai	2421
Dynamic Analysis and Suspension Optimization for New Energy Vehicle Based FE Model	
W.T. Xu, Y.H. Zhang and T.C. Miao	2425
Realtime On-Road Vehicle Detection Approach Based on Cascaded Structure	
L.X. Zhang, X.Y. Qiu, Z.L. Zhang and Y.L. Wang	2429
Adaptive Servo Control Based on LQR for Flexible Master-Slave System	
B.L. Jia, Y. Liu and Y. Kobayashi	2433
Study on Intelligent Control of Electric Control Air Suspension	
Y. Zhang and K.K. Zhou	2438
The Design of Liquid Level Detection System for Oil Tank	
A.P. Wu, H.P. Pan and Y.H. Li	2443
Auto Identification of Weld Seam's Initial Position for Visual Servoing Weld Robot	
Y.B. Deng, H. Zhang and G.H. Ma	2447
Design of the Android Platform Based Electronic-Device Monitoring Terminal	
C. Wang, Z.Z. Fu and P.P. Wang	2451
Workload Performance Characterization and Test Strategy of High-Performance Fault-Tolerant Computers Based on BIBbench	
B. Li, H.Y. Zhou and D.C. Zuo	2455
Modeling and Embedded Autonomous Control for Quad-Rotor MAV	
W. Wang, F. Wang, Y. Zhou, Y. Cheng, Y.Z. Song and K. Nonami	2461
Design of a Time-Varying Continuous Control to Solve the Potential Field Local Minima Problem	
J. Yang and M. Dong	2465
Product Quality Control Based on Medium Logic	
W.D. Huang, Y.M. Liu and M.R. Wu	2470
Numerically Filtering Based on PLC and the Application in the Control System of the Intelligent Building	
H.J. Liu	2476
Synchronization Controlling for the Chu Chaotic System via Linear Feedback	
J.G. Jian, X.L. Deng and Y.J. Shen	2481
Analysis and Optimization of Flow Pattern in Inlet Passage of Pumping Station	
Y. Bo, W.M. Feng, M.Q. Liu and Q.W. Li	2485
PI^λ Order Controller	
F. Yu and Y.M. Zhang	2489
The Design of a Complex early Fire Monitoring Node	
S.X. Liu, T. Deng and K.K. Du	2495
Intelligent Information Flow Based Real-Time Monitoring System of Thermal Power Plant	
Y.J. Liu, J. Guo and K.K. Gu	2499
Heuristic Particle Swarm Optimization for Batching and Scheduling Flowshop with Sequence-Independent Setup Time	
Q. Tang and L.X. Tang	2504
Research of Tool Wear Condition Recognition Diagnosis System Based on the Machined Workpiece Surface Texture Image	
W.D. Xu, X.H. Ren, L.J. Li and Y.G. Yue	2508

Research on Process Monitoring and Adjusting Methods X.H. Wang	2513
Research on Facility Layout Problems Based on Ant Colony Algorithm H. Li, X.Q. Gan and L.L. Ma	2517
Column Strength and Stability Analysis of Column Pipe Automatic Transferring System Y.B. Sha, J.L. Zhu, X.Y. Zhao and X.P. Wan	2523
Optimization of FengTai Power Plant 350MW Supercritical Unit Water Supply RB Control Strategy J.T. Guo and J. Xin	2527
Direct Torque Control of PMSM Based on Variable Parameter PI and Fuzzy Control L.W. Zhou and S.Q. Shi	2530
Fault Diagnosis Model Based on Support Vector Machine and Genetic Algorithm W. Niu, G.Q. Wang, Z.J. Zhai and J. Cheng	2535
Design Optimization of Beam-Pumping Unit Based on Improved Particle Swarm Optimization Y.B. Li, T. Jiang, Y.H. Gao and L.Y. Yu	2540
Optimization Study on Leveling Cylinder Position of Telescopic Handler Y.Z. Lu, Z.X. Su, S.J. Wei and W.B. Qiu	2544
Local Stability and Hopf Bifurcation Analysis of the Arneodo's System Y.J. Liu, Z.S. Li, X.M. Cai and Y.L. Ye	2550
Automatic Defect Extraction and Segmentation in Welding Seam Based on X-Ray Images M.Q. Wang and Y. Wang	2558
Parameter Estimation of the MISO Nonlinear System Based on Improved Particle Swarm Optimization H.K. Fan and W.X. Lin	2563
Intelligent Monitoring System of Battery Based on CAN Bus Y.S. Guo	2568
Research on Quality Control Architecture for Multistage Machining Processes in Small Batch Mode Y. Wang and P.Y. Jiang	2573
Design of Master-Slave Position Controller of Electro-Hydraulic Servo Tele-Robot M.D. Gong	2577
Research on ROI Image Processing Technology of Teleoperation Construction Robot Based on Trinocular Stereo Vision M.D. Gong, B. Tian, Y. Ning and W.W. Li	2581
Control of Transplanting Seedlings Robot Based on 3-CRR Parallel Mechanism J. Xie and S.J. Feng	2585
The Structure and Reliability Analysis of Metro Building Automatic System J.Z. Li, J. Wang, Z. Tan and L. Zhang	2589
Research on the Affection of the Underwater Missile Launching Process S.C. Shang and J.Z. Sun	2594
Research on On-Line Oil Monitoring System for High Power Mining Gearbox X.W. Huang	2600
The Research on Key Technology of Digital Probe Instrument Q.Y. Zhu and B.G. Wang	2604
The Designs of Intellectual Lighting Control System Based on 51 Single-Chip X. Mei	2608
Research of Power Quality Monitoring System Based on LabVIEW S.Q. Gong, J.M. Liu and L.Y. Cui	2612
Pan-Boolean Algebra for PID Control Method J. Chen, G.L. Chen, Z.H. Wang, H.H. Song and J. Zhou	2616
The Research on Turning Operation of Varied Diameter Slender Shaft L. Yang, P. Wang, Z.W. Ren, F. Fang and Y. Li	2621
Static Analysis and Parameter Optimization of the Grab Bucket X.L. Wang, Q.H. Liang and W.Z. Guo	2625
An Improved Multi-Parameters Perturbation Privacy Preserving Association Rules Mining Algorithm J. Liu, T.Q. Li and J.P. Zhang	2629

Simulation System for General Aviation Primary Flight Display Based on GL Studio X.J. Zhang, F.W. Meng and D. Han	2633
Development of a Portable ZigBee-Based Nuclear Radiation Monitoring and Detection System F. Ding, E. Tong, A.G. Song, J.Q. Li and G.M. Song	2639
Real-Time Flame Simulation Based on Volume Rendering J.G. Sun, X.N. Yang, Y. Li and J.T. Wang	2643

Chapter 40: System Dynamics and Simulation

Kinematics Simulation of Steel Tube Rotating Mechanism Based on ADAMS F.J. Chai, J.Y. Xu and Y. Xu	2647
Multi-Provenance Depositional Model of the early Cretaceous in the South Slope Area of Baiyinchagan Depression, Erlian Basin L.Q. Zhang	2651
The Application of Subsection Simpson Integration on Artillery Firing Efficiency Simulation Modeling Z.Q. Zhao and B.C. Jiang	2655
An Algorithm for Mining Frequent Stream Data Items Using Hash Function and Fading Factor Q.L. Mei and L. Chen	2661
Decision of the Weight of Expert in the Analysis of Creditability of Simulation Model S. Liu, L.H. Li and Y.Z. Cheng	2666
Observability Analysis for TDOA Passive Localization System X.J. Gu, X.M. Wang and W.C. Li	2670
Overall Performance Evaluation of Wind Power and Micro-CAES Hybrid Electricity-Generation System W.Y. Liu, G. Xu and Y.P. Yang	2676
3D Numerical Simulation of Flow Perpendicular to One Face of a Cube in a Straight Rectangular Duct M.Q. Liu and Y.L. Liu	2681
Design of Semi-Physical Simulation for Small Satellite by Virtual Display K. Xu, Y. Lv and G. Jin	2684
Simulation of Flow in a Rectangular Meandering Channel K. Ma and W.L. Wei	2688
Simulation and Comparison of Adaptive Detection Algorithm Y.L. Wang and G.C. Li	2692
Extracting of Micro Doppler Parameter of Helicopter Rotor Based on Time-Frequency Analysis L. Zhang and G.Q. Huang	2696
Implementation and Experiment Verification of a Metro Power Traction Simulator System X.J. Dong, S.X. Zhuang and A.P. Liu	2701
Study on Dynamics Simulation of Rigid-Flexible Coupling for CNC Machine Tool W.P. Luo, M.H. Chen and J. Wang	2705
Open-Loop Speed Loss Compensation Method and Simulation Analysis under Variable Load T.H. Peng, N.G. Yue, J.D. Liu and M.S. Yang	2709
Numerical Simulation and Application of Gas Flow Distribution of ESP Transformed to Baghouse in Cement Kiln Head X.Q. Dang, H.S. Hu and P. Min	2715
Dynamic Modeling and Simulation of 3-d.o.f. Vibration Active Isolation Platform Based on Giant Magnetostrictive Actuators J.Q. Li, B.T. Yang, G. Meng, P.S. Pan and D.H. Yang	2719
Simulation Analysis of Conformable Substrate on an Eddy Current Sensor Array's Output Characteristics Based on Finite Element Method J.Q. Du, Y.T. He, H. Ding, L.M. Wu and Q. Shao	2724

Chapter 41: Transport Phenomena

Volume Concentration and Phase Distribution Measurement of Pulverized Coal in the Pneumatic Conveyor	
Q.S. Duan, Z.Y. Zhang, X.N. Zhang and Q. Zhao	2729
Paleo-Formation Pressure in Storage Layer and its Influence on Hydrocarbon Migration in Dongying Depression	
S.H. Jiang, C.H. Song, Z.Y. Wang and H.T. Zhou	2733
The Experimental Investigation of Energy Transfer in Wall Turbulence Based on Wavelet Transform and FFT and HHT	
X.Q. Jin and Z.Y. Xia	2738

Chapter 42: Tribology

Research on Dynamic Friction Compensation of High-Speed Precision Slider	
S. Hua, Y.H. Dai and C.S. Tang	2742
Study Friction between Wheel and Rail by Using Molecular Dynamics Method	
Q. Xiao, M. Mu, X.J. Zhou and Y.X. Che	2746
Indentation and Friction of $\text{Cu}_{44}\text{Zr}_{43}\text{Al}_{10}\text{Nb}_3$ Bulk Metallic Glasses on Nano-Scale	
B.R. Sun and Z.J. Zhan	2750
Comparative Study of Friction and Wear Behavior of Diamond-Like Carbon Coating under the Lubrication of PAGs Containing Various Additives	
H. Wu, Y.Q. Xia, X. Feng and X.Y. Ge	2754
Experimental Study on the Frictional Resistance of Gas-Liquid Two-Phase Flow in Vertical Helically Coiled Pipe	
S.H. Zheng, J.G. Mu and J. Li	2758
Study on Changes of Metal Chemical Composition by Abrasive Wear of Alfalfa Powder	
K.P. Zhang, J.F. Wu, J.L. Huang and X.P. Huang	2762
Analysis of the Tire Temperature Distribution Based on Tests	
X.L. Guo, S.G. Zuo and Y. Li	2766

Chapter 43: Vibrations

A Novel Method of High Frequency Weak Signal Detection Based on Chaotic Oscillator System and Wavelet Transform System	
S. Shi, J.Y. Li and X.M. Gu	2770
Free Vibration Analysis of Cantilever Rectangular Plates with Variable Thickness	
M. Huang, Y. Xu and B. Cao	2774
No-Load Analysis of Permanent Magnet Spring Nonlinear Resonant Generator for Human Motion Energy Harvesting	
K. Sun, G.Q. Liu and X.Y. Xu	2778
Modeling of Rope Longitudinal Vibration on Flexible Hoisting System with Time-Varying Length	
J.H. Bao, P. Zhang and C.M. Zhu	2783
The Research of Vibration Characteristic about Sucker Rod String	
B. Li and X.D. Wang	2789

Chapter 44: Electrical Machines and Drives

Use of Taguchi Method to Optimize the Operating Parameters of a High-Pressure Injector Driving Circuit	
W.C. Tsai and Z.H. Wu	2795
Analysis the Reason of Head and Tail Pully Driving and Bidirectional Motor Negative Phase Sequence over Current Protection Malfunction	
R.C. Yang, L. Edwards and F.H. Gao	2800
Research on the Application of IBE in IEC61850 Substation Automation System	
S.P. Yin	2805
Research of the Mechanism of Ferroelectric Phase Transition in Perovskite: Empty Orbital Model	
C. Fang and L.Y. Chen	2809

Improvement of Dynamic Stability in Multi-Machine Power System with TCSC Installed in Tie-Line	
Y.J. Wu and L.C. Li	2813
Finite Element Investigation of the Influence of Thermophysical Parameters on Segmented Chip Formation during High Speed Cutting	
Y.X. Lin and C.M. Yan	2817
Design of PMSM Servo Control System Based on TMS320F2812DSP	
Y. Lu and Z.F. Gao	2822
High-Performance Speed Sensorless Direct Torque Control of PMSM	
Y.P. Xu, K. Guo and Y.R. Zhong	2828
Comparison of Performance between Concentrated and Rhombic Windings for a Slotless Brushless DC Motor	
C.C. Hwang and P.L. Li	2832
Holographic Spectrum in the Remote Rotating Machinery Fault Diagnosis	
W.C. Tang, Z.H. Shi and D.L. Kang	2836
The Design and Implementation of a BLDC Motor Drive with DTC	
T.Y. Ho, L.Y. Chen, L.H. Yang and W.L. Lin	2841
Design and Simulation of a Mini Precision Positioning Magnetostrictive Inchworm Linear Motor	
P.S. Pan, B.T. Yang, G. Meng and J.Q. Li	2846
Fault Ride through of Doubly Fed Induction Generator Wind Turbine Based on Supercapacitors Energy Storage	
H.P. Zou, P. Yu, H. Sun, J.Y. Zou, J. Liu and Y. Liu	2851
Research and Application of Faster Design Support Technology of Wind Turbine Pitch Bearing	
Q.F. Gao, Y. Wang and X.M. Rui	2855
Analysis and Optimization of Flexible Supported Drive Train in a Wind Turbine	
L.M. Zheng, H.X. Li and Y. Chen	2861
Dynamic Analysis of Split Stirling Engine	
J.C. Tang, C.J. Zuo and L. Li	2866
An Investigation on Size Distribution of Exhaust Particulate Emitted from Gasoline Engine	
Y.Q. Pei, T. Li and S.Z. Pan	2871
Modeling and Optimizing of Control System with Full-State Feedback and Integral Output Feedback for DC Motor	
Q. He	2876
Experimental Study on Flaw Response in Inhomogeneous Media	
G.F. Zheng, B. Wu and C.F. He	2881
Design of Provincial Transportation Data Center for Industrial Integration and Intelligent Analysis	
Z.B. Zhou	2886
The Research of Multipath and Linear Error for Pseudolites Applications	
X.G. Wan and X.Q. Zhan	2890

Chapter 45: Computational Techniques

Quadrilateral Grid Automatic Generation Algorithm and its Application for Multi-Media and Complex Domain	
C.H. Fu and H.B. Zhou	2895
The Research on Hadoop and Cloud Computing-Based Mass Data Storage Model of Computation	
F. Peng, Q.Y. Huang and Z.P. Qian	2899
Reconfigurable Design and Implementation of Data Extraction and Permutation Facing Stream Cipher Algorithm	
F. Gao and Z.B. Dai	2903
Research on Cipher Coprocessor Instruction Level Parallelism Compiler	
H.Y. Li	2907
A New Image Affine-Invariant Region Detector and Descriptor	
X.X. Chen, K.B. Jia, C.C. Yu and S. Wei	2911

Dimension-Descending Algorithm for Spherical Delaunay Triangulation P. Duan, J.T. Li and J. Li	2915
Ergonomics Evaluation of Mobile Maintenance Shelter with Fuzzy AHP Method N. Liu, L.M. Wu, M. Wang, Y. Niu, Y. Zhang and W.Z. Wang	2920
Performing Calculation in Interactive Theorem Proving B. Li, C.Y. Zhao and L. Li	2924
Image Digital Watermarking Algorithm Based on Arnold Scrambling and Wavelet Transform X.F. Liu and S.M. Li	2928
Adaptive Image Denoising Based on Sparse Decomposition Y.T. Jiang and Z.K. Yin	2932
A New Phase Noise and Channel Estimate Method in CO-OFDM System Q. Chen, Y. Cao, M.J. Guo and Z.R. Tong	2936
Interference Suppression Detection Algorithms in STBC-MIMO Systems Y.L. Wang	2940
Research on Software Optimization of Real-Time Processing System Based on DSP M.J. Gong and Y.L. Liu	2944
Reactive Power Compensation of Distribution Network Based on Bacterial Colony Chemotaxis Algorithm H.L. Wang and L.C. Li	2948
Implementation of DES Encryption Algorithm Based on FPGA and Performance Analysis J.H. Lian and K. Chen	2953
Research on Tri-Frequency Phase Ranging Method Q.P. Yuan, L.J. Fan and Z.R. Tong	2957
Design and Implementation of the Embedded Web Control System Based on ARM and Linux Y.L. Wang and B.W. Chen	2961
Performance Comparison of LS and LMMSE Channel Estimation Algorithm for CO-OFDM System Z.R. Tong, M.J. Guo, X.F. Yang and W.H. Zhang	2965
Numerical Method with the Third-Order ENO Reconstruction Satisfying Two Conversation Laws for Linear Advection Equation R.S. Chen and A.P. Liu	2969
Implementation of UMTS Protocol CC Sublayer Based on WinCE Embedded System L. Gao and J.G. Lv	2973
Research on the Color Calculation Method of LCD Based on the Spectral Radiation H.X. Liu, L. Zheng, L. Dai and M. Huang	2977
Research on Nearly Orthogonal Two-Dimensional Grid Generation B.L. Su and W.L. Wei	2981
Capacity Stability Analysis for 4-Element Compact MIMO Systems Y.H. Li, C. Cheng, M.Y. Ju and G.P. Tan	2985
A New Method for Improving Infrared Image Quality and its System Implementation Z.H. Huan, H.M. Yang and M. Zhu	2989
A 2D Numerical Model for Simulation of Two-Dimensional Circular Dam-Break M.Q. Liu and Y.L. Liu	2993
An Improved Timing Recovery Algorithm Design J.M. Feng, Y.C. Yao and M.W. Qin	2997
The Analysis of the Associated Legendre Functions with Non-Integral Degree J.Q. Wang, H.Y. Chen and Y.F. Chen	3001
A Hardware Accelerate Simulator for Network Processor Based on FPGA Z.X. Di, K. Li, J. Pang, J.Y. Shi, P.J. Ma and Y. Hao	3006
Loop Extended Symbolic Execution on List Manipulating Programs R.J. Li, Z.F. Wang and L.M. Dong	3010
Fault Diagnosis of Micro-Grid Based on Advanced Petri Net J.Y. Shi, W.S. Sun and C.L. Li	3015
Augmented Dickey-Fuller Test and the Lag Length Selection Problem L. Deng	3019

Generalized Polar Decompositions in Matrix Exponential Y.M. Tian and A. Zhang	3023
Application of Parallel Computation in Numerical Simulation of Laser Propulsion Y.Y. Zeng, Z.H. Wang and W.T. Zhao	3027
A Kind of Improved PEG Algorithm of Q-Ary LDPC Codes N.N. Tong, D.F. Zhao and Y.P. Wu	3032
The Evaluation of Lightness and Chroma Difference for Images According to Color Difference Formulae H.X. Liu, Y.D. Chen, Y.L. Hao, N.N. Zheng and A. Jiao	3036
Application of Numerical Simulation for Tire Rolling Resistance Measuring Method S.G. Zhang, F. Gao and B.L. Hang	3041
Core Technologies Analysis for End-Hopping System C.L. Zhao, K. Lin, C. Weng and C.F. Jia	3046
Numerical Study on Flow Characteristics in a Stirring Vessel R.Q. Liang, J.H. Ji, F.S. Yan and J.C. He	3050
Research of Scalability Model Based on Cloud Storage System J.W. Ge, Y.L. Deng and Y.Q. Fang	3054
An Image De-Noising Method Using Directions of Wavelet Decomposition Sub-Bands Z. Cai and S.H. Tao	3058
An Ant Colony Optimization for the Composite SaaS Placement Problem in the Cloud Z.W. Ni, X.F. Pan and Z.J. Wu	3062
Image Compression and Transmission System for Digital Down-Hole Television J. Su and Z.G. Yan	3068
The Study on the Modeling Method of Complex R and D System H.B. Shang and G.S. Tian	3072
Topology Optimization of Compliant Mechanisms Using Level Set Method without Re-Initialization B.L. Zhu and X.M. Zhang	3076
Research of Workflow Based PDM System under the Circumstances of Concurrent Engineering S.H. Ding, H.X. Wang, X.J. Meng and P.S. Zhong	3083
Design and Simulation of a Broad Band Retrodirective Array Element F.G. Hu, J.H. Zhang and L.Y. Fang	3087
The Design of Expert PID Parameter Optimized by Genetic Algorithm J.T. Cheng, W. Xiong and L. Ai	3091
Medical Information Sharing Architecture Based on Cloud Computing H. Li, L. Xue, Y. Zhu, C.L. Yang, L.L. Chi, Z. Wang and Z.L. Zhang	3095
Vision-Based Aerial Refueling Docking Based on SURF Algorithm S.Y. Qin and J.G. Yan	3102
Solution of Constraint Force of Frame with Shape of T by Principle of Conversion Method X.J. Yu	3107
Fatigue Crack Length Real Time Measurement Method Based on Camera Automatically Tracking and Positioning H.L. Gao, S.S. Shen and Y. Yun	3111
Creating Logic to Solve the Problems in Modeling for Simulations L.C. Mi, S.G. Wang, Q.Y. When and C.S. Xu	3119
The Key Technology of Virtual Reality System Based on Panoramic View Y. Ling, C. Yong and Y. Cheng	3123
MDO of Anti-Creeper on High Speed Train Using Optimus K.J. Liu, H.L. Zhao and C. Xu	3128
Energy and Environmental Scenario Analysis for Residential Sector Based on LEAP G.Y. Xu, W.F. Qin, S.G. Ti and Y.C. Xu	3133
Double-Loop PID Parameter Tuning for DC Motor Based on Modified Particle Swarm Optimization T. Cheng and W.X. Lin	3139
A Novel Gaussian Particle PHD Filter for Multi-Target Tracking Z.J. Huang, G.X. Liu and P.J. Chang	3143

Fatigue Life Prediction Based on Strengthening and Damaging L. Song and X. Lu	3148
Numerical Simulation of 3-D Chemical Non-Equilibrium Flow in the Afterburning Chamber of Solid Ducked Rocket L.K. Cui, Y.Z. Zhang and Z. Li	3151
Digital Image Stabilization Algorithm Based on Mean Shift Corner Tracking J. Peng, Q. Min and Z.Q. Xu	3155
The HGEDA Hybrid Algorithm for OLAP Data Cubes C. Jia and H.W. Chen	3158
Exact Mathematical Model and its Numerical Solution of a Two-Layer Beam Subjected to Non-Uniform Temperature Rise X.P. Chang, J. Liu and J.H. Ren	3163
A New Multi-User Beamforming Algorithm Y.W. Wang and Z.W. Yin	3169
Context-Aware Model Based Facial Expression Nets Analysis C. Xu, Z.Y. Feng and Y. Zhang	3173
A Knowledge Based Threat Analysis in Trustworthy Software Engineering X.H. Li, F.X. Liu, Z.Y. Feng and J.L. Xing	3177
Application of Least Square Influential Coefficient Based on Particle Swarm Optimization in Dynamic Balancing Measuring C.J. Li, Z.Q. Zhang, L.L. Wan and Y. Li	3181
 Chapter 46: Turbulence	
Study on the Wind Energy Utilization Coefficient Surface Identification of Wind Turbine J.K. Xia, S.X. Lu and W. Huang	3185
Rotational Speed Control of Wind Power Generation Systems with Variable-Speed and Variable-Pitch J.K. Xia, S.X. Lu, S. Mao and W. Huang	3190
 Chapter 47: Oil and Gas Exploration	
Reservoirs Distribution and Hydrocarbon Accumulation of Ordovician Carbonate in Tazhong Uplift, Tarim Basin M.T. Chen, N. Yang and S.M. Yang	3195
 Chapter 48: Resistance and Propulsion	
Elimination of Scan Blindness in Rectangular Waveguide End-Slot Phased Arrays Using High-Impedance Surface W. Zhu, X.F. Lu and Q. Gao	3200
Research on Recovery Voltage from Circuit Breaker Cutting Off Various Transformer Faults W.H. Xia, M.F. Gong, Z. Gong, G.L. Li, X.Y. Xu and J.B. Wu	3204
 Chapter 49: Solid Mechanics	
Analysis on Stress and Deformation of Low Elastic Modulus Concrete Cutoff Wall inside the Dam Body R. Mou, C.J. Xu and X.H. Ma	3208
Effect of Solid Solution under High Pressure on the Microstructures and Mechanical Properties of AM60B Alloy Q.X. Liu, R.J. Zhang and M. Zhang	3216
Automatic Thermal Expansion Compensation of the Precise Grinding Machine AMB Spindle D.G. Li, S.Q. Liu and B. Bian	3221
 Chapter 50: Electronics and Electrical Materials	

Charge Strategy Study for Supercapacitors Applied to Regenerative Energy System in Elevator Application	
F. Wen, S.Y. Yang and X.P. Chen	3225
One Optimum Design Method of Dry-Type Air-Cored Reactors	
L.P. Zheng, H. Yu and J.F. Dou	3229
Research on Properties of PZT Piezoelectric Ceramics by Finite Element Software ADINA	
C.J. Guo and C.S. Zhang	3233
The Experimental Research of Magnetic Powder Brake Loading Characteristic in Rotary System	
J.L. Liu, S.K. Wang and J.Z. Wang	3237
A Research for Broadband Modeling Method of Electro-Absorption Modulator	
J. Wu and Q. Zhao	3242
Downlink Congestion Control for TD-SCDMA Trunking System	
T.J. Zhang, M.J. Chen and S.X. Shao	3247
A 3.1~10.6 Ghz Ultra-Wideband SiGe Low Noise Amplifier with Current-Reused Technique	
K. Li, C. Liu, X.F. Yang, Q. Feng, C.X. Zhu and G.D. Huang	3251
Defected Microstrip for Dual-Mode Bandpass Filter Applications	
Y.X. Wang	3255
Quantum Effect in the Mesoscopic Open Electron Resonator	
Z.Y. Yan, Z.C. Liu and P. Zhao	3259
Design of C-Band Wideband Sweep Frequency Source	
J.Q. Liu, L. Tian, W. Hong and J.Y. Zhang	3263
A High Linearity Folded Gilbert Mixer for 2.4GHz Application	
K. Li, C.X. Zhu, X.F. Yang, Q. Feng, C. Liu and G.D. Huang	3267
Design and Implementation of a Wideband C-Band LNA	
J.Y. Zhang, L. Tian, W. Hong and J.Q. Liu	3272
Study on Discharge of Separated Water Droplets in DC Field	
Z.X. Zhang and S.F. Yin	3276
A Study on the Harmonic Wave of SPWM Voltage Source Inverter	
W.C. Xiao, J.S. Li and L.J. Jiang	3280
Design of a down-Conversion Mixer for Four Sub-Harmonic in W-Band	
Y.S. Zhang, J.Q. Li, H.L. Shan and J. Zhou	3284
Research on Differential-Mode Conducted EMI of Three-Phase PWM Rectifier AC Side	
K.X. Wei, R.X. Duan and B. Liang	3289
Zero Error Analysis and Compensation of No-Beat Time Division Multiplier	
W. Zhu and S.X. Guan	3293
Structure and Magneto-Resistance in Nanostructured $\text{Sr}_2\text{Fe}_{1-x}\text{Cr}_x\text{MoO}_6$ ($0 \leq x \leq 0.3$) Double Perovskite Compounds	
X.H. Li and D. Li	3298
Influence of Tungsten Doping in $\text{La}_2\text{Mo}_2\text{O}_9$ Oxide-Ion Conductors by Dielectric Relaxation Measurements	
D. Li and X.H. Li	3302
Target Tracking Based on Particle Filter with Multi-Path Particles	
Q.Y. Sun, L.S. Li and Z.L. Chao	3306
Quasi-Monte Carlo Gaussian Particle Filtering Acceleration Using CUDA	
N.G. Jin, F.M. Li and Z.X. Li	3311
Liquid-Phase Diffusion of Phosphorus Atoms in Laser-Doped Crystalline Silicon Solar Cells	
T. Li, C.L. Zhou, Z.G. Liu, W.J. Wang, Y. Song, Z.H. Gao, Y. Duan and Y.Z. Li	3316
Establishing Mathematics Model of Pole Gap Parameters in the High Frequency Short Pulse Electrochemical Machining	
G.Q. Cao, Y.T. Dai and L. Yao	3320
Micro-Simulation of Concrete Based on the Zero-Thickness Interface Element	
S.X. Wu, P.X. Wang, H.T. Zhao and D.H. Huang	3324
Thread-Piezoelectric-Substrate Based Low-Cost Microfluidic Device	
A.L. Zhang and Q.J. Han	3329

The Mixed Method Analysis of Higher Order Mode in Waveguide of Piecewise Homogeneous Dielectric C.J. Shuai	3334
Research on SOC Estimation of LiFePO₄ Battery in HEV Y.P. Zheng, H. Wang and Z.P. Du	3338
Modulus and Internal Friction of W-Doped VO₂ Thin Films H.Q. Li, X.X. He, T. Liu, Z.H. Nie and X.Q. Lv	3343
A Fuzzy-EAHP Method of EW Equipment's Reliability W.L. Wu	3347
Cellular Pattern Evolution of Deflagration-to-Detonation Transition in Square Detonation Tube P.G. Zhang, X.M. He and Q. Wang	3351
Design of Control System for Micro Tracklayer Based on $\mu\text{c/os}$ J.S. Wei, F.Q. Gao and G.L. Wang	3356
Research on Self-Generated Voltage of Friction Pair in Dry Wear Process Z. Huang and T.L. Shi	3360
Double-Loop Push-Pull Forward DC/DC Converter Control System G.L. Yue, R. Li, C. Chen and X.L. Wei	3365
High Efficiency Laser Diode Power Supply X.G. Li, G.Y. Li and Y.B. Yue	3370
Stray Losses Study for a Power Transformer Based on 3D FEM Z.H. Song, Y.F. Wang, S. Mou, Z. Wu, Y.H. Zhu, B.F. Xiang and C. Zhou	3374
Structure Optimization of Piezoelectric Micromachined Modal Gyroscope X.J. Hu, X.S. Wu, Z. Wang, W.Y. Chen and W.P. Zhang	3377

Chapter 51: High Voltage Techniques

Study on High-Voltage Power Supply of Plasma Generator C. Jiang	3381
Modeling and Analysis of Small Scale High-Voltage Charging Circuit under Discrete Time Domain Y.Q. Wang, Y.D. Wu, Y.Y. Wang and C.L. Liu	3386
213 W 500 Mhz 4H-SiC Static Induction Transistor G. Chen, P. Wu, S. Bai, Z.Y. Li, Y. Li, W.J. Ni and Y.Z. Li	3392

Chapter 52: Robotics and Automation Systems

Man-Machine Cooperated Dynamic Schedule Orienting Disturbance in Steelmaking N. Zhao and S.H. Dong	3396
Fabrication of 10Gbps TOSA Packaged EML Module Based on Optimized CPW Feed Line C.Z. Xu, K.Z. Lu, W.H. Liu, S.B. Fan and Y.Z. Xu	3401
Numerical Simulation of Traffic Flow in the Tollgate Area with Variable Speed Limits W.X. Zhu and Z.P. Jia	3404
Implementation of a New Travel Time Estimation Method for Demand Forecasting Models C.X. Lu, F. Zhao, M. Hadi and R.F. Yang	3410
Design of Intelligent Electrode Design System L.Y. Wang, H. Li, J. Huang, Y.L. Xu and Y. Gao	3416
Automatic Airport Extraction Based on Improved Fuzzy Enhancement L. Pan and Z.X. Liu	3421
Application of Cluster Analysis and Trend Extraction in Wind Speed Series Consistency Correction Y. Zhang, L.M. Wu and Z.M. Wang	3425
Model Predictive Control for Multilevel Inverters in Microgrids H.S. Bo and J.F. Yang	3430
Modeling and Simulation of Brushless DC Motor with Nonideal Back EMF Y. Zhao and Y.J. Yang	3434
MPPT of Photovoltaic Power Generation Based on Double Fuzzy Controllers Y.L. Wang and J.D. Xie	3438

Study of Remote Control of Non-OS Embedded Instrument Based on LXI Bus Technology S.Y. Chen, Y.M. Liu and Y. Wang	3442
Application of HHM in Risk Identification of Tunnel Project T. Song, L.Y. Wei, W.X. Sun and W.F. Sun	3447
A Novel GNSS Carrier Tracking Loop Design Based on Fuzzy Logical Control J.B. Zhang, S.F. Zhang, Q. Hu, Y. Jiang and X.W. Sun	3451
Design of Fuzzy PID Controller for Water Level of Boiler Steam Drum Based on DSP Y.F. Xin	3455
Constant Pressure Water Supply System Based on Fuzzy-PID Control X. Sun	3459
A New Application Scheme of BPLC in Smart Home X.F. Zhang, J.H. Liu and W.S. Zhang	3463
Nonlinear Inertia Weigh Particle Swarm Optimization Combines Simulated Annealing Algorithm and Application in Function and SVM Optimization B. Jiao and Z.X. Xu	3467
Simulation of an Improved Method of Maximum Power Point Tracking for Photovoltaic Array G. Zhao and H. Jiang	3472
The Application Design of the Heating Boiler System G. Zhao and J. Xu	3476
Application of Accelerated Iterative Method in Calculating Wave Length in Harbor Engineering S.J. Wang and M.W. Wei	3481
Study on AGC Control System of 300 Reversible Cold Strip Mill T. Liu, Y.Q. Wang and Z.G. Xue	3485
Application of ARM in BLDCM Control System W. Zhang, X. Xu and X.Y. Ying	3489
Nonlinear Modeling and Simulation of Pneumatic Servo Position System of Rodless Cylinder S. Zhang, J.B. Chen, T. Wang and W. Fan	3493
Elevator Door Automatic Control System D.M. Zhang and X.H. Liang	3498
Elevator Brake Release Automatic Control System D.M. Zhang and X.H. Liang	3502
Design of Intelligent Aim System of Tear Bomb Emitter Based on Binocular Stereo Vision J. Zhang	3505
Anti-Rear-End Collision Warning System Based-on Zigbee for Highway Vehicle W.J. Li, K. Feng and H.K. Zhang	3511
The Potential of Phosphorus Removal in UASB Reactor P. Lu, T. Ding, J.Y. Li and J.X. Mu	3515
Temperature Control System of Annealing Furnace Based on Smart Meters and PC Y. Wang and B. Lu	3518
The Intelligent Monitor System for Battery Y.G. Luo	3522
Study on the Modeling of Main Mine Ventilator Based on Artificial Intelligence X.H. Du, S. Niu, X.M. Wang and P.H. Wang	3526
Space Positioning of the 5-DOF Robotic Excavator X.H. Xie, L. Zhou and Q.H. He	3531
Behaviour and <i>In Situ</i> Tests of Self-Drilling Prestressed Anchors X.Y. Xie, K. Zhu, J.Y. Hua, H.W. Ying and K.F. Liu	3536
An Application of Machine Vision in Automatic Mobile-Phone Lens Assembly Equipment J.Z. Zhang, Y.Y. He and J. Li	3543
An Online Visual Inspection System for Oil-Seal Dimension Z.L. Wu, C.K. Sun and J. Liu	3548
A Self-Adaptive BMS Based on CAN-Bus for Power Li-Ion Battery M. Wang, J.Q. Wu and X.H. Zhang	3553

Application of Multi-Objective Artificial Immune Optimal Algorithm in the Elevator Group Control System Y.M. Liu and Y. Zhu	3557
Adaptive Control of Machining Process Based on Fuzzy Wavelet Neural Network and Generalized Entropy Square Error X.Y. Lai, C.Y. Yan, B.Y. Ye and W.G. Li	3562
Automatic Anti-Icing Robot of High-Voltage Transmission Wire Y.Q. Zhao, P. Wang and D. Gao	3568
Research on Real-Time Measuring Method of Dynamic Deformation Based on Machine Vision and its Application L.Z. Lin, X.P. Ni, L.S. Zhou and Z.Q. Qian	3572
Automated Image Processing for on-Line Photogrammetry J. Wang and M.L. Dong	3577
Research on the Design of Automated Hemorheology Analyzer J. Wang, L.Q. Zhu and M.L. Dong	3581
Application of Cutter Radius Compensation in CNC Machining Q.Q. Yue and H. Yu	3585
An Improved Hybrid Discrete Particle Swarm Optimization Algorithm to Solve the TSP Problem B. Xiao and Z.H. Li	3589
Analysis of Nonlinearity in High Speed Differential Phase Shift Keying Optical Transmission System J. Cai and Q.J. Bai	3595

Chapter 53: Electromagnetics

MHD Flow of Shear-Thinning Fluid over a Rotating Disk with Heat Transfer C.Y. Ming, L.C. Zheng and X.X. Zhang	3599
---	------

Chapter 54: CFD

Numerical Study on Turbulence Modification in Particle-Laden Pipe Flows F.S. Yan, W.J. Zhang and R.Q. Liang	3603
Comparative Analysis on OQPSK and QDPSK of Continuous Pressure Wave System in Drilling Fluid Channel Z.W. Li and R.H. Wang	3607
Numerical Simulation of 2D Flows with Hydraulic Jump Using Shallow Water Equations B.L. Su and W.L. Wei	3616
Numerical Simulation of 2D Dam-Break Flow in a Vertical Plane M.Q. Liu and Y.L. Liu	3620
Numerical Simulation of Flow in a Horizontal Sedimentation Tank W.L. Wei, Z. Pei and Y.L. Liu	3624
Numerical Study of Non-Newtonian Liquid Sheet Primary Breakup L.P. He and Z.Y. Xia	3628
Application of C⁴D Technique to Void Fraction Measurement of Gas-Liquid Two-Phase Flow: Stratified Flow K.C. Ri, L. Wang, S.F. Fu, Z.Y. Huang, B.L. Wang and H.Q. Li	3632
Computations of Transient Flows and Sprays of Port Fuel Injector C.B. Yin, Z.D. Zhang, H. Guo and Q. Cheng	3636
CFD Analysis of Two-Phase Flow in a Solid-Liquid Hydrocyclone D. Feng, S. Huang, L. Luo and W.G. Ma	3640
CFD Simulation of Two-Phase Flow in a Downhole Venturi Meter D. Feng, S. Huang, Y.H. Guan and W.G. Ma	3644
A High-Speed and High-Precision Compound Algorithm Combining PID with MRAC for a Flow Control System Based on the Lyapunov Approach L. Zhao, B.B. Wang and F.L. Xu	3648
Research on Pressure Resistance of Piston Type Submersible Y.Y. Zhai, W.J. Lu, Y. Zhou and Z.L. Xu	3654

Numerical Analysis for Twin Screw Pump Internal Flow
Q. Tang, A. Misganaw, X.Z. Ye and Y.X. Zhang 3658

Chapter 55: Compressible Flows

Study of Liquid-Solid Two Phase Flow in the Volute of Centrifugal Pump
D. Liu and C.L. Wang 3664

Chapter 56: Nonlinear Dynamics

Solitary Solution of Nonlinear Equation by Homotopy Analysis Method
X.R. Chen and W.S. Cui 3668

Optimal Control Design for Nonlinear Systems with Disturbances
D.Z. Zhan 3672

Numerical Solution of 2D Flow in Sharply Curved Channel Using a Local Coordinate System
B.L. Su and W.L. Wei 3677

The Research of Automatically Determine the Feature Information of Radiation Emission Test Curve
X.J. Li, F. Dai, J. Xu and D.L. Su 3681

Infrared Target Background Suppression Method Based on PDE and Morphological Filtering
Y. Chen, G.Y. Li, H. Wang and T. Zhao 3686

Chapter 57: Operations Management

Study and Implement of the Production Management and Cost Control Platform of the Manufacturing Enterprises
W.M. Ding 3690

Effect of Tillage Systems on Soil Profile Construction and Aggregate Stability in the Songliao Plain Cornbelt
H.B. Wang, L.P. Zhao and W.J. Liang 3693

A Novel Method for Snowboard Course Design
J.H. Shi, R. Zong, J.L. Huo, Q.N. Li and Z.Z. Dong 3697

Data Stream Frequent Closed Item Sets Mining Based on Fast Sliding Window
Z.H. Chen and J. Luo 3702

Security Risk Analysis of Nuclear Power Plants Based on Fuzzy Comprehensive Evaluation
C.S. Xie, S.P. Hua, D.P. Dong and X.X. Jia 3708

The Application of Statistical Analysis Technique in Welding Training
F.Z. Zhang, X.G. Dong, X.B. Ma, H.Y. Yan and L.Q. Yang 3712

Stochastic Traffic Assignment Model Based on Travel Time Reliability
Y.R. Cheng, Y. Han, X.K. Jiang and J.L. Gu 3716

Traffic Flow Model Modification on Ice Condition of Road
Y. Li and J.W. Chu 3721

A Fuzzy Logic Based Information Security Risk Assessment Method
Y.L. Yang and Y.H. Zhou 3726

Balancing and Optimization of Vacuum Cleaner Assembly Line
Y.H. Ma, F.S. Kong, Y. Jiang, Y. Zhang and Y. Ao 3731

Chapter 58: PC Guided Design and Manufacture PC

Design and Implementation of a IPTV Widget System for ST-9150
C.H. Yang, K.T. Yan and W. Luo 3736

The Optimal Design of ECT Electrodes Array Based on APDL
M. Ma, M. Hou, C.X. Zhang and L.J. Han 3740

Relationship between Output Parameters and DOF of Single Loop Mechanism, Link Group
Y.T. Zhang, D.X. Zeng, Y.D. Yang, W.J. Lu, D.J. Mu and Y.L. Yi 3746

Customized Design Support System for Manufacturing Enterprise and its Implementation
P.S. Zhong, J.D. Song, J.Y. Wei and M. Liu 3751

Seam Deviation Detection and Stitching Simulation of 3D Composite S.J. Dai, C. Wang, H.W. Zheng, Z.H. Chen, L. Lin and J. Wang	3755
Dynamic Modeling of the Variable Rope Length 3D Crane System of a Bridge Crane S.J. Dai, Y.Y. Cheng, P. Pei, M.M. Ren and Z. Lv	3759
Customer Clustering for Product Green Design L. Zhang, Z.F. Liu and H. Bao	3763
Design of Blank Thickness on-Line Monitoring System of Continuous Flat Press in Wood-Based Panel Industry H. Wei, P.X. Cao, X.L. Guo, B.J. Wang, Z.M. Qiao and W. Hu	3767

Chapter 59: Pollution and Environmental Engineering

Spatial Distribution of Heavy Metals in Surface Soil of Zhejiang Pinghu Q. Li, C.M. Hao and H.L. Liu	3773
SAGE Model Analysis and its Application in Civil Aviation Engine Emission H.L. Cao, X.L. Tu, D.M. Liang, Y.F. Ma and P. Xue	3776
Effect of Different Photoperiodic on Flowering in <i>Dendranthema lavandulifolium</i> Y.P. Ma and S.L. Dai	3781
Decolorization Effect of Mycelium Pellet on Saline Azo Dye Wastewater J.Z. Zeng, J.Y. Lin, S. Zhou, X.G. Yi and S.S. Zeng	3784
Analysis for the Uncertainty and Changeability of Groundwater Causticity D.J. Wei and X.G. Zhang	3788
The Research Progresses of Controlling and Repairing of Water Pollution and Biotic Integrity Maintaining H.W. Wang, D.B. Cai, K.M. Li, B.X. Nan, H.M. Xu and L. Ma	3791
A Phytoplanktonic Investigation and Water Quality Assessment about Tanjiang River H.W. Wang, W. Zhang, K.M. Li, Y.G. Zhou, H.M. Xu, S. An and L. Ma	3795
Experimental Study on the Release Characteristics of Chlorine and Alkali Metal during Co-Firing of Wheat Straw and Lean Coal M.Z. Yue, Y.Z. Wang and X.J. Li	3799
Research on Multi-Information Fusion Control System of Textile Workshop Environment J.Z. Li and G.X. Cheng	3803
Performance Analysis of Existing 600MW Coal-Fired Power Plant with MEA-Based CO₂ Capture G. Xu, S.C. Li, X. Yuan, Y.P. Yang and X.N. Song	3807
A Model for Calculating the Outlet Flue Gas Temperature of FGD Absorption Tower G. Xu, Y. Tian, X. Yuan and Y.P. Yang	3812
Investigation and Analysis on Operation of Combined Wastewater Treatment Plants in Sunny and Rainy Days J.H. Jin, L.G. He and Y.H. Jiang	3817

Chapter 60: Precision Mechanics, Mechatronics

A Shot Boundary Detection Method Based on PSO-SVM L. Zhao, X.M. Sun and M.W. Zhang	3821
Image Based Positioning of the Freightcar's Running Gear Springs Q.K. Zhao, X.L. Zhang, Y. Zhang and J.P. Peng	3826
Application of Castor Oil-Based Cutting Fluids in Precision Turning H.J. Pei, Y.J. Shen, C.G. Shen and G.C. Wang	3830
Development and Application of PCBN Tools Used in High-Speed Milling 30CrMnSiA Z. Ding and H.D. Yang	3835
A MIL-STD-1553B Bus Command Optimization Algorithm Based on Load Balance J.D. Zhang, M.Y. Liu, G.Q. Shi and W.H. Pan	3839

Chapter 61: Production Technology

A New Approach to Determine Water Influx Rate for Reservoir with Bottom Water W.Z. Zhang and J.P. Wang	3843
--	------

Study of Delivery Quantity Model under the Condition of MTO Y.H. Hu and W.M. He	3847
Simultaneously Monitoring of Chromatic Dispersion and Polarization Mode Dispersion for DPSK Signal Based on RF Spectrum Analysis J. Zhao, C. Lu and X.R. Ma	3851
Performance Analysis of Application Layer FEC to Disaster Warning Distribution Based on COMPASS/Beidou R. Xue, R.X. Cui, X.R. Li and T. Zhou	3855
Research on Reliability Evaluation Based on Monte Carlo Method X.N. Li, F.Q. Wu and X.F. Sun	3859
Moving Object Detection and Tracking in outside Environments Y.D. Wang and D.Q. Li	3862
Online Fatigue and Creep Monitoring System for 2-D Axis-Symmetry Components in Power Plants H.L. Zhang, D.M. Xie, C. Nie and Y.H. Xiong	3866
Study on Stochastic Assembly Line Balancing Based on Improved Particle Swarm Optimization Algorithm H.B. Zhu, F. Yu, Y. Xi, L. Wang and J. Zhang	3870
Field Reliability and Maintenance Analysis of a Heavy Engineering Vehicle J.S. Peng, R. Jiang and J. Xu	3875
Study on Rapid Modeling of Spline Based on Pro/E Secondary Development Y. Zeng, R.L. Zhang and Y.F. Wang	3881
Research for Computer Integrated Manufacture in Complex Shape Piston of Diesel Engine Y.F. Liu, J.W. Yang, H.S. Tian and A.H. Zhu	3884
The Model and Optimization for the Discrete Operations Workshop Layout Based on Multi-Agent Theory Y.L. Wang and Y. Chen	3888
Structure Design and Test of the High Pressure Vessel for Corrosion Testing S. Cui, S.F. Wang, J.L. Zhang, H. Liu, Z.K. Li and M.X. Xia	3893
Process Optimization of Cake Oriented Screw-Pressing of <i>Jatropha curcas</i> W.X. Wu, R.C. Ma and N.H. Liao	3898
Design of Environmental Information Monitoring System Based on ZigBee CC2430 S.C. Ni and Y. Zhang	3904

Chapter 62: Fatigue and Fracture

Experiment Techniques of Mechanical Properties of Brittle Materials with Pre-Existing Cracks M.L. Wang and X. Yang	3908
Mechanisms of 3-D Internal Cracks Growth and Coalescence in PMMA M.L. Wang and X. Yang	3912

Chapter 63: HVAC

Central Air-Conditioning Duct Cleaning System Based on SRV1 L. Li and Z.Y. Yan	3916
--	------

Chapter 64: Circuits and Systems

FPGA Based Testing Method to Improve Digital IC Testability Y.S. Gong and H.Y. Li	3920
A New 3D Cubic Chaotic System and its Circuitry Implementation W. Deng, Y.F. Wang and J. Fang	3924
Comparison and Analysis on Two Improved Detecting Methods for Harmonics without PLL in Single-Phase Circuit J.X. Ding, X.F. Zhang and H.J. Zhang	3928
A Design of Micro Magnetic Detection and Localization System S.C. Wei, J.H. Deng and Y.H. Pan	3933
The Design of CAN/USB Embedded Adapter Y.G. Luo	3938

Design and Application of the Embedded System Based Online Monitoring SiO₄⁻² Instrument	
Z.G. Tian	3942
Offset Optimization Method of Arterial Traffic Control	
B. Lu and H.M. Niu	3946
A Design of VB-DDC Using DA-Based Systolic FIR Filter	
P. Xu, W. Xia and Z.S. He	3950
Application of PLC Pulse Command in the Step Motor Position Control	
L. Wei	3954
Quantization of Mesoscopic Quartz Piezoelectric Crystal Equivalent Circuit	
Z.Y. Yan, P. Zhao and S.L. Xu	3958
Study on the Critical Heat Flux Mechanism Model under the Condition of Low Velocity and Subcooled Boiling in the Narrow Channel	
M. Zhang, T. Zhou, P. Liu, K. Ran, C. Sheng and Y.P. Huang	3962
Based on Taguchi Analysis for High Power LED Liquid-Cooling System Design	
S.S. Hung, H.C. Chang and J.W. Huang	3967
Parameterized Computing System on Structure of Lift Scaffolding Attached to the Wall	
B. Li and B. Zhu	3972
Inspection and Test System of the Lighting Inspection Machine	
W.H. He, G.X. Liu, P.J. Chang, R. Liu and Z.J. Huang	3978
Remote Control Based on Android Phone	
X.D. Mao, D.H. Wang, T. Zhang and K.M. Huang	3982
Dynamic Response of Cantilever FGM Cylindrical Shell	
Y.X. Hao, W. Zhang, L. Yang and J.H. Wang	3986
Switched Controller Design for DC /DC Converter	
X. Wang, Y.J. Tang and J.L. Wang	3994
Design and Implementation of Real-Time CNC Interpolation ASIC for Pythagorean Hodograph Curve Based on FPGA	
J.J. Guo, W. Tang and X.L. Wang	3998
Performance Analysis of CAES Power Plant Energy Storage Sub-System for Wind Power	
W.Y. Liu, G. Xu and Y.P. Yang	4002

Chapter 65: Antennas

A Novel Arc-Shaped Printed Antenna for WLAN Applications	
J. Pei, A.G. Wang and W. Leng	4006
A Novel Slot-Ring Coupling Antenna with Switchable Polarization	
S. Gao, A.G. Wang, J. Pei and G.H. Zhao	4011
RETRACTED: A Case for A-Star Search	
D.F. Chen and B.Q. Han	4016
Inset-Fed Patch Antenna for LTE Application	
X. Zhao	4020
The Design and Implementation of Antenna Pattern Simulation System	
Z.W. Zhang, A.G. Ji, X.C. Wang and L. Xie	4024
Design of GPRS Based on MCU STC12C5A60S2	
G.L. Long	4028

Chapter 66: Optoelectronics

Resolution Improvement with Two-Dimensional Digital Focusing Method in Optical Coherence Tomography	
Y. Lei, R. Huang, X.D. Chen, Y. Wang and D.Y. Yu	4032
Multi-Wavelength Fiber Laser Based on a High Finesse Fiber Ring Filter and Multimode FBG	
H.G. Pan, X.F. Yang, J.L. Yu, Z.R. Tong and F.F. Wei	4036
Improved Method of Target Detection on Optoelectronic Hybrid Joint Transform Correlator in Cluttered Scenes	
Y.X. Qian, L.B. Yang, X.W. Cheng and X.T. Hong	4041

Key Factors in Fiber Point Diffraction Interference Technology for Measuring Surface J. Li and L.F. Chen	4045
A New Kind of Polarization Controller Design Y.F. Yin and Y.N. Liao	4049
Simultaneous Measurement of Temperature and Refractive Index Using a Fiber Bragg Grating and a Multimode Fiber Z.R. Tong, Y. Guo, X.F. Yang and Y. Cao	4053
A Stable and Switchable Narrow Linewidth Fiber Laser X.F. Yang, X.L. Fang, Z.R. Tong and Y. Cao	4057
Experimental Study on Etched Micro-Structured Fiber Bragg Grating Y.F. Yang, Y. Cao, Z.R. Tong and X.F. Yang	4061
Research on High-Precision Intelligent PWM Optically Controlled LED Road Illumination Drive Power Supply Y.W. Wang and S. Wu	4065
An Experimental Investigation on Controllable Slow Light Based on a New-Type Multi-Stage Delay SBS Structure H.Q. Cheng, L. Yang, L.Y. Chen, Y. Cao, Z.R. Tong and X.F. Yang	4069
Design and Experimental Test of Fiber Bragg Grating Rotate Speed Sensor Elastomer L. Wei, T.T. Hu and Y.G. Tan	4073
A Lightweight Dynamic Binarization Method for 2D Barcode Scanning Terminal J.J. Li, K.L. Zhang, G. Wei and B.F. Wu	4079
Study on Light Intensity Enhancement of ZnO/ITO/P-GaN Light-Emitting Diodes H.C. Chang, Y.H. Chen, S.S. Hung, C.C. Lai, C.C. Hung and I.N. Chang	4084
A Silicon Capacitive Seismic Accelerometer with a Simple Fabrication Process Q. He and D.H. Qiao	4088
The Application of Particle Swarm Optimization Algorithm in the Production Scheduling Modeling of ERP-Based J.J. Zheng, H.J. Liu and S.Y. Zeng	4092
Application of Direct Actuated Digital Servo Valve in Electrohydraulic Static Loading System F.M. Zhu and S. Li	4098
Optical Path Analysis of the Optical Fiber Bundle Hydrogen Sensor L.J. Cui, H.C. Shang, G. Zhang and Y.P. Chen	4102
A Novel Optical Sheet with Microstructures Design in the LED Direct-Lit Backlight Module C.F. Chen, L.M. Lu and Y.F. Jhou	4106
Research on the Light-Sensitive Character and the Morphologies of WO₃ Synthesized Using the Hydrothermal Method	4110
The Test Method Research of Electric Light Sources Parameters and Detection of Uncertainty Evaluation X.L. Wang, X.Y. Qian and Z. Dai	4114
Analysis and Design of IGBT Driving and Protection Circuit for Photovoltaic Grid-Connected Inverter S.Q. Gong, M. Tang and L.Y. Cui	4118
Two-Colour Mid-Infrared Optical Absorption under Electric Field in an InAs/GaSb-Based Type II and Broken-Gap Quantum Well X.F. Wei, J.F. Ruan, C.G. Xie, H. Yuan and J. Song	4122

Chapter 67: Biomedical Electronics

Chiral Separation of Non-Natural Carboxylic Amino Acid by Capillary Electrophoresis with CD Derivations as Chiral Selective Material B.H. Li and B.J. Tian	4126
--	------

Chapter 68: Sensors

Comparative Analysis of Two Land Surface Temperature Retrieval Algorithms Based on Multi-Source Remote Sensing Data W.W. Zheng and Y.N. Zeng	4130
Design of Multi-Channel Temperature Acquisition System Based on MSP430 L.L. Dong and G. Qin	4135

Research on the Array Type Infrared Radiation Thermometer X.Y. Jiang, S. Zhong and Z. Wei	4139
Research on Sensor Data Fusion Technology in Vehicle Weighing-In-Motion L. Li and L.X. Zhai	4143
Design of Three Voltage Level Test System for Auto Sensor Based on LabVIEW J.M. Tian, L. Zhang, C.L. Gong and L.H. Ji	4147
Application of WNN in Ring Ball Gratings Torque Sensor's Signal Demodulation Y.F. Wu, H.L. Yu, X.D. Li and Z.P. Kang	4152
Research on Natural Gas Pipeline Leak Detection Based on Airborne Laser Remote Sensing B. Xu, X. Lv, H.C. Wang, D.J. Tan and Y.J. Chen	4158
Analysis on the Influence of Random Vibration on MEMS Gyro Precision and Error Compensation X.Y. Hao, M. Li, X.F. Han and H.G. Jia	4164
Effect of Laser Beam on Double Wire Pulsed MIG Welding Process L.Y. Lou, H. Li, X.Y. Wang, W. Wang and Y. Gao	4169
The Simulation Research of New Induction Heating Power G. Zhao and C. Shan	4174
Study on Linearity Correction Scheme for VCO Tuning Characteristics J.W. Leng and X.H. Qi	4178
Experimental Research of Strain and Temperature Based on EFPI Sensor X.F. Yang, C.Y. Zhang and Z.R. Tong	4185
The SMS Backhaul of WSN Monitor System in Landslide Z.P. Cui and S. Yan	4189
A Note on Stability and Instance Optimality in Compressed Sensing S. Zhang and P.X. Ye	4194
A Compact on-Line Particle Counter Sensor for Hydraulic Oil Contamination Detection Y.S. Wang, M.J. Zhang and D.F. Liu	4198
Influence of Carbon Dioxide on the Characteristics of a Limiting Current Oxygen Sensor Z. Zhou, J.W. Jian and X. Wu	4202
Fiber-Optic Sensing of Coal Mine Gas Based on Fabry - Perot Interferometer M.R. Zhou, D. Wu and H.Q. Zhang	4206
The Application of Temperature Sensor TMP36 and the Assembly Algorithm of Multidigit Decimal Resolving Y.J. Ren, X.H. Ding and X.Y. Yang	4210
High-Performance Readout Circuit for Monolithic Integrated Pressure Sensor X.H. Zhou, S.L. Xu and Z.Y. Zhang	4216
Calibration Principle and Implementation Method Based on MMA7455L M. Song, Y. Zhang, X.L. Wu and X. Ding	4220
Multi-Sensor Combination Intelligent Vehicle Control System's Design Based on HCS12X Y.L. Han, B.L. Wang and X.L. Wen	4224
BISS: A Built-In SEU Sensor for Soft Error Mitigation Z.F. Huang and M.X. Yi	4228
Error Factors Analysis of Large Range Flexible Joints Six-Axis Force Sensor Z.P. Shi, C.T. Ding, Y.Z. Zhao and T.S. Zhao	4232
Vibration Analysis of a Micromachined Modal Gyroscope Based on Elastic Body Z. Wang, X.S. Wu, X.J. Hu, W.Y. Chen and W.P. Zhang	4236

Chapter 69: Manufacture and Operation of Electrical and Electronic Systems

Feasibility Analysis of Tripping in Small Current Grounding System Y.S. Shu, L.L. Ma and P.J. Yu	4240
The EMF-PF Fill Height Measuring Technique Using Multi-Electrodes in Parallel Connection L.Q. He and K.X. Wei	4245
A Parallelizable Adaptive Method to Update Close-Loop Digital Predistorter for RF Power Amplifiers J.Z. Li, W. Xia, Z.S. He, D.J. Zeng and X.W. Kong	4252

Generalized Predictive Control for Rotary Inverted Pendulum System Q. Gao and Y. Li	4256
Research on Control Strategy of Grid-Side Inverter in Direct Drive Wind Power System X.N. Wu and S. Wang	4261
Design and Implement of Three-Phase Inverter System with Double Mode of Grid-Connection and Stand-Alone H. Wang and Z.L. Yang	4265
Study and Analysis a Powerful Debug Method for Smart Mobile Systems J.G. Yuan and S. Gu	4270
The Simulation of Digital PI Controller Based on VHDL X.F. Rong	4274
Optimization of Reactive Power in BenXi Steel Distribution Feeders Based on RARW-GA R.S. Li, A.L. Fan and D.L. Guan	4278
Approach of Image Edge Detection Based on Wavelet Scale Multiplication G.S. Xu	4282
A Long Sequence Length, Reduced Complexity MASH 1-1-1 DDSM for Fractional-N Frequency Synthesizer B. Li, X.N. Fan and W.W. Zhu	4286