

Table of Contents

Preface, Committees and Overview

Chapter 1: Frontiers in Manufacturing Science

Application of KingView and PLC in Tailing Cementation-Filling Automatic Control System W.S. Xu, A.X. Li and C.X. Liu	3
Advanced Low-Carbon Technologies for Steel Manufacturing Process W.Q. Sun, J.J. Cai, D.W. Zhang and D.J. Guan	8
Study on the Credit Classification of Practicing Qualification Personnel in Construction Market Based on PNN H. Sun, Z.Q. Fan and Y. Zhou	13
Kohonen Neural Network – Based Performance Improvements for Wafer Photolithography Process with CONWIP Control Strategy B.H. Zhou	18
Research on Control Performance of Micro-Milling System Based on Linear Motor Z.Y. Cao and H. Li	23
Research on Deep Processing of Primary Products Based on DEA and Self-Adaptive Filter Forecasting L. Li, B. Wang and L. Chen	28
A Mathematical Modeling of Heat Transfer in Continuous Casting Slab Q. Zhang, L.D. Yang and H. Wen	33
On Construction Mode for Training Electromechanical Professional Driven by Projects Y.D. Sun, W.Q. Xu, B.Q. Zhou and W.Y. Tao	38
Research on the Global Forming Process of Straight-Drawing Pole in Automobile Y.D. Sun, W.Q. Xu, B.Q. Zhou and F. Zhu	42
Lifetime Distribution Model of Port Facilities with Pitting Corrosion of Stochastic Processes B.H. Zhou and Z.Q. Zhai	46
Wireless Control Model Based on Rapid Prototyping Equipments Y.N. Guo and Y.T. Li	51
Risk Analysis of the Production Line Type Design Based on the Lean Production A.J. Cai and S. Yang	56
Research on the Integration of CAD and MIS Systems Based on Flexible Manufacturing Model J. Tian, S.Y. Zhong and L.F. Han	61
Evaluation of Urban Public Transportation System Based on Support Vector Machine H. Sun, Z.J. Zhang, Y. Zhou and Z.Q. Fan	66
A Trading Practice Based Trust Evaluation Model in Dynamic Virtual Enterprise J.H. Jiang, B.Y. Sheng and M.Z. Yang	71
Experiment and Simulation of Influence of Welding Parameters on Temperature in Friction Stir Welding L. Wang and J.J. Zhu	76
Development of Monitoring and Control System for Laser Remanufacturing X.D. Hu, F.Z. Kong and J.H. Yao	81
The Evaluation Method for Product Form Attractiveness Based on Miryoku Engineering W. Dong	86
Product Color Intelligent Planning Method Based on Multi-Emotion M. Ding, W. Sun and X. Zhang	91
Supply Chain Coordination under Asymmetric Disruptive Demand C.B. Zhu	96
Production Process Management for the Composite Component Manufacturing Workshop Z.Y. Mei, Y.J. Liu and M. Younus	101

Research on Bionic Hive Modularization Technology of Disassembly W.L. Wang and J.T. Zhang	106
Research on Double-Face Online Dynamic Balance Technology of Machine Tool Spindle S.H. Zhang, L.S. Wu and X.B. Teng	112
Numerical Simulation of Chilled Cast Iron Camshaft in Sand Casting Process B.F. He and Z.Q. Zhao	117
3-D Flow Field Simulation for Extruding Part of Mixing-Extruding Machine C.S. Wang, S.H. Li, P. Fu and C.L. Lü	122
Effect of Meshing Clearance to VIC Internal Mixer C.S. Wang, S.H. Li, H.G. Bian and Z.Z. Xue	127
FEM Modeling and Mechanics Analysis of Flexible Roll Forming Y. Yan and Q. Li	132
Research on Product Development Resource Allocation Modeling Based on Hierarchical Colored Petri Net Q.W. Deng and L.P. Yang	138
Study on the Drawing and Trimming Springback Characteristics of Cylinder Shallow Shell of Tailor Welded Blanks Y.F. Jiang, Z.F. Li, Z.Z. Tang and L. Fang	143
Research on the Forming Limit Diagram Based on Laser Shock Forming Y.F. Jiang, Z.Z. Tang, Z.F. Li and L. Fang	148
Research on the Converse Design of Aluminum Alloy Connecting-Rod Slab Based on Casting-Forging Coordinates Process Y.F. Jiang, Y. He and Y.L. Lai	153
Temperature Variation of Concrete-Steel Deck Plate under Solar Radiation B. Chen, J. Zheng and J.P. Wang	158
Evaluation on Environmental Corrosion Damage of Steel Domes B. Chen, J.F. Wei and J. Zheng	163
Protection of Earthquake-Disturbed Workshop Building by Using Piezoelectric Smart Devices J. Zheng, B. Chen and J.F. Wei	168
Analysis on the Design and Application of Prestressed Concrete Supporting Piles D.M. Yu, Z.Q. Liu and F.G. Chen	173
Optimal Design of Mechanism Parameters for Rolling-Cut Shear Q. Qin, Z.B. Zhao, D.P. Wu and Y. Zang	177
Research of Manufacturing System Based on Network Technology X.P. Liu and D.M. Zhao	182
3-D Mechanical Analysis of Magnetic- Pneumatic Microfabrication Stage X.P. Liu and D.M. Zhao	186
The Simulations of Movements in the Process of Machining the Lathe Spindle H.X. Liu	190
Three-Level Supply Chain Coordination with Revenue-Sharing Contract and Rebate-Penalty Contract Q.H. Pang	195
Structural Dynamic Analysis and Optimization of Precision NC Machine Tool Bed Based on the Unit Structure F.Q. Wang, Z.Y. Rui and Q. Wu	200
Evaluation of Green Technology Innovation Capacity of Automobile Manufacture Industry Y.R. Wang and Q.L. Xu	206
Optimize the Structure of Air Sparger for Stirred Bioreactor Z.W. Zhou, B.Y. Song, Y.K. Wang, Z.T. Li and Y. Wang	213
Effect of Different Crushing Methods on Gradation and Particle Shape of Recycled Aggregate Y.D. Xu and R.P. Xu	218
Process Planning and Tool Design of Magnetorehological Jet Finishing H.B. Cheng, T. Wang, Y.P. Feng and Y. Yam	222
Proposition of Framework for Quality Working Environment Based on Sustainable Design in Small Manufacturing Enterprises J. Rahim and M.N.A. Rahman	227

Residual Stress in Powder Metallurgy Green Compact R. Zhou, L.H. Zhang and Y.H. Liu	232
Application of Computer Integrated Process System in the Pulp and Paper Industry Z.J. Xiao	237
Distributed Control System for Papermaking Production Line J.B. Huang, D. Ning and Z.J. Xiao	242
Research on Embedded Software Testing Data Generation System Y.F. Yin, B. Liu and H.Y. Ni	247
The Development of Nozzle Micro-Hole Abrasive Flow Machining Equipment J.Y. Li, W.N. Liu, L.F. Yang, B. Liu, L. Zhao and Z. Li	251
Mechanism of Parameters Variation about Electronic Components Subjected to High Impact Loads B. Li, Y. Zhang and H.X. Zhang	256
Research on the Influencing Factors of Dynamic Characteristics of Electronic Injector H.Q. Liu, S.F. Zhao and J.J. Wang	260
Permutation Algorithm with Simulated Annealing for Laser Antimissile Problem Y. Sun, M.R. Zhang, W.W. Liu, H. Li and L.N. Zhang	265
Hybrid Mean Particle Swarm Optimization Algorithm for Permutation Flow Shop Scheduling Problem Y.Q. Zhou, Z.X. Huang, Y.L. Du and Q.Q. Gong	270
Research on Dynamic Characteristic Testing Method for Large-Scale Rolling Mill Servo Cylinder Y.Y. Liang, F.X. Huang, K.S. Chen, X.Y. Chen, S.G. Fu and Z.W. Huang	275
Research on NC Technology for High Speed Milling Z.Y. Zhao, L.X. Huang, Y.S. Xiao and B. Liu	280
The Shell Molding Process Study for Mass Production of Single-Cylinder Diesel Engine Crankshaft J. Liu	284
The Kinetics Model Study of Al-Fe <i>In Situ</i> Composites and Applications J. Liu	289
Design of Middle-Small Enterprise Technology Service Information System H.H. Zhao, D.J. Zhou, Y.M. Xu and J.L. Liu	294
Performance Study of Storage-Type Domestic Electrical Water-Heaters with Wedged Inlet: Unsteady Water Discharge Rate Z.J. Zhang, S.W. Zhang and C.H. Xu	299
Acquiring PLC Data Based on OPC Techniques and Ethernet S.H. Zheng, L.X. Fan, J.Q. Liu and X.P. Chen	304
Effects of Multi-Step Welding Chamber on Extrusion Product Quality and Die Strength H. Chen, G.Q. Zhao, C.S. Zhang and D.S. Wen	311
Application of Laser Metal Deposition for Fabrication of Titanium Matrix Wear-Resistant Coating and its Wearing Performance L.Y. Qin, G. Yang, W. Wang, M. Tong and X.L. Wang	316
Study and Implement on Key Technologies of Ship-Welding Mobile Robot L. Hua, L.L. Lv, J.P. Gu and Y.J. Qiang	321
Novel High Precision Digital Curvilinear Displacement Sensor L. Hua, J.P. Gu, Y.J. Qiang and L.L. Lv	326
Job Shop-Scheduling Problems- Single Process R.A. Mahdavinjad	330
Effect of Lubricant in Output Parameters of Milling R.A. Mahdavinjad	335
Construction of the Optimal Milling Parameters Database for Radar Key Parts F. Xu, J.J. Zhu, D.Q. Peng, X.J. Zhang and D.W. Zuo	340
Numeration Simulation of Solid-Liquid Two-Phase Flow in Centrifugal Sewerage Pump J.H. Liu and M.Y. Zhu	345
Research on VSR Process for Large Machine Tool Body C.M. Li and F.K. Cui	349
Development of Autonomous Bucket Wheel Reclaimer with Laser Vision J.B. Chen, Z.P. Yuan and Z.B. Gong	355

The Experimental Research of the Multi-Layered Spaced Protective Structure with Stiffeners Penetrated by Projectile Z.G. Zhang, B. Gao and Z.H. Liu	360
The Energy Absorption of Structural Target with Stiffeners Impacted by Projectile Z.G. Zhang, B. Gao and Z.H. Liu	367
Impact of the Foamed Aluminum-Filled Structures Z.G. Zhang, Y.Z. Sun and B. Gao	372
Research on Maximum Profit of the Supply Chain under E-Commerce Environment J.H. Zhang, Z.J. Gao and C. Sun	378
Optimization Strategy of Bidirectional Join Enumeration in Multi-Core CPUS Y.H. Chen, W.L. Zuo and F.L. He	383
Research on Services Oriented Group Decision Support System Integrated Platform-Multiple Attribute Group Services Based System X.Q. Yu and W. Zhang	388
Temperature Variation History Prediction of Fully-Closed Adhesive Joint in Curing Process C. Chen, Z.G. Lu and J.P. Lin	394
Simulation Study of Keyhole Formation during Laser Deep Penetration Welding R.P. Wang and Y.P. Lei	400
A Method for Maintenance Scheduling in Manufacturing Systems Based on TPM and MFOP J. Long and W.A. Jiang	404
Experimental Study on Friction-Induced Vibration of Water-Lubricated Rubber Stern Bearing at Low Speed E.G. Peng, L.L. Zheng, Y.Z. Tian and F. Lan	409
The Research on Path Planning of Wall Climbing Robot Based on Ant Colony Algorithm and Minimum Gravity Consumption Algorithm J. Liu, J. Xiao and X.Z. Sha	414
Finite Element Analysis of the Effects of Tool-Chip Friction on Cutting Temperature Field S.Y. Liu and J.Y. Guo	425
Development of Tool Electrode High Frequency Vibration Assisted Micro-Hole EDM Machine for Industry Environment M.G. Xu, X.K. Luo and Y. Li	430
Design on Thin Walled Ring Rolling Machine with Fixed Driven Rollers Z.J. Zuo, X. Tan and Y. Li	436
Design Method of Strip Would Die for Metal Extrusion Process Based on Fatigue Theory X.S. Chen, Q. Wang, D.M. Cai and X.K. Zhang	441
Study on Experiments of Nano-Abrasive Polishing in Hydrodynamic Suspension Liquid J.M. Zhan, J.H. Mao and Q.T. Liu	446
Effect of Laser Shock Processing on Sulfide Stress Corrosion Cracking of X70 Pipeline Steel Welded Joint J.F. Pei, J.N. Liu and W.Y. He	451
Research and Application of Intelligent Humanoid Robot T. Li and B. Hu	456
Portability of WSN Sensor Driver Using Abstraction Layer and FSM S. Yin, L.L. Huang, H. Zhao, Y. Wang and P. Xia	461
Research on Speed Monitoring and early Warning Method for Vehicles Based on RFID Sensor Tag J. Yuan, K. Yan, Z.X. Qiu and J.X. Shao	466
Semantic-Based Optimal Deployment of Manufacturing Resources for Multi-Disciplinary Collaborative Manufacturing C.Y. Chu and G.Q. Shen	471
CAD/CAM/CAE for the Parallel Indexing Cam Mechanisms Z.H. Ge, W. Huang, W.H. Liu and Z.H. Zhai	475
Flow Behavior Characteristic for Injection Process Using Nano-Yttria Stabilized Zirconia for Micro Metal Injection Molding (μMIM) F.M. Foudzi, N. Muhamad, A.B. Sulong and H. Zakaria	480
Research on Manufacturing Process Traceability in Tire Enterprise Y.C. Gao, D.C. Yang and W.W. Ning	485

Higher Eigenmodes Vibration Cantilever's Resonance Frequency and Cantilever Spring Constant	
Q.X. Huang and Q. Hou	489
Looper Lifter Movement Simulation for Continuous Hot Rolling	
S.B. Zheng, Y. Long, L.R. Gao, L.W. Duan and L.S. Zhang	494
A Study of Selective Assembly for Product with Multi Mating Features	
S.L. Tang, J.F. Yu, Y. Li and H.C. Yang	499
Diagnosing National Culture Elements for Successful TQM Implementation: Case Study in Libya	
M.A. Shokshok, M.N.A. Rahman, A.W. Dzuraidah and A.R. Ismail	506
Design of Rolling Tool System for Fin Forming Machine	
Y.T. Wang	512
Influence of Ice Covering on Stiffness of Tower Components	
Y.C. Dou, D.L. Zhu, B. Zhang and L.B. Li	517
Green Manufacturing: A Lever-Wedge Self-Locking Force Amplifying Clamping Device Driven by Linear Motor	
Q. Song, G.J. Si, D.N. Su and K.M. Zhong	522
Virtual Maintenance Process Modeling and Simulation	
D. Zhou, M.H. Wang, L. Huo and C. Lv	527
Human Factors Assessment Based on the Technology of Human Motion Capturing	
D. Zhou, Z.Q. Guo, M.H. Wang and C. Lv	532
Modeling of Shape Memory Alloy Based on Hysteretic Nonlinear Theory	
Z.W. Zhu, J. Wang and J. Xu	537
Automotive Modeling Design of Semiotics Decipher	
Y. Zhu, X. Liu, J. Jing and Y.D. Xie	542
Design of a New Non-Contact Torque Sensor for Rotating Stepped Shaft by Monitoring Magnetic Field	
G. Shi, N. Wang and C.D. Cho	547
Production Planning Considering Transfer Lot Size	
Z.C. Zhang, K.S. Hu, H.Y. Huang and S. Li	552
An Implementation of Intelligent CNC Machine Tools	
C.S. Wang, T. Wieggers and J.S.M. Vergeest	557
Dynamic Method for Portfolio Choice of Manufacturing Processes Based on Copulas	
Z.G. Wang	562
Integrated Teaching Reform of Hydraulic Structure Major Using CDIO	
Y.H. Wang, W.L. Wu, Y.Q. Wang and C. Xu	567
Study on Isolation Monitoring of High-Voltage Battery System	
C.H. Piao and T. Cong	571
Lock-in Infrared Thermography for the Non-Destructive Testing of Fatigue Specimen with Defects	
Y.G. Zhao, X.L. Guo and M.F. Ren	576
Residual Stress Simulation of Stud Welding in a Rectangular Steel Tubular Surface	
L. Wang, Q.L. Zhang and L. Chen	581
Suppression of Maglev Track-Induced Self-Excited Vibration Using an Adaptive Cancellation Algorithm	
D.F. Zhou, J. Li and C.H. Hansen	586
Analysis of Cause for China's Food Safety Problem Based on Profit Distribution Structure in Supply Chain	
G.J. Tong and L. Qin	591
Research on Constructing an Approximate Topological Graph and its Path Planning	
K. Jia, J. Hong, Y.L. Li and Z.B. Li	596
Production of Bacterial Cellulose by <i>Gluconacetobacter xylinus</i> Using Taguchi Methods	
J.H. Lin, J.C. Kuo, Y.J. Lin, T.Y. Chen and W.P. Sung	605
Assessment of Damage from Organic Protective Coating Treatments to Historic Stone Buildings and Sculptures	
Q. Liu and B.J. Zhang	610
Research on Green Shipbuilding and Concurrent Green Ship Design	
J. Li, H. Yi and Y.F. Zhang	614

Study on the Intelligent Fault Diagnostic Flat for the Shipboard Equipment Based on the Virtual Instrument and Wavelet Neural Network	619
M.H. Zhang, D.H. Wang, S.J. Lv, J. Song and Y. Huang	
Product Integrated Innovation Based on Functional Hybridization	624
T. Zhang, F. Liu and P. Jiang	
CIM-Based System Integration and Multi-Agent Modeling for Life-Cycle Smart Grids Assets Management System	630
R. Sun	
Simulation Analysis on Dynamic Performance of Drilling Shaft Mechanism in PCB CNC Drilling Machine	637
Y.S. Xiao, F.M. Song and Z.Y. Zhao	
Dynamic-Performance Research of Placement Machine	641
Y.S. Xiao, F.M. Song and Q. Fang	
State Feedback Control to Track a Moving Object for a Non-Holonomic Mobile Robot	646
Y.C. Hui, Y.Q. Peng and X. Ye	
Optimal Design and Simulation on the Major Linkage Parameters of a Harvesting Manipulator	651
Y.J. Cui, J.N. Hua and P. Shi	
Kinematics Analysis and Simulation of a 4-DOF Manipulator	656
Y.J. Cui and J.N. Hua	
Remote Path Tracing Research of Educational Mobile Robot	661
Y.H. Ge, W.F. Li, W. Song and W.T. Dong	
Fault Simulation Research of Hydraulic SOV Based on AMESim	666
J.B. Yang, Q.H. Yang and G.H. Liu	
Fabrication Technology of Involute Micro Gear Based on Two-Photon of Femtosecond Laser	670
S.F. Sun	
Simulation on Observe Compensation Control for Electric Disturbances in CNC Servo System	675
G.Y. Zhao and Y.G. Zhao	
Study of the On-Line Monitoring on the Effect of Laser Shock Processing for Residual Stress by the Properties of Acoustic Wave	680
Y. Li and H.Y. Qin	
Buffet Effect Simulation Model on Demand Chain Management	688
X.Y. Wang and J. Sun	
Two Dynamic Propagation Problems of Symmetrical Mode III Crack	693
N.C. Lü, Y.H. Cheng and Y.T. Wang	
Hardware-in-Loop Simulation on Hydrostatic Journal Support Pose	697
G.H. Han, Y.P. Wang, Y.C. Zhong, J.P. Shao, X.D. Yu and Y.Q. Zhang	
Calibration of Line Structured Light Sensor for Robotic Inspection System	702
X. Wu, A.G. Li, D.F. Wu and Z. Ma	
Improving the Accuracy of Robot-Based Measuring System by Calibrating Laser-Stripe Scanner Model and Hand-to-Scanner Transformation	707
A.G. Li, X. Wu, D.F. Wu and W.B. Wang	
Identification of the Dynamic Properties of Linear Joints Using Substructure Synthesis Method	712
L. Li, L.G. Cai, T.N. Guo and Z.F. Liu	
Identification of Frequency Response Function of Shaking Table with a New Estimator	719
J.Q. Chen and P. Tan	
High Speed Noncontact Displacement Measuring System Using FPGA	724
X.G. Li, G.Y. Li and S. Zhao	
EMR System for Orthodontics Based on Flex and SSH	728
W.J. Zhang, Y. Liu, A.M. Yang and Y. Jiang	
Modeling and Simulation of the GA_LSSVM-Based Soft Measurement for Torque	733
Z. Chen and A.Y. Huang	
Force Closure Analysis for an Underactuated Robot Gripper	738
Q.M. Li, Q.H. Qin and S.W. Zhang	

Optimal Design for Heavy Forging Robot Grippers Q.M. Li, Q.H. Qin, S.W. Zhang and H. Deng	743
Design of Milling Cutter for Machining Helical Curved Surfaces J.J. Yang, Q. Wu, J. Gong and Z.Y. Rui	748
The Modeling and Simulation of Sheet Metal Flexible Manufacturing System Based on eM-Plant Z.L. Chen, S.T. Wang, D.M. Wu and J.N. Wang	754
Profile Error Synthetic Analysis of One-Side Milling of the Inner Engaged Globoidal Cam L. Jin, Z. Kuang, Z.H. Hu, L. Tang and J.L. Yuan	758
Reconfigurable Intelligent Instrument Based on FPGA C.J. Gao, S. Sheng and L.L. Zhao	767
An Adaptive Location Updates and Propagation Scheme for Mobile Sinks S.Q. Ma and X.G. Qi	772
Study of Improving Precision of Nonlinear Gear System with Clearance Using Numerical Approximation N.C. Chen and P. He	777
Value Chain-Based Business Process Optimization Modeling for the Third Party Logistics Enterprise H.B. Shan, S.X. Li and W.Z. Tong	782
Tracking Compensation of a Moving Target for a Biped Robot Based on Vision Sensor Y.D. Shen, D.S. Cho, C.D. Kee and Z.Z. Li	788
Stability Analysis of Supply Chain Cooperation Contract under Asymmetric Information X. Ma	794
Analysis on Meaning and Current Research of Holonic Manufacturing Execution Systems H.T. Tang and Y.J. Wu	799
Critical Success Factors of Re-Engineering in the Production Process: SMEs Sector of Bangladesh M. Shariful Alam, S.U. Rajib and M.S. Arefin	804
Evaluation and Decision Making on Advanced Manufacturing Modes Based on Object-Based Knowledge Mesh and User Satisfaction C.G. Xue and H.W. Cao	809
Research on Multi-Mode Driver Fatigue Detection System Z.Y. Liu and M.M. Wang	814
Application of Physics of Failure Method in Reliability Design of Electronic Products J. Shao, C.H. Zeng and Y.H. Li	819
Modeling of Servo 4-Stage Gear Transmission System and Influence Analysis on Resonance Frequency Z. Yang, J.Z. Shang, Z.R. Luo, F.D. Gao and C. Cheng	824
Study on Reliability Test Methods of Machining Center X.P. Zhang, N.H. Yu, J.Z. Shang and Z. Wang	829
Reliability Test Design for Five-Axis Machining Center X.P. Zhang, N.H. Yu, J.Z. Shang and Z. Wang	834
Design and Implementation of WSN Visualized Management System Y. Jiang, Y.C. Liang, L.L. He, Y.H. Cao and C.Q. Hu	839
WSN Networking Protocol Based on Dynamic Changing Channel Y. Jiang, Y.C. Liang, L.L. He, Y.H. Cao and C.Q. Hu	844
An Abnormal IP Traffic Detection Model Based on Scale-Free Network J. Li and Y. Niu	849
Optical Fiber Temperature Measurement Technique Based on Fluorescence Mechanism Y.T. Wang, X.X. Bo and J. Zhao	854
Study on System of 3D Virtual NC Machining Environment F.X. Kong, J.M. Zuo, H.Y. Hao and B.R. Zhou	859
Hand-Eye Calibration of Machine Vision System for Manipulator D.Y. Ge, X.F. Yao and W.J. Xiang	864
Yield Management with SD Model Based on Customer Lifetime Value in Semiconductor Industry G.H. Han and M. Dong	869

Machine Tool Selection Based on AHP and ACO T.G. Li, C.L. Fu, P. Guan, T.B. Yu and W.S. Wang	874
Cutting Force Induced Error Prediction and Compensation Based on Feed Servo Motor Current B.S. Wang and H.Y. Hao	879
Modeling and Kinematics Simulation of HT-CVT Based on Virtual Prototype Technology Q.G. Zhang, H. Li and J. Yao	884
An Agent-Based Framework for STEP-NC Controllers of CNC Machine Tools R.L. Liu and C.R. Zhang	889
New Exploration of the Nature of Packet Matensite Y.X. Ma, L. Wang, S.K. Yang, Y.J. Liu and Y.H. Tan	894
The Model and Simulation of the Potato Harvester F. Zhang, Z.M. Qiu, P.J. Mao, R.L. Xu and W. Jun	900
Grouping Rank Product Meta-Analysis Method for Identifying Differentially Expressed Genes in Microarray Experiments Y. Tian, G.X. Liu and C.G. Zhou	905
Research on Logistics Activity Cost Control Procedures Based on ABC in Manufacturing Enterprises L.Y. Zhou and Q. Zhang	910
Manufacturing Method of PM Components with Integrated Information Storage B.A. Behrens, N. Vahed, E. Gastan and F. Lange	915
Three-Dimensional Finite Element Modeling and Front Crash Process Analysis of Car Bodywork L.X. Guo, J. Gong and J.L. Li	920
Numerical Simulation of MEMS Stirling Cooler W. Song, X.Z. Wang, L. Yue and Z.G. Zhang	924
Development of Numerical Method for Prediction of Maneuvering Performance of Marine Vehicle L. Yue, D.K. Feng, Z.G. Zhang, J.G. Lu and S. Zhang	929
Synchronization Motion of Four Supports Hydraulic Platform with Unbalanced Loading and Uncertainties X. Ling and X.D. Wang	935
Research of System of Trailer Axle's Function Test W.B. Wu, T.S. Hong, X.X. Chen, S.T. Yang and K.C. Chen	941
Study of Air-Fuel Ratio Analyzer Based on CAN Bus W.B. Wu, T.S. Hong, J.X. Guo, X.M. Liu, X.M. Guo and S.H. Wu	946
Research of Analysis System for Citrus LAI Spectrum Data W.B. Wu, T.S. Hong, J.X. Guo, D.D. Li and Z.L. Mai	951
An Open CNC System Based on Motion Controller W.D. Yang and J. Chang	956
Study on Supplier Selecting System Oriented Networked Manufacturing Z.X. Lui, T.B. Yu, J.Q. Zhang and W.S. Wang	960
Finite Element Analysis and Structure Optimum of Rectangular Cylinder G.B. Pang, F. Teng, C.F. Yuan, D.M. Li and F.Y. Wang	965
An Investigation Hydrodynamic Fluid Pressure at Wedge-Shaped Gap between Grinding Wheel and Workpiece C.H. Li, J.Y. Li and Y.L. Hou	970
Modeling and Predicting Roughness of the Abrasive Jet Finishing with Grinding Wheel as Restraint Y.L. Hou, C.H. Li and Y.C. Ding	975
The Intelligent Question Band Management System of Engineering Graphics for Multiobject S.X. Du, M. Xue, B. Luo and C.A. Lin	980
Theoretical and Numerical Modal Analysis for Nuclear Coolant Pump and its Scaled Rotor System C.M. Gong, H. Shen and Z.Q. Yao	985
Numerical Simulation Investigation on the Temperature Field Distribution and Variations in Hot Stamping Process L. Zhang, G.Q. Zhao and H.P. Li	992

Implementation and Analysis of TML Based on Different Transport Protocols Z.G. Bin, Y. Cheng and W.M. Wang	997
Double Inlet Cyclone Separators for Natural Gas Dehydration Y. Yang and Z.L. Li	1002
Research on Orthogonal Polarized Dual-Frequency Laser Beat Frequency Detection G.L. Sun, G. Jiao, B. Liu and W.X. Li	1007
Quality Prediction of Laser Cladding Based on Evolutionary Neural Network Z.M. Xu, H.B. Wu and Z.H. Hong	1012
Finite Element Modes Analysis of Involute Planetary Gear in RV Reducer W.D. He and Y.H. Zhang	1018
Dynamical Formulation and Analysis of Double Crank Ring-Plate-Type Pin-Cycloidal Gear Planetary Drive Y.H. Zhang, W.D. He and X.S. Yang	1022
Shrinkage Analysis of Injection-Compression Molding for Transparent Plastic Panel by 3D Simulation Y.C. Li, Y.S. Zhang and D.Q. Li	1029
Research on Active Vibration Isolation System for Precision Instrument Based on Four Piezoelectric Stack Actuators Q.S. Cao and Y.Y. Hong	1034
Transfer Model of Transverse Asymmetry Characteristic in Standers during the Steady Hot Rolling Stage X.Q. Zhao, Y.L. Liu and S. Huang	1039
Application of Embedded System in the Train Information Management System Y.F. Li, Y.S. Ma and S.A. Feng	1044

Chapter 2: Frontiers in Design Science

The Inner Equilibrium Analysis and Counterweight Design of Engine X. Yuan, T. Wang and W.X. Fan	1051
Sliding Mode Variable Structure Control for Electric Power Steering System P.L. Shi, G.L. Xu, S.F. Tang and J.J. Tang	1056
Mechanical Stability Analysis of Subsea Wellhead for Deepwater Production to Earthquake Load W.S. Xiao, X.J. Lin and H.Y. Wang	1061
EDM with USM Combination Process of Sintered NdFeB Permanent Magnet L. Li, L.L. Qi and Z.W. Niu	1066
Research on Reed-Solomon Code in Complementary Code Keying Modulation Technology X. Su, P. Bai, Y.P. Feng and Y.Y. Wu	1070
Method of Multi-Attribute Decision Making for Interval-Valued Intuitionistic Fuzzy Sets Based on Mentality Function L.Z. Shen, G.B. Li and W.B. Liu	1075
Design of the Hydraulic Press Assembling the Coupling Based on the Virtual Prototype Technology X.H. Wu and X.J. Lin	1080
Machining Error Analysis and its Compensation Using Fuzzy Inference in Crankshaft Non-Circular Grinding N.Y. Shen, M.L. Fang, J. Li and Y.Y. He	1084
PMSM Servo System Control Based on Disturbance Observer H.W. Chai, J.Y. Zhou, W.P. Zhang and Z.G. Li	1090
A Linear-Encoder-Based Displacement Sensing Approach for Cost-Sensitive Applications Q.P. Li and P. Fang	1095
Hydraulic Model Experimental Study on Coherent Jet Flow Field K. Liu, L.M. Bao, R.Z. Han and S.T. Qiu	1099
Fault Diagnosis to Mid-Size Excavator Hydraulic System Based on Fault Tree Analysis C. Ma, K.S. Wang and J.H. Sun	1110
Information Entropy of Rolling Bearing Friction Torque as Data Series X.T. Xia, L. Chen and F.N. Meng	1115

Dynamic Prediction of Rolling Bearing Friction Torque Using Lyapunov Exponent Method X.T. Xia and T.M. Lv	1120
Uncertainty of Rolling Bearing Friction Torque as Data Series Using Grey Bootstrap Method X.T. Xia, L. Chen and F.N. Meng	1125
Feature Selection Method for Hydraulic System Faults Diagnosis Based on GA-PLS S. Li, P.L. Zhang and B. Li	1130
Multidisciplinary Robust Optimization Design of Multi-Functional Open-Air Hydraulic Drill Y.X. Luo, H.J. Wen and H.S. Li	1135
Design of Guide Rail in a Multi-Functional Open-Air Hydraulic Drill Y.X. Luo, H.J. Wen and H.S. Li	1141
Energy-Saving Design for Hydraulic Cylinder Reciprocating Seal Based on QFD Q.Q. Zhang and F.Y. Zhang	1146
Study on the Micro-Replication Precision of Shark Skin Y.H. Luo and D.Y. Zhang	1151
Research of Strength of Rotor System about Containing Blade Crackle Based on Nonlinear Dynamics X.B. Liu and K.Q. Li	1158
Innovation and Practice of Numerical Simulation Teaching Platform of <i>Engineering Test Courses</i> T.R. Liu and A.L. Gong	1163
Grating Nanomeasurement and Implementation Technology Based on TMS320F28335 C.Y. Xu	1168
Research on the Sensitivity Damage Identification Method Based on Closed-Loop Feedback Control X.M. Wu	1173
Numerical Investigations on the Mechanical Properties of Dry End Milling C.M. Zhang, W.X. Li and Y.F. Li	1180
Numerical Simulation of Root Effect of Prestressed Anchor Cable Group Z.C. Wang	1185
Application of Stereographic Projection in the Search of Key Block of Surrounding Rock Mass for Underground Powerhouse Z.C. Wang	1189
Analysis of Singular Integral of Fast Multipole-BEM Applied in Three-Dimensional Elastic Contact Problem Z.F. Ren, F.X. Meng and H.L. Gui	1193
Thermo-Mechanical Analysis of Torpedo Car J.Y. Zhao, Y. Zang, Q. Qin and D.P. Wu	1198
Inversion of Initial <i>In Situ</i> Stress Field by the Method of Multivariate Analysis and Engineering Application X.L. Yue, Y. Li and H.P. Wang	1203
The Simulation of Heat Pipe Evaporator in Concentration Solar Cell Z.L. Wang, H. Zhang and H.T. Zhang	1207
A Three-Dimensional Hydrodynamic Lubrication Model for Chemical-Mechanical Polishing Considering Pad Roughness F.Y. Lou	1213
Electromagnetic Interference's Effect on the Performance of Electro-Hydraulic Control System K. Zhang, W.L. Li, J. Li and Z.P. You	1218
Mechanics Analysis on Leveling Tool of Offshore Jacket Platform H.X. Gong, L. Peng, P.R. Jiang and L.Q. Wang	1223
The Presence Research on 6-DOF Tank Driving Simulator Q.H. Cao	1229
The Study of Forklift's Overall Design System Based on Design Knowledge Reuse S.F. Jiang, J.Q. Li, J.M. Huang and Y. Kong	1234
Modeling and Performance Analysis of Combined-Cycle Based Ship Power Plant H. Zeng, X.L. Zhao and J.D. Zhang	1240

Design of Debris Shield of Powered Support with 6.2M Large Mining Height J. Chen, S.X. Hao and X. Fan	1246
A New Numerical Approach for Adhesive Contacts of Real Engineering Surfaces Y.Q. Zheng and S.M. Wang	1251
Simulation Analysis on Transmission Function of Parallel Indexing Cam Mechanism Based on Adams H.D. Zhao, Y.K. Cao and P.Q. Guo	1258
Study on Green Innovative Design Based on Function Analysis F.Y. Zhang, H.C. Zhang, H. Zheng and Q.Q. Zhang	1263
Vibration Performance Analysis of FR Vibration Damper Using Finite Elements Method X.Y. Luo, Y.S. Zhang and Y.P. Zheng	1268
A Multibody System Model for Meshing Gears L. Lei	1273
Robot Indoor Navigation Method Based on 2D Barcode Landmark G.Y. Lin and X. Chen	1279
Analysis of the Flow and Regeneration Characteristics of Screen Mesh and Parallel Wire Regenerators Y.F. Guo, X. Chen and H. Zhang	1285
Trajectory Generation of Spray Painting Robot Using Point Cloud Slicing M.Z. Li, Z.P. Lu, C.F. Sha and L.Q. Huang	1290
Innovation Design of Hand Tools Based on User Experience L.Q. Huang, M.Z. Li and C.Q. He	1295
Finite Element Simulation of Cyclic Channel Die Compression with Route A F.J. Shi, T. Xu, S. Lu and L.G. Wang	1300
Design & Fabrication of a MEMS Piezoresistive Accelerometer with Beam-Film Combined Structure Y. Liu, Y.L. Zhao and L. Sun	1305
An Integrated Variant Design Method of Dimension and Dimensional Tolerance F.Y. Liu, L.Z. Xiao and B. Kuang	1310
A Research of Stereo Vision Positioning under Vibration Y. Chen, W.L. Cai, X.J. Zou, D.F. Xu and T.H. Liu	1315
Influencing Factors Analysis on Regulating Effect of the Pintle Controlled Thrust Regulating Mechanism L.T. Zhang, H.Q. Cheng, L.M. Song and J.S. Yan	1320
Finite Element Analysis and the Topology Optimization of a Bracket-Cable X. Ma and J.W. Zhang	1325
Design and Implementation of RF Front-End for GPS Receiver Utilizing Discrete Components J.C. Ding, L. Zhao, S.H. Gao, L.X. Xia and J.L. Zhang	1330
Greedy Algorithm Based Multiple Target Searching for Mobile Robots J.H. Guo and K.L. Su	1335
Develop a Vision Based Auto-Recharging System for Mobile Robots K.L. Su, Y.C. Lin, Y.L. Liao and J.H. Guo	1340
Logarithmic Spiral Bevel Gear Tooth Contact Inspection Q. Li, W. He, H.B. Yan and H.X. Zhang	1345
Model Analysis of Micro-Feed Tool Holder Based on Finite Element Simulation J. Mei, Y. Zhen, D.F. Chen and W.F. Li	1350
Design and Integrated Simulation of the Electro-Hydraulic Servo System Based on AMESim and Matlab X. Xu, Z.X. Li and H.L. Qin	1355
Study of Combination Character Based ANN and one Dimensional Optimization in Axial-Flow Water Turbine L.Y. Wang, D.H. Wei and X.L. Xu	1360
Groundwater Level Forecasting Based on Support Vector Machine W.G. Zhao, H. Wang and Z.J. Wang	1365
Structure Analysis of UPC Type 3-DoF Rotational Spatial Compliant Parallel Manipulator D.C. Zhu, Y.H. Chen and L. Meng	1370

Structure Synthesis of 3-RRS Type Spatial Compliant Parallel Manipulator D.C. Zhu, L. Meng and T. Jiang	1375
Modeling and Analysis on Servo Adjustment of Bidirectional Variable Displacement Pump in Hydraulic Drive System of the Cutter Head in a Shield Tunneling Machine B.Z. Xia, P.F. Feng and H.Y. Yang	1380
Modeling and Simulation of the Dynamic Characteristics of a Hydraulic Power Limiting Valve with Two-Spring B.Z. Xia, P.F. Feng and H.Y. Yang	1387
An Improved Algorithm for Tooth Contact Analysis for Hypoid Gear Based on Axial Section Programming W. Wei and L.H. Zhang	1392
Design and Implementation of an Active Power Filter J.Y. Huang, C. Gao, H.W. Yuan and H. Zou	1397
Fuzzy Neural Network Based Coal-Rock Interface Recognition J.J. Shi, L.W. Zhou, K.W. Kong and Y. Wang	1402
A Method to Improve Human-Computer Interaction for Shape Design, Based on Empirical Data T. Wieggers, C.S. Wang and J.S.M. Vergeest	1407
Design of Remote Controller Using Code Matching and Frequency Hopping Technology G.S. Zheng and C.L. Li	1412
Analytical Design for Parallel Cascade Control of Multiple Degrees of Freedom C.Q. Yin, J. Gao and H.T. Wang	1417
Research and Realization on the Voice Command Recognition System for Robot Control Based on ARM9 M.J. Gao and Z.X. Yang	1422
Dynamic Characteristics Research of Self-Swinging Control System with Valve-Controlled Cylinder Device for Liquefied Petroleum Gas Fire Water Monitor G.L. Hu and Z.G. Gao	1427
Research on the Parameters of Phononic Crystals Suitable for Automotive Noise Control Y.Y. He, B.L. Zhuang and X.X. Jin	1432
Fuzzy Integrality Design for Maglev Networked Control System with Sensor Data Dropouts Z.Z. Zhang, L.L. Zhang, L.H. She and Z.Q. Long	1437
Study on Wire Breakage in WEDM by 3D Technology Y. Xu, X.H. Guo and C. Liu	1442
A New Formal Method of Anticorrosion Design P.F. Zhao, Y. Zhang, Z.B. Li and X.Y. Yuan	1449
The Design of Screw Extrusion Mechanism Based on Melted Extrusion Modeling X.M. Cheng, G.L. Zhang, G. Zhou and Z. Cui	1455
Design and Testing of a New Metallic Solution for Toecap Component on Safety Footwear S. Costa, N. Peixinho and J.P. Mendonça	1460
Finite Element Analysis and Structural Parameters Optimization of Piezoelectric Vibration Energy Harvester A.M. Hu and M. Long	1465
Identification-Free Adaptive Separate Layer Water Injection Control Based on Expert Amendment F.S. Wang, D.L. Jia, S.J. Zhang, C.J. Liu and D.K. Xu	1470
Research and Application of Synchronous Dynamic Test and Adjustment Technology for Novel Water Injection Well D.L. Jia, C.J. Zhao, S.J. Zhang, M.X. Zhao and D.K. Xu	1476
Theoretical Study on Overlapping Mechanism in SLM Based on Interlayer-Staggered Scan Strategy X.B. Su, Y.Q. Yang and J. Liu	1482
Finite Element Analysis on the Large Deformations of Rubber Structure B. Xu, Q.S. He and S.R. Yu	1487
Optimal Control of Semi-Active Suspension Based on ADAMS and MATLAB/Simulink R.Z. Gao, Z.Q. Xu and J.J. Zhang	1492
Optimization of Fuzzy Logic Rules Based on Improved Genetic Algorithm R.Z. Gao, Z.Q. Xu and J.J. Zhang	1496

Engineering Design and Analysis for Four-Legged Steel Trellis Column J.B. Chen and H.J. Xue	1500
Intelligence Optimization Design Model of Deep Cement-Stirring Pile X.Y. Chen and H.Z. Yan	1505
Multi-Lookup Table Based Regenerative Braking Strategy of Plug-in Hybrid Electric Vehicle Q.S. Shi, X.P. Zhang and F. Chen	1509
Dynamic Characteristic Research on Thin Rim Structure for Herringbone Planetary Gear Train S.J. Ma, G. Liu and Z.H. Bu	1514
Dynamic Modeling and Numeration of Flexible Multi-Body System with Closed Loop S.Q. Liu and X.S. Wang	1519
Multi-Objective Optimization Design of the Helical Gear Transmission Based on Coalition Cooperative Game Theory R. Meng, N.G. Xie and X.J. Han	1525
Design and Implementation of Mobile Objects Tracking System Based on Wireless Sensor Network B. Wei, L. Yao and F.X. Gao	1533
Application of Dual-Mode Switching Threshold Controller to Autonomous Carrier Robot C.H. Wang, X. Zhang, L. Zhang, F. Zhang and Q.M. Zhang	1538
A Distribution Model of Electric Vehicle Charging Station Z.P. Wang, P. Liu, H.B. Han, C. Lu and T. Xin	1543
Analysis of the Leakage for Hydraulic Slide Valve Spool S.G. Fu, K.S. Chen and L.D. Fu	1549
Research on Harmony of Interior System of Railway Passenger Cars B.C. Zhang, W.M. Guo and Y.Q. Wang	1554
Analysis of Crankshaft Fatigue Strength Based on Integrated Finite Element Model X.P. Chen, R.F. Hu and S.H. Zheng	1558
A Method to Measure the Dynamic Response Time for an Electronic Fuel Injector H. Guo, Z.D. Zhang, Q.J. Li and Y.D. Sun	1563
Error Compensation Based on Differential Operators and Electro-Optical Collimation L. Hong, Y.S. Liang and M. Cong	1568
Intelligent Charger Design of Electric Bicycle Based on SCM W.C. Wang	1573
Optimization of Photovoltaic-Electrolyzer System by Direct Coupling Y.F. Liu, Q. Su, H. Zhang and C.P. Cai	1578
A New Feature Fusion Method for Handwritten Character Recognition Based on 3D Accelerometer Z.Y. He	1583
Motion Modeling and Simulation of High-Speed Unmanned Surface Vehicle J. Yue, G. Ren, X. Liang, X.W. Qi and G.T. Li	1588
Research on Conceptual Design Process for All-in-one Computer F.Y. Li	1593
Green Design Based on the Concept of Ecological Holism Y. Zhan	1598
Hybrid Calculation Method of the Sound Transmission Loss of the Engine Air Cleaner T. Feng, J. Wang, N. Li and W.M. Xiao	1603
Cooling Simulation of External Gas-Assisted Injection Molding S.F. Jiang, J.B. Zhang, G.Z. Chai, J.Q. Li and M.Y. Su	1607
A New Framework for the Accurate FE Model of Bone Tissue Based on CT Images X.H. Huang, G.Q. Zhao, W.G. Liu and P.L. Liu	1612
The Correction Research of Camera Installation Error for Vision-Guide Mobile Robot P. Wang, Y. Zhang, S.C. Kang and J.L. Xin	1617
Image Tracking and Analysis Algorithm by Independent Component Analysis C.Y. Yu, Y.Y. Chang, Y.C. Ouyang, S.C. Tai and T.W. Yu	1622
Micro-Measurement of the Virus-Infected Region Using NIS-Elements System H.Y. Yang, X. Zhuang, L.L. Li and Z.W. Qin	1628

Discussion on the Vacuum Pre-Cooling Rate of Vegetables K.C. Yu, H.S. Chang and S.M. Lai	1633
A Fault-Tolerant Router Algorithm Based on Hamiltonian Cycle in Wireless Sensor Network W.P. Jing, Y.Q. Liu and Q. Wu	1641
Cross-Coupled Synchronized Control for Bi-Cylinder Servo System Y.Q. Liu, Q. Wu, W.P. Jing and L.K. Zhu	1646
Simulation of Wireless Acoustic Sensor Network Localization System Using True Time C. Chen, P. Song, D.M. Pei and K.J. Li	1651
Study of Electrochemical Finishing with High-Frequency Group Pulse L. Yin, W.M. Zhang, Y. Yan and Z.J. Zhang	1656
Study on the Drive/Brake Features of Vehicle with Electric Control and Hydrostatic Drive Q.Y. Zhang and S.J. Guo	1661
Numerical Calculation Analysis of Structural Parameters of Water-Lubricated Thrust Bearing L.L. Zheng and Z.X. Wu	1666
Research on Switched Reluctance Generator for Off-Grid Variable-Speed Wind Energy Applications J.F. Mao, G.Q. Wu, A.H. Wu, X.D. Zhang, Y. Cao and K. Yang	1672
Nonlinear Behavior in Current Mode Research of Z-Source DC/DC Converter K. Guo, Y. Chen, L. Zhou and L. Dai	1677
Bifurcation Analysis for Sailing Stability of Autonomous Underwater Vehicle S.S. Shao, J. Sun and K. Liu	1682
Impacting Analysis on the Coupler and Buffer of a Subway Vehicle for the Shunting Operations S.H. Zhang, P.M. Zhang and K. Jia	1687
Kinematics and Strength Analysis on Variable Propeller Pitch Mechanism of a Wind Turbine Generators S.H. Zhang, K. Jia and P.M. Zhang	1693
A New Spurts Controllable Electrospinning Collecting Device Designed Basing on Advanced Motion Control Y.Y. Liu, Q.W. Li, Q.X. Hu, C.J. Jing and Q.G. Wang	1698
Modeling and Simulation for Dual-Drive Transmission System of TBM Based on Bond Graph C. Lin, X.H. Su, D.T. Qin and S.S. Yu	1703
Design of Injection Mould for Cars' Interiors Based on CAD/CAE Technology Y.J. Li	1708
Study on Realtime Information Integrating System Orienting Enterprise Y.J. Li	1713
Analysis of Three-Phase Power Transformer Inrush Current Magnetic Field H.K. Li	1719
Comparison on Simulation and Experiment of Supply Air through Metro Vehicle Air Conditioning Duct H.G. Tao, H.X. Chen, J.L. Xie and J.Z. Jiang	1724
Analytical Solution to Excited Waveform of Bias Control on Electro-Hydraulic Vibration Exciter Y. Ren, J. Ruan and J.Y. Yi	1729
Stiffness Matching and Ride Comfort Optimization of Heavy Vehicle's Suspension Based on ADAMS H. Pang, H.Y. Li, Z.D. Fang and J.F. Wang	1734
Simplified Evacuation Planning Model on Naval Ship C. Liu and C.H. Qiu	1739
Application and Prospect of Pneumatic Servo Manipulator in Medical (Surgical) G.Y. Zhu, J. Luo, Y.B. Yuan and S.N. Ba	1745
Research on Control System of Pump and Valve Parallel Connection J. Luo, C.G. Sun, P. Zhang, S. Liu and S.T. Wu	1751
Numerical Model of Organic Light Emitting Device with Different Thickness Y.M. Xu, C. Liu and Z.P. Yang	1758

Study on Banded Structure in Low Carbon Vessel Plate for Nuclear Power Plant F. Xue, Z.F. Luo, W.W. Yu, Z.X. Wang and L. Zhang	1763
The Research on Pure Water Hydraulic External Gear Pump D.X. Zhao, R.B. Yuan and J. Luo	1767
Devise of the RCF Test Rig for Ceramic Bearing Ball by Design Methodology J.L. Zhou, G.Q. Wu, X.Y. Chen, W.N. Zhu, Y.S. Ren, E.G. Gao, J.C. Chen and W.M. Zuo	1773
The Operation Control Technology of Wind Generating Set G.Q. Wu, K. Yang, J.F. Mao, Y.M. Zhang and J.L. Zhou	1777
Simulation of Vector Control Strategy of PMSM Based on MATLAB G.Q. Wu, Z.J. Chen, J.F. Mao, Y.M. Zhang, X.D. Zhang, K. Yang, J.L. Zhou, Y. Cao and W.N. Zhu	1782
Numerical Simulation of High Velocity Impact with SPH Frictionless Contact Algorithm Z.C. Zhang, H.F. Qiang and W.R. Gao	1787
Design of Status Monitor System for the Locomotive Bearings Based on WSN F. Shen, H.B. Lou, K. Wang and Z. Wang	1792
The Research on the Driver Steering Behavior under Emergency X.M. Chen, Z.H. Wei, L. Gao and X. Wang	1796
Constructing a Class of Four-Dimensional Correlative and Switchable Hyperchaotic Systems F. Yang, D. Li and H.Q. Tu	1802
Fault Signature Analysis Based on Transient Current for Induction Motors F. Lv, H. Sun, W.X. Du and S. Li	1807
Characteristic Analysis of Plasma Arc Adjusted by a Magnetic Field J. Sun, W.J. Xu and C.Y. Wang	1812
An Evolutionary Lagrange Method for Mechanical Design Y.C. Lin, Y.C. Lin, K.S. Huang and K.L. Su	1817
Rigid-Flexible Coupling Dynamics Analysis of Clock Mechanism L. Sui, G.C. Shi, P. Song and W. Song	1823
Topological Optimization of Frame of High Speed Hydraulic Press Based on Generalized Finite Element Modules Z.D. Duan and J.J. Wu	1828
Gapping Factor Analysis of Heavy Hydraulic Press with Whole Pre-Tightening Assembled Frame Z.D. Duan and J.J. Wu	1833
Numerical Simulation of Atmospheric Pressure Plasma Jet Using Lattice Boltzmann Method Y.Z. Sun and Y.B. Dang	1838
Optimal Kinematic Design of a 2-DOF Planar Parallel Manipulator X.R. Zhu, H.P. Shen and W. Zhu	1843
Inverse Dynamics Analysis of a 2-DOF Planar Parallel Manipulator X.R. Zhu, H.P. Shen, W. Zhu and L. Cai	1848
Global Radiation for Solar Architecture Design of Taiwan W.S. Ou, K.T. Huang and C.C. Liao	1853
An Analysis of Cultural Factors in High-Speed Train Design - Taking Virgin Pendolino High-Speed Train as an Example X.L. Liu	1862
Robust Reliability Design for Networked Control Systems Based on State Observers Z.H. Huo, Y. Zheng and C. Xu	1867
Risk Study on Subway Construction Based on Reliability Theory P. Zhao and F.T. Hao	1872
Analysis on Cogging Torque of Permanent Magnet Synchronous Motor for NC Machine Tool Servo-System S.B. Yu, H. Dong, X. Feng and J. Yuan	1878
Study on Modeling of Growth Conceptual Design P.G. Li, X.Y. Feng and Y.Q. Song	1883
A Novel Deign Method of Laser Diode Power Supply W. Cui, D.R. Chen, Y.B. Yue, L. Chen and X.G. Li	1889

Development of Automotive Electronics HIL Simulation Experimental Platform J. Lian, Y.F. Zhou, T. Ma and X.Y. Shen	1893
Mechanical Analysis and Study on Structural Parameter of Partially Earth-Anchored Cable-Stayed Bridge Part I: Mechanical Analysis L.W. Zhang, R.C. Xiao and R.J. Xia	1898
Mechanical Analysis and Study on Structural Parameter of Partially Earth-Anchored Cable-Stayed Bridge Part II: Parametric Study L.W. Zhang, R.C. Xiao and R.J. Xia	1906
Optimization Design of Diffusers for Supersonic Separators C. Wen, X.W. Cao, B. Yan and J. Zhang	1913
Mechanism Analysis of Automobile Brake Groan Based on Seven Degrees of Freedom Model X.J. Meng and Z. Song	1918
Numerical Investigation of the Influence of Friction Coefficient on Brake Groan X.J. Meng	1923
Design and Simulation of Single-Phase Photovoltaic (pv) Inverter Circuit T. Xin, H.L. Du and F. Lv	1928
The Thermal Influence of Green Roofs on Air Temperature in Taipei City C.Y. Sun	1933
Research on Modeling Design of Mobile Computer Y. Liu, F.H. Song and F.J. Ma	1938
Steady-State Thermal Analysis and Temperature Control of High-Speed Permanent Magnet Synchronous Motorized Spindle Z.P. Wu, B.Z. Li, J.G. Yang and R.J. Feng	1943
Research on Meshing of Face Gear Drive under Errors of Alignment and Machining N. Zhao and H. Guo	1948
Establishing 3D Mandible FEA Model via Clinical CT Images W.Z. Wu, Y.D. Chen, K.P. Cui, X.J. Qin and W.S. Wang	1952
Design and Modeling of a 2-Dofs Wave Energy Converting Device for Underwater Vehicles X.M. Wang, J.Z. Shang, Z.R. Luo and J.H. Yang	1957
Research on the Half-Real Simulating Experimental System of the Automotive Power System H.B. Li and J.N. Yu	1962
Open Architecture Automotive Electronic Control System Based on Quantum Frame and SAE J1939 H.B. Li and J.N. Yu	1967
Open AMT Control System Based on Quantum Frame H.B. Li and D. Li	1972
Design and Optimization of a Piezoelectric Thrust-Measuring Platform for Attitude-Control Rocket Engines Q. Xing, J. Zhang, M. Qian, Z.Y. Jia and B.Y. Sun	1977
A Novel Fusion Method for Multi-Focus Images W.C. Wang and F.L. Chang	1982
Mechanical-Design-Oriented Knowledge-Driven Model D.F. Liu, B. Wang and H.P. Wu	1987
Improve the Free-Piston Stirling Engine Design with High Order Analysis Method C. Lin, X.Z. Wang, X. Chen and Z.G. Zhang	1991
The Numerical Simulation of 2D Sloshing Tank S.Q. Gao, D.K. Feng, J. Hu, Z.G. Zhang and G. Xiang	1996
Numerical Study of Cavitation on Hydrofoils J. Hu, X.Z. Wang, M.Y. Liu, Z.G. Zhang and Q. Zhou	2001
Influence of Porous Media Property on Stirling Engine Performance F.J. Jiang, X.G. Wu, Z.G. Zhang and C. Lin	2006
Design and Simulation for a Carton Packaging Robot L. Zhang, X.D. Hu and Y.K. Xu	2011
Study on the Method of Humanized Design M. Yang and Q.F. Bo	2016

Research on Guarantee Equipment for Setting Load of Hydraulic Supports X. Zhang, J.W. Zhang, L.R. Wan and M. Zang	2021
A Method Research of Intention Expression Based on Design State M.J. Yu, S.H. Yu and C.D. Lu	2026
Model Test Study on a Single Diagonal-Span Arch Bridge with Curved Beam Q. Wang, L. Shi and Z. Zhang	2031
Electronic Document Management System Oriented Collaborative Design J.M. Ding, T.R. Zhang, S. Wang and W.S. Wang	2036
Evaluating the Effectiveness of Applying Phenolic Resin as Thermal Barrier in Buildings during Summer and Winter T.Y. Chen, W.P. Sung, M.H. Shih and Y.K. Zhao	2040
Condition Monitoring and Life Prediction of Rolling Guide Based on Hybrid Intelligence H.L. Gao, X.H. Shi, L.C. Feng and L.P. Xu	2045
Design of a Gas Sensor for Hydrazines Based on Photo-Ionization Principle J. Liu, Q.L. Tan, C.Y. Xue and J.J. Xiong	2050
Design, Preparation and Application of Dual-Color HgCdTe Infrared Sensor Q.L. Tan, C.Y. Xue, W.D. Zhang, J.J. Xiong and J. Liu	2055
Early Fire Detection of Large Space Combining Thresholding with Edge Detection Techniques G.L. Hu and X. Jiang	2060
Finite Element Analysis of Different Flexure Springs X. Chen, Y. Liu and H. Zhang	2065
Fuzzy Adaptive Variable Structure Active Attitude Control of Flexible Spacecraft F.Y. Qu, L.K. Zhu and W.L. Song	2070
Research on Multi-Disciplinary Behavior Coupling Model in IC Engine X.D. Dai, Z.S. Zhang, X.H. Meng, Z.N. Zhang and Y.B. Xie	2075
Scheme Selection of Product Energy-Saving Design Based on Data Envelopment Analysis R.L. Dou and T. Li	2080
An Extension of Apriori Algorithm to Discover Individualized Treatment Optimization of Breast Cancer Q. Fan, C.J. Zhu, L. Yin, X.L. Xu, F. Rong, J.Y. Xiao and B.H. Wang	2085
Extension of Traditional Frequency and Research on Time-Frequency Distribution S.L. Liu, X.M. Wang, H. Wang and H.F. Zhao	2089
Research of Fault Feature Extraction Based on High Order Cyclic Statistics for Reciprocating Compressor Gas Valves S.L. Liu, Y.F. Tang, J.C. Liu and Y.H. Liu	2094

Chapter 3: Frontiers in Mechanics and Materials

The Study of Products Design & Developement Using Virtual Clay Modeling System L. Chen, K.Q. Wang and R.P. Xu	2101
Study on Energy Spectrum Analysion of Three Kinds of Traits of Haematitum N.Y. Xiong, Y. Jiang, Y.Y. Wang, J.H. Zhou and C.L. Wei	2106
Study on Determination of the Content of Fe^{2+}, Fe^{3+} in Medicine Haematitum with Different Characters N.Y. Xiong, L.W. Kang, X.M. Wang, J.H. Zhou and C.L. Wei	2111
Research on Path-Planning of Manipulator Based on Multi-Agent Reinforcement Learning L. Tong	2116
Treatment of Steel Rolling Oily Wastewater: Performance of a CTAB Modified Resin Fixed Column S.J. Ma, H.W. Jia, F.W. Li, M.L. Fu and X.J. Wu	2121
Effect of Different Cooling Speed and Rare Earth La on the Microstructures and Phase Constitution of Al-Fe Alloy G.F. Mi, C.F. Dong and D.W. Zhao	2126
Analyzing the Modality of Two-Dimensional Photonic Crystal Fiber Optical Micro-Resonators by Equivalent Refractive Index Mode F. Wang, C.Y. Ren, D.L. Ren, B.S. Liu and R.X. Han	2131

Synthesis and Characterization of Nano-Calcium Titanate-Based Coated Aluminum Oxide and its Application in Water Analysis of Cr(III) and Cr(VI) Concentration D. Zhang	2136
Preparation and Characterization of Nano-Strontium Titanate Based on Glass Fiber Filter and its Application in Adsorption of Heavy Metals D. Zhang	2140
Formation of the Cast Iron Coatings Plasma-Sprayed at Different Substrate Temperatures Y.Z. Xing, C.P. Jiang, H. Chen and J.M. Hao	2144
Thermal Expansion Coefficient of Ni Base Alloy Composite Coating Containing Spheroidal Ceramic Grains X.Q. Liu, X.H. Ni, S.Q. Zhang and W.H. He	2148
Research on Fatigue Test of LZ20Mn2 Axle Pipe Steel H.L. Dong, Z.G. Huang, Q.H. Yuan and J. Fan	2152
Technique of Heating Process of Stainless Steel F.M. Quan, W.Q. Sun, L. Dai, J.J. Cai and Y.J. Zuo	2157
Dynamic Scheduling Method for Steelmaking-Continuous Casting D.F. He, A.J. Xu, G. Yu and N.Y. Tian	2162
Wear and Breakage Features of Multi-Coated Tools in Turning Hardened Steel Z.G. Hou, J. Zhao, L.Q. Xu and Z. Guo	2168
Study on the Synthesis of Lithium Titanate Compound as Anode Material for Lithium Ion Battery Y.L. Ruan and B.W. Cheng	2172
Technology Optimization on Preparation of Silicon Dioxide from Rice Husk F. Gao, Y.Y. Liu, Y.X. Ge, H.Y. Sun and X. Zhang	2176
Effect of Carbon Nanotubes on Friction and Wear Properties of Glass Fiber/Epoxy Composites Y.K. Wang, Z.W. Xu and L. Chen	2181
Weighted Cost Rate-Based Heuristic Scheduling Method for Semiconductor Furnaces Z.Q. Lu and B.H. Zhou	2186
Characterization of Polyvinyl Alcohol-Polyaniline Blend Films W.X. Zhang	2191
Preparation and Characterization of Polyacrylonitrile-Polyaniline Blend Nanofibers W. Pan, X.W. He and Y. Chen	2195
Preparation of Ag-Polyacrylamide Nanocomposites by Ultraviolet Irradiation Technique W. Pan and Y. Chen	2199
The Development of High Strength Hull Steel Plate FH40 X.H. Gao, L.X. Du, C.L. Qiu and Y.D. Yang	2203
Study on Thin Extended Octagonal Ring Elastomer Q.H. Cao	2208
Thermal Analysis of Concentrated Photovoltaic System H.T. Zhang, Z.L. Wang and H. Zhang	2213
Strength Analysis of Damaged Composite Laminates Repaired by Scarf Bonding Method Based on Three Dimensional Model F. Liu	2219
Experimental Research on Heat Transfer Characteristics of Tube Bundles of Different Materials under Vacuum Conditions S. Cheng, F.Z. Sun and M. Gao	2224
The Constrained Stress-Induced ε Reverse Martensitic Transformation Characteristic of Fe-Mn-Si Alloy Embedded in Cement Matrix L.L. Liu, C.X. Lin and C.Y. Zhou	2229
Effect of Mn Doping on the Photocatalytic Photodegradation Properties of $Zn_{1-x}Mn_xO$ Nanomaterials C.L. Men, H.Q. Li and H. Zhang	2234
Mould Design of Self-Healing Composite Gear L. Zhang, X.Y. Bu and Y.J. Gong	2239
Investigation on the Effect of Crack Length on Mechanical Properties of Functionally Graded Materials G. Chen, X.Y. Zhao and P.C. Zhai	2244

Hydration of Water Entrained Cement Paste under Saturated Condition Y.Q. Jiang and Q.F. Xia	2249
Methods to Describe Optical Polarization State in Reflective Fiber Optic Current Sensor L.H. Wang, X.F. Wu, J. Sun and Y.P. Lu	2254
Structure and Electrochemical Properties of $\text{Li}_{1-x}\text{Ni}_{0.5}\text{Mn}_{0.5}\text{O}_2$ Thin Film Using Different Raw Material by Sol-Gel Method H.X. Liang, R.X. Jiang, L. Xiao and H.X. Liu	2259
Size Dependent Strength of Fiber Eutectics and Transformation Particles Composite Ceramic X.H. Ni, T. Sun, X.Q. Liu, Q.H. Gu and X.F. Meng	2264
A Calculating Method for the Movement Contrail in the Operation of Dressing the Profile Shape of Grinding Wheel Used for Numerical Control Form Grinding Spur Cylinder Gear H.X. He and H.X. Liu	2269
Study on Stress-Strain Constitutive Relations of Longitudinal Compressing Elm Wood K.Y. Song, X.S. Liu and J. Li	2274
The Fiberboard of Hot Pressing Process Optimization and Combination Performance Characterization M.H. Guo and J.P. Hu	2278
Poly (Lactic Acid)/Wood Fibers Biodegradable Composites M.H. Guo and Y. Yuan	2283
Studies on the Dye-Uptake of Fraxinus Mandshurica Veneer with Reactive Dyes M.H. Guo, X.J. Liu and Z.Y. Li	2288
Surface Roughness Prediction in Precision Surface Grinding of Nano-Ceramic Coating Based on Improved ANFIS X.H. Guo, M.F. Liu and C.R. Zhao	2293
Solid State Synthesis and Characterization of Spintronics Material $\text{Cd}_{0.55}\text{Hg}_{0.45}\text{Te}$ H.M.N.U.H.K. Asghar, M. Asghar and M.S. Awan	2299
The Effects of Young's Modulus of Materials on the Rolling Resistance Characteristics of Ball Bearing R. Hu, Z.M. Liu and C.X. Xu	2307
Preparation and Photodegradation of Humic Acid by a Y^{3+}-Doped ZnO/TiO_2 Composite Z.P. Zhu and Y. Zhou	2312
Preparation and Friction Feature of TiAl-Based Wear-Resisting Self-Lubricating Composite H.R. Geng, M. Wang, H. Wang and H. Guo	2316
Numerical Simulation on Dynamic Cushion Properties of Spruce Wood in Three Kinds of Impact Directions W.Z. Zhong, S.C. Song, R.Z. Xie, X.C. Huang and G. Chen	2321
Effect of Different Clamping Modes on Dimples of Sheet Metal Parts in Multi-Point Stretch Forming X. Chen, M.Z. Li, Z.Y. Cai and W.Z. Fu	2326
An Adaptive Loading Mechanism Based on Logarithmic Spiral Profile Connection for Planetary Traction Drives D.S. Chen and N.F. Pan	2331
Temperature and Rate-Dependent Constitutive Relationship for Vanadium Alloy V-5Cr-5Ti and Failure Modes X.C. Huang, W.J. Hu, Y.X. Yan, R.Z. Xie, F.J. Zhang, Y.M. Chen and J. Mei	2336
Numerical Simulation on Drop Test of the Conical Shell Y.X. Yan, W.F. Xu, X.C. Huang, G. Chen and Z.M. Hao	2341
Durability of Concrete Structure Research and Development Direction L. Jiang, J.T. Yao, R. Xin and W. Li	2346
Experiment Study on the Deformation of Reinforced Concrete Slabs L. Jiang and J.T. Yao	2354
Workability Evaluation of Self Compacting Concrete L.J. Wang, X. Gu and M. Hu	2359
Development of Building Materials from Expo 2010 Shanghai L.J. Shen, Y.J. Wei and W.Z. Chen	2364
Static and Dynamic Behavior of Granite in Split Tension G. Chen, Y.C. Kuang, P. He and A.M. Xu	2368

Structure and Properties of Ag–Polyacrylamide Nanocomposites by Heat Treatment H.Q. Zhang and L.Y. Zhang	2373
PVA/MWNTs Composite Nanofibers Prepared by Electrospun H.Q. Zhang and A.M. Li	2377
Preparation and Properties of Polyvinyl Alcohol/Polyvinyl Pyrrolidone Blend Films L.J. Qu	2381
Influence of Heat Treatment for the Microstructure in GCr15 Bearing Steel F.M. Xie, Y.L. Wang, Y.Y. Xiang and Q. Zhang	2385
Erosion Wear Behavior of TiAlCrN Coating on Hard Metal Impacted by Solid Particles F.F. Wu and J.X. Deng	2390
Homogenization Analysis of Effective Mechanical Properties of Nano-Composites with Non-Linear Material Components Y.L. Zhou and D.M. Luo	2394
Experimental Study of Assembly Clamping Pressure on Performance of PEM Fuel Cells L.P. Wang, L.H. Zhang and J.P. Jiang	2399
Optimization of Channel Dimensions in the Flow-Field for PEMFC L.P. Wang, L.H. Zhang and J.P. Jiang	2404
Thermal Properties of Ester-Type Easy Cationic Dyeable Poly(ethylene Terephthalate) (ECDP) Polymers Y. Sun, G. Zheng, H.X. Yang, Y.J. Liu and X.N. Li	2409
Lattice BGK Simulation of Hydromagnetic Double-Diffusive Convection in a Rectangular Enclosure with Linearly Variable Temperature and Concentration Gradients X.M. Liu, H.J. Lu, M.Y. Ye and Y.S. Xu	2414
Synthesis and Properties of a Novel Borate Ester Surfactant Containing Nitrogen as Textile Oils X.N. Li, G. Zheng, H.X. Yang and Y. Sun	2428
A Study on the Performance of Drinking Fountain Using CO₂ Heat Pump under Different System Pressures Y.L. Wu, Y.D. Shiue, K.H. Chien and C.L. Wang	2433
Effect of Autoclaved Aggregate Structure on Strength of Concrete H.L. Ma, C. Cui and B.X. Zhang	2438
Simulation of the Effects of Boundary Energy on Microstructure Evolution in Nanocomposite Ceramic Tool Material H.M. Cheng, C.Z. Huang, H.L. Liu, B. Zou, H.T. Zhu and J. Zhao	2443
Dynamic Model of the Road Feel Generation System in Advanced Driving Simulators L.W. Zhu, Z.Y. Zhang and Z.J. Bao	2448
A Three-Phase Constitutive Model and Experimental Study for TiNiNb Shape Memory Alloys J. Wang, Z.M. Hao, P.A. Shi, S.R. Yu and W.F. Li	2453
Study on the Effect of WC-Co Macro Interface Structure on PDC Performance W.J. Fan and F. Liu	2462
Mechanism of the Effect of Interface Structure on the Thermal Stability of Polycrystalline Diamond Compact W.J. Fan and F. Liu	2467
Porous Silicon Immunosensor for Label-Free Detection of SpA T. Jiang, X.Y. Lv, F.R. Zhong, J.Q. Mo, Y.X. Tu, Z.H. Jia and F.C. Zhang	2472
Utilization of the Surplus Materials from the Processing of Bamboo Flooring by Enzyme C.D. Jin, J.W. Ye, S. Li, L. Liu and J.W. Ye	2477
Aluminum Car Wheel Molding Methods and Numerical Simulation of Forming Process Y.H. Qiao, C.Y. Zhang and J.P. Chen	2484
Texture Based Infrared Military Target Extraction Y.J. Jia, T. Gao and J.T. Zhao	2489
VOF Simulations of Gas Bubbles Motion in a Reciprocally Stirred Flow H. Liu, M.Z. Xie, H.C. Yin and D.Q. Wang	2494
Numerical Study on Impingement of a Droplet upon a Liquid Film H. Liu, M.Z. Xie, S.C. Wang and M. Jia	2499
Fabrication of TiN/Al₂O₃ Composites by a Novel Method J.F. Zhu, L. Ye, X.H. Li and F. Wang	2504

Synthesis of Ti_2AlC and Ti_3AlC_2 by Mechano-Chemical Reaction and Hot Pressing Process J.K. Liu, R.X. Yang and J.F. Zhu	2509
Top-Down Formation of GaN Nanocone Arrays for Application in Field Emission X.Z. Wang, G.H. Yu, S.G. Li and C.G. Wu	2514
The Biaxial Stress-Strain Curves of Sheet Metals H.B. Wang, M. Wan, Y. Yan and X.D. Wu	2519
Digital Image Correlation (DIC) Method for Detecting Crack Development in Construction Materials Subject to Loading W.P. Sung, M.H. Shih and Y.K. Zhao	2524
Molecular Simulation on Modification of Structure and Thermodynamic Properties of Montmorillonite W. Dai, Z.H. Shui, K. Li and P. Duan	2529
Influence of Structural Sealant on Mechanical Behavior of Hidden Frame Curtain Wall N. Wang, J.R. Ma and H.B. Liu	2534
Joining Aluminium to Red Copper by High-Frequency Induction Brazing with Argon Shielding H.T. Zhang, B. Chen, M.Z. Zhai and L. Li	2539
Design of a Flexible Bending Biomimetic Octopus Arm Unit with Embedded SMA Wires Y.K. Wang, C. Guo, J. Li and Z.L. Wang	2543
Research on the Hydrodynamics of a Horizontal Trigonal Pectoral Fin Propulsor Actuated by SMA Wires Z.L. Wang, J. Li, Y.W. Wang and Y.K. Wang	2548
Determination of Mercury Ions by Using Nano Gold Plate Electrode Based on Amino Thiol Self-Assembled Film Z. Cao, S. Long, X. Shi, J.L. Zeng, L.X. Sun and R.H. Yang	2553
Fatigue Test Research for SPR Aluminum Alloy Sheet J.H. Zhao, S.M. Wan, S.Y. Li and F. Liu	2557
Preparation of Activated Carbon from Waste Particle Board by K_2CO_3 Activation Treatment W. Yu, M.Y. Zhi and X.J. Jin	2562
Research on Fiber-Optic Strain Signal Processing Based on Demodulation Technique X.W. Du and L.R. Li	2569
Three-Dimensional Finite Element Simulation of Cylindrical Turning of Titanium Alloys Y. Su	2573
New Application of Lap Laser Welding on Stainless Steel Railway Vehicles H.X. Wang, C.S. Wang and C.Y. Shi	2578
Ca_2Si Crystal Grown Selectively by the Low Temperature Annealing X.Z. Pan, Y.Y. Yang and Q. Xie	2583
Evaluating Mechanical Properties of Cement Materials by Depth-Sensing Indentation Method X.F. Wang, Y.W. Bao, K.M. Li, Y. Qiu and X.G. Liu	2587
Effect of Curing Time on the Pore Structure of the Portland Cement Concrete W.L. Wang and P. Liu	2592
Variation for Soil Stress on CPTU Model Test Y.C. Tang and G.T. Meng	2597
Simulation of Electrolytic Cleaning for Cold Rolled Strip X.F. Jia, C.Y. Nie, X.K. Liu, Z.J. Zeng and P.F. Gao	2602
Design of Thermal Transferring of Plane Mould for Low Pressure Sheet Molding Compound J. Li and Z.X. Huang	2607
Research on the Molding Parameters for Low Pressure Sheet Molding Compounds J. Li, X.Z. Yu and K. Zhang	2612
The Force and Wear of Carbide Mill in Milling Glass Z. Wei, M.L. Gu, Y.T. Wang and T.H. Li	2617
Automatic Inspection of Typical Microstructure Defects Based on Image Processing Techniques X.H. Chen and X.J. Liu	2622

Study on the Control System of the Electro-Controlled Steering Damper Based on Magnetorheological Fluid J.G. Cao, X.H. Yang and J. Xu	2627
The Joint Measurements of Electroluminescence and Photoluminescence of PET Films under Low Temperature J.Q. Lin, C. Wang and J.H. Shi	2632
Nano Inorganic Particles to the Doping and Influence of Polyimide Electric Breakdown J.Q. Lin, J.H. Shi and C. Wang	2637
Fracture Mode of E50 Solder Notched Bars at Low Temperature W.Z. Wang, D.L. Zhang, Y.Q. Huang and X.C. Hao	2642
Fracture Test on High Strength Steel Plates with Elliptical Hole W.Z. Wang, Y.Q. Huang, R.Q. Su and X.T. Wang	2647
Dynamics Characteristic of a Linear Oscillator with Nonlinear Damped Attachment as Energy Absorber J.L. Cheng	2651
A Stress-State Related Void Coalescence Criterion and its Validation Z.T. Chen and R. Datta	2656
QFD-Based Analysis of Quality Functional Requirements of Wooden Acoustic Panels H.M. Guo, H.P. Yu and B. Zhang	2661
Galloping of Transmission Tower-Line System and Anti-Galloping Research L. Li, W. Jiang and H.J. Cao	2666
Study on Numerical Simulation of Iced Conductor Galloping for Multi-Span Power Transmission Lines L. Li, Z.Y. Cheng and Z.D. Hu	2671
Nonlinear Numerical Simulation of Iced Conductor Galloping L. Li, Z.D. Hu, Z.Y. Cheng and W. Jiang	2676
Analysis of Surface Morphology Characteristics in Mechanical Finishing and Electrochemical Mechanical Finishing H.Z. Zhen	2681
FE Simulation on Temperature Field of the Flexible Forming by Plasma Arc H.Z. Zhen	2686
Mechanism of Whisker Growth on Pure Sn Coating of Cu Leads in the High Temperature/Humidity Storage Tests J.S. Zhang and J.H. Zhang	2691
Exploration of Teaching System Reform in Modern Engineering Graphics S. Zhong	2696
Comparative Research on Stochastic Resonance of Piecewise-Linear Model and Bi-Stable Model L.Z. Wang, W.L. Zhao and B.B. Xia	2701
Multiple Performance Optimization for the Best Injection Molding Process of Ti-6Al-4V Green Compact N. Muhamad, N.H. Mohamad Nor, S. Ahmad, M.H.I. Ibrahim and M.R. Harun	2707
Predictions of Mechanical Properties of Single Crystal Copper Nanorod with Multiscale Simulation Method Y.C. Liang, X.L. Hu, J.X. Chen and H.M. Pen	2712
Application of Multivariable Grey Prediction L.L. Li, J.J. Han, M. Wu and Z.G. Li	2717
Decision-Making Based on Dempster-Shafer Evidence Theory and its Application in the Product Design L.L. Li, Z.G. Li, M. Wu and C.T. Zhao	2724
Imitation Study of Hybrid-Driven Five-Bar Mechanism Output Movement Characteristic Based on Kinematics Analysis N. Shan	2728
Cold Forging Process Analysis and Precision Progressive Die for Cam of Low-Carbon Steel D.C. Hu and L. Wang	2733
Study on Manufacturing Craft of Wood-PSt Composite D.J. Lv, Y.F. Li, C. Jiang, Y.H. Zhang and Y.X. Liu	2737
Study of Vehicle Interior Annoyance Based on Different Exhaust Configurations C. Jin, H. Zhou and Y.F. Hou	2742

Micro CO₂ Sensor Based on Li₂CO₃, Pt Li₃PO₄ Pt, Li₂TiO₃-TiO₂ Structure H.R. Wang, J.Q. Ren, G.L. Sun and D. Cen	2747
Study of Multi-Roll Stretch Forming Process Using Different Clamps H.H. Zhang, M.Z. Li, W.Z. Fu and Z.Q. Hu	2752
Axle-Equivalent Method for Concrete Bridge Deck Thin Pavement X.Q. Xu, Z.Q. Liu, G.Q. Wu and C. Zhang	2757
Spark Plasma Sintering Behavior of 93W-5.28Ni-1.32Fe-0.4Y₂O₃ Heavy Alloy Powders K. Hu, X. Li and S.G. Qu	2762
Structure Design of pin Round Punch for Stamping Stainless Steel Sheets K.S. Wang	2769
A Calibration Method for Distributed Optical Fiber Temperature Sensor L. Chen, X.L. Zhang and Y. Song	2774
Research on Forming Technology of Electron Beam Selective Melting for Ti-6Al-4V Powder H.B. Qi, D.L. Ren and M.J. Zheng	2778
ITO Transparent Conductive Films Prepared under Non-Vacuum Conditions L.N. Yang, H.B. Qi, Z.L. Ding and L. Wang	2783
Study on the Fatigue Reliability Model Based on Probability Distribution of Fatigue Life under Spectrum Loading Y. Wu and L.Y. Xie	2788
Experiment on Thin Structure Behavior of Explosion Flame Flow Field X.F. Chen, Y. Zhang, M. Chen, S.F. Ren and X.L. Song	2793
Stress Calculation of Fillet Rolled Crankshaft in Bending Fatigue Tests K. Bao, R.D. Liao and Z.X. Zuo	2798
Epoxy Specimen Fabricated by Rapid Prototyping Method for Photo-Elastic Technique C.L. Liou and H.H. Tsai	2805
Microstructures and Mechanical Properties of Si and Sb Added Mg Alloy Y. Hu, L. Rao and H. Yan	2809
The Study of Chemistry Precipitation Method Extraction Magnetic Ferric Oxide from Chromium Dregs X.Y. Li and H.W. Hu	2814
Research on Compressive Performance of Honeycomb Paperboard Q. Chen	2818
Research on Unwinding Tension System Control Based on Inverse System Theory J. Li, X.S. Mei and S.H. Liu	2822
The Stress Field of Plane Flat Lap Interface End of Orthotropic Bi-Material J.L. Li, C.X. Ren, W.T. Zhao and J. Zhao	2827
A Design in the Optimal Precision Forging Process about Transmission Shaft Flange Yoke Y. Tong	2832
The Evaluation of Ductile Fracture Criteria (DFC) of 6061-T6 Aluminum Alloy Y. Tong	2837
Research on the Properties of Milling and the Process Parameters Optimization for Aluminum-Alloy Thin-Walled Parts X.H. Jiang, B.Z. Li, J.G. Yang and H.L. Wu	2842
Numerical Analysis of Exfoliation Corroded Holed Aluminum Plates Repaired with Adhesively Bonded Composite Patches X.H. Yang, D. Zhang, L. Kuang, Y. Zhang and W.Y. Ding	2847
Study on Fatigue Crack Growth Behavior of Casing-Drilling Steel N80 T.H. Xu, Y.R. Feng, S.Y. Song and Z.H. Jin	2852
Forming Modeling of Tailor Rolled Blanks & Applied Keys in Panels J.T. Du	2857
Study on Parameters for Affecting SCI of Sheet Metal Forming J.T. Du	2862
Investigation of the Milling Performance about Titanium Alloy Based on Orthogonal Experiment K.Y. Tang, L.H. Zhou and L. Song	2867
The Characterization and Flow Behavior of 316L Stainless Steel Feedstock for Micro Metal Injection Molding (μMIM) P.L. Haw, N. Muhamad and H. Murthadha	2872

Study on Bidirectional Controllable Flexible Bending Joints Based on Elongation Artificial Muscles	2877
D.X. Geng, J. Zhao, L. Zhang and Y.W. Zhao	
Structural Design and Position and Posture Analysis of Five-Fingered Robot Hand Based on Pneumatic Flexible Joint	2883
D.X. Geng, J. Zhao, L. Zhang and Y.W. Zhao	
Synthesis of Titanium Disilicide by the “Chemical Oven” Self-Propagating Combustion Method	2888
J.G. Xu and C.C. Li	
The Straight Bevel Gear with Equal Conjugate Curvature	2892
H.R. Liu	
The Analytical Method of the Construction of the Profile of the Basic Rack for Equal Conjugate Curvature	2897
H.R. Liu	
Mechanical and Pneumatic Coupling of the Pneumatic Motor with Offset Swinging Planetary Drive of Bevel Gears	2902
H.R. Liu	
Research on the Swinging Planetary Drive and the Swinging Planetary Pneumatic Motor	2907
H.R. Liu	
Fundamental Equations of Load Deviation of the Gears in Compound Gearing	2912
H.R. Liu	
Experimental Studies on Cold Extrusion of Thin Wall Ultra-Deep Blind Hole about 7A04 Recoil Spring Tube	2918
S.K. Yang, L. Wang and Y.X. Ma	
The Effect of Splicing Shape and Interval Length on the Failure Mode of Laminated Composites under Tensile Condition	2922
G.L. Zhang, F.Y. Wang, J.L. Li, G.W. Chen and L. Chen	
Investigation on the Applicability of Single-Yoke Magnetic Testing under Applied Stress	2926
D.Y. Huang, B. Han, T.L. Hu and T. Zhang	
Deformation Characteristics of Ultra-Fine Grained Al6061 Chip in Machining by Finite Element Method	2931
C.L. Wu and B.Y. Ye	
Management of Knowledge Base of Expert System for Fault Diagnosis of Rotating Machinery	2935
Q. He and X.Q. Li	
Application of Improved Genetic Algorithm in Maintenance Decision for Turbine-Generator Unit	2940
Q. He and J.D. Zhang	
A Review of Piezoelectric Vibration Generator for Energy Harvesting	2945
Z. Yan and Q. He	
Investigation of the Dilation of Epoxy with Negative Thermal Expansion Fillers	2950
S.Y. Chang, H.H. Tsai and S.C. Wang	
Study on Polarization of the Cold-Rolled Steel Strip in the Process of Electrolytic Cleaning	2954
P.F. Gao, X.K. Liu, C.Y. Nie, X.F. Jia and L.L. Zhao	
Experimentally Investigation of Curing Shrinkage of Extra Low Dilated Epoxy by Fiber Bragg Gratings	2958
C.D. Cheng, H.H. Tsai and H.P. Feng	
Thermal Wavelength Stabilization of Fiber Bragg Gratings Using Bi-Metal Structure	2963
S.C. Wang and H.H. Tsai	
Experimental Study on Hysteresis Nonlinearity of Piezoelectric Actuator	2968
H.W. Ji and Y.Q. Wen	
Serial Communication and Temperature Monitoring of MSMA Actuator Based on DS18B20	2973
H.W. Ji and Y.Q. Wen	
Quantum Polarization Codes for Capacity-Achieving in Discrete Memoryless Quantum Channel	2978
D.Z. Huang, Z.G. Chen, X. Li and Y. Guo	

Middle – Long Electric Power Load Forecasting Based on GM(1,1) and Support Vector Machine	
X.M. Jia, G.P. Song, T. Wang and F. Kong	2983
Complex Maintenance of Aircraft Engine Structural Components Using Genetic Algorithm and Multi-Objective Optimization	
J. Cai, Y. Li, J.F. Yu and H. Tao	2988
High Velocity Compaction of 316L Stainless Powder	
J. Chen, Z.Y. Xiao, C.J. Li, S.C. Deng, T.L. Ngai and Y.Y. Li	2993
Influence of Sandwich Damping on the Loss Factor of Multi-Plies Bellows	
W. Ma, Y.C. Lu, Y.G. Liu, J.S. Li and Y.J. Xue	2998
The Experiment for the Fracture Toughness of the Compound Bioceramic and the Analysis for the Confidence Level of its Reliability	
S.L. Xu, R.H. Wang, R.Q. Li and R.P. Xu	3003
The Thermal Property of Soybean Protein–PVA Fibers	
Q.B. Yang, Y.X. Liu, L. Tian and Y.K. Dou	3011
Effect of Thermal Annealing in NH₃ Ambient on Nanoporous <i>n</i>-GaN and Subsequent Epilayer	
X.Z. Wang, G.H. Yu, S.G. Li and C.G. Wu	3016
Preparing and Study on Thermal-Conductive Epoxy Resin Nanocomposites	
H.X. Feng, G.H. Zhang, H.M. Luo, J.Q. Zhang and J.H. Qiu	3021
The Determinants of Mass Concentration of Indoor Particulate Matter in a Nursing Home	
T.J. Cheng, C.Y. Chang, P.N. Tsou, M.J. Wu and Y.S. Feng	3026
Technology of Pulse Electrochemical Polishing of Stainless Steel	
Z.Y. Zhao, G.T. Zhou, S.Z. Zhang and B.B. Xia	3031
The Synthesis of Binuclear Mono-Cyclopentadienyl Titanocene and its Using for Aqueous Homo-Polymerization of Methyl Methacrylate	
Y.J. Nie, Z.Z. Cheng, R. Lei, X.C. Yan and S.S. Lin	3036
Study on the Chloromethylation of Polyaniline	
Y.J. Nie, F.Y. Tao, Z.Z. Cheng, R. Lei and X.C. Yan	3041
Study on Modification of Phenolic Resin/Glass Fiber Composite by Polyvinyl Alcohol	
M. Yang and Y.J. Nie	3045
Measurement of Extensional Rheological Properties of HDPE by Melt Spinning Techniques	
H.H. Xu, L. Zhong and J.Z. Liang	3049
Deformation Analysis of Pavement Structures under Coexistence of Vertical and Horizontal Loads	
N.M. Zhang and X.D. Wang	3053
Theoretical Approach in Predicting Perforation of Aluminum Alloy Foam Target against Different Ogive-Nosed Projectile	
Y.G. Bao, N.M. Zhang and G.T. Yang	3060
Preparation of Silica-Based Alkaline Slurry and its Application on Chemical Mechanical Polishing of Hard Disk Substrates	
S.L. Wang, Z.X. Li, H.L. Mu, Y. Tian and L.B. Yang	3067
Polishing Mechanism and Technology of Hard Disk Substrates by Colloidal Silica Alkaline Slurry	
S.L. Wang, Z.X. Li, L.B. Yang, Y. Tian and H.L. Mu	3072
Entity Finite Element Simulation of Steel-Concrete Composite Cable-Stayed Bridge	
Y.F. Xu	3077
Application of Grillage Method in Analysis of Ramp Bridges with Box-Girder	
Y.F. Xu	3086
Experimental and Theoretical Analysis on the Load Capacity of the Membrane Structure	
Y.Y. Zhang, L. Chen and Q.L. Zhang	3092
FBG Close-Loop Dynamic Demodulation Method and System with Temperature Compensation	
J. Zhang and Q.H. Li	3096
Experimental Study on Reversibility of Magnetically Controlled Shape Memory Alloy	
Y.L. Ding, Y.Z. Cai and C.W. Lin	3100
Investigation of Tensile Behavior of Aluminum Foam Used as Sound Insulation	
L.Z. Zhao, X.L. Zhang, N. Li, M.J. Zhao and J. Zhang	3105

Modeling of Steel-Concrete Interface Fracture under Wedge Splitting Based on a Heterogeneous Assumption	
X. Chang, H.P. Chen and B. Liu	3109
The Strengthened Mechanism of X70 Pipeline Steel Welded Joints by Laser Shock Processing	
D.J. Kong and C.Z. Zhou	3114
Use ANN to Solve Function Regression Problem in Manufacturing	
Q. Fan, C.J. Zhu, B.H. Wang and J.Y. Xiao	3119

Chapter 4: Frontiers in Automation and Information

Optimization of Wireless Body Area Networks Model in Clonal Selection Quantum Genetic Algorithm	
H. Wang and L.L. Guo	3125
Determining Method of Optimization Region of Quadrilateral Meshes Based on Viewpoints	
L.J. Wu and Y.R. Zhai	3130
The Application of Virtual Samples in Face Recognition	
L.Y. Lang and Z.M. Bao	3134
Build a "Computer Network Technology" Teaching Model Based on Work Process	
X.M. Bi, C.R. Xiong and Q.S. Zheng	3138
Project Team Formation Based on Knowledge and Cooperation Degree	
X.R. Huang, S.S. Guo and L.B. Sun	3143
A Variable Parameters Cross-Coupled Control Based on Differential Evolution Optimization in Crankpin Non-Circular Grinding	
J. Li, Y.Y. He, N.Y. Shen and M.L. Fang	3148
Medical Image Retrieval by Fuzzy Set Based Geometric Relationships	
H. Liu and X.H. Xing	3154
ItemListFCIA Algorithm for Mining Closed Frequent Itemsets Based on Bit Table	
K.M. Tang, C.Y. Dai and L. Chen	3159
Structure Adjustment and Sustainable Growth in Hebei Province with the Bondage of Energy Resources and Environment	
Q.L. Wu	3164
Wear Particles Image Segmentation Method Based on Multiscale Mathematical Morphology	
G.D. Wang, P.L. Zhang, B. Li, C. Xu and A.C. Zhang	3169
Fast Kalman SLAM	
W. Zhou, C.X. Zhao and M.H. Zhang	3174
Local Adaptive Nonlinear Filter Prediction Model with a Parameter for Chaotic Time Series	
F. Fang, H.Y. Wang and Z.M. Yang	3180
A New Design of RF Tag Location and Recognition	
M. Liu, K. Zhang and W. Zhang	3185
Authenticated Session Key Distribution Protocol with Zero-Knowledge	
C.G. Xu, Y.J. Yang and B.N. Dou	3190
Multi Biometrics Fusion Identity Verification Based on Particle Swarm Optimization	
A.M. Huang and M.L. Pen	3195
GF-NSA: A Negative Selection Algorithm Based on Self Grid File	
T. Yang, H.L. Deng, W. Chen and Z. Wang	3200
A Mutual Information Based Image Measurement for Large Workpiece	
H. Zhou and J.G. Yang	3204
Wavelet Vector Machines Blind Equalization Algorithm Based on Variable Segmentation Error Function	
Y.C. Guo and Z.C. Zhang	3210
Blind Equalization Algorithm Based on Adaptive Genetic Algorithm and Wavelet Transform	
Y.C. Guo and K. Fan	3215
Classifier Fusion Based on Inner-Cluster Class Distribution	
D.Q. Han, C.Z. Han, Y. Deng and Y. Yang	3220

Research of Aviation Image Multiplication Based on the Fractal Interpolation Algorithm Q.S. Yu, Z.Y. An, T. Pan and Y.H. Gao	3225
Image Dense Matching Method Based on Wavelet Edge Detection and Region Growing L.G. Zhang, H.J. Kou and Y.C. Zhao	3230
A PSVM and Negative Binomial Model for the Patenting Evolution S. Xu and M. Wang	3235
A Novel Global Optimization Method – Genetic Pattern Search Y.D. Zhang, L.N. Wu, Y.K. Huo and S.H. Wang	3240
The Algorithm of Moving Objects Detection and Movement Templates Based on OpenCV L.Z. Zhu and X.R. Chen	3245
Research on Key Technologies of LXI Class C Instrument C. Hu, S.Y. Guan and D.W. Huang	3249
Parallel A/D Successive Data Acquisition Module Driver Design Based on VXI A24/D16 W.C. Zhu, H.Y. Gao and Z. Li	3254
An Adaptive Intrusion Tolerance Model Based on Autonomic Computing Q.T. Wu, B. Hua, R.J. Zheng and M.C. Zhang	3259
Study of Improved Multiple Discipline Feasible Strategy for Complicated System Optimization T. Long, L. Liu and H.J. Li	3264
A B-Tree Based Interval Consistency Control Method in DVE Systems W. Zhang, H.J. Zhou, Y.X. Peng and S.K. Li	3269
An Infrared Image Segmentation Algorithm Based on Spatial Correlative Information K.Y. Wang, C.T. Song and J.H. Deng	3274
Ajax Technology's Application and Research in Network Teaching Resources Library System Q.S. Zheng and X.M. Bi	3279
The Attribute Selection Method Based on PSO L.P. Zheng, H. Jiang and J.Q. Li	3284
Intelligent Control of Flocculation Process Based on Radial Basis Probabilistic Neural Network for Sewage Treatment J.W. Tian and M.J. Gao	3289
DEHCA: Load Balance Clustering Algorithm for Energy Heterogeneous WSN Based on Distance Y. Zhang, G.L. Sun and W.X. Li	3294
Integrated Solving Strategy for Cloud Computing M. Ye, J. Zhou, D.F. Xia and W.Y. Jia	3299
Maximal Frequent Item Sequences Mining of Datasets with few Attributes and Large Instances L.J. Zhou, Z. Zhang and S. Li	3304
An Object-Oriented Class Library for Scanning Path Generation in SLS/SLM Process J. Liu, Y.Q. Yang, J.B. Lu and X.B. Su	3309
Research on Laser Cleaning of Ultra Precision Machining Hard-Brittle Workpieces G.W. Kang	3314
Implementation of P2P Traffic Identification System S. Yang, Y. Du and R.H. Zhang	3318
The Simulation of Resonance Phenomenon of Super-Heavy Vibrating Screen S. Chen and N.Q. Guo	3322
Research of Automatic Extraction of Human Dimensions Based on Hybrid Programming of MATLAB and VB H.Y. Kong, F. Qin, B.F. Gu and G.L. Liu	3328
On an Internet Interface in an Embedded POS System for Internet of Things Y. Xu and H. Zhao	3333
Cooperation Research on Zero-Sum Game R. Li, N.G. Xie, R. Meng and G. Xu	3338
FPGA-Based Pulse Compression for Linear Frequency Modulated Signal X. Su, P. Bai, Y.Y. Wang and Y.P. Feng	3345
Fuzzy Biometric Identity-Based Signature in the Standard Model L.Y. Zhang, Q. Wu and Y.P. Hu	3350

SEMG Analysis Basing on AR Model and Bayes Taxonomy G.Y. Yang, S.X. Wang and Y. Chen	3355
A Network-Centric Architecture for Combat Simulation System Model J.J. Shen, H. Tian and Z.C. Gan	3360
Dynamic Iterated Algorithm for RNA Pseudoknots Prediction H.W. Li	3365
Applying Fuzzy Statistics and Clustering Analysis to Construct a Document Multi-Classification Model Y.H. Lin and H.E. Chueh	3370
Research of the Application of PBL Teaching Mode to Basic Computer Education in Colleges P. Wu, Q. Liu and H. Shi	3374
Quadtree Partition Encoding Model Based on Weighted Information Z.W. Du, Y.J. Yang, Y.X. Sun and C.J. Zhang	3378
A Video Watermark Method Based on Chaotic Encryption L.S. Peng, Y.Q. Chen and H.P. Hu	3383
Handwritten Character Recognition Research Based on Adaptive Minimum Distance Classifiers Integration Z.P. Tang, J.P. Sun and L.S. Zhong	3388
Study of Fuzzy Random Reliability Model of Tailings Dam under Earthquake Action F.Y. Wang, L.J. Dong and Z.S. Xu	3393
Phreatic Line Predicted Method-Based SVM for Stability Analysis of Tailing Dam F.Y. Wang, L.J. Dong and Z.S. Xu	3398
Forecast Model of Phreatic Surface on Tailings Dam Based on GM-GRNN Theory F.Y. Wang, Z.S. Xu and L.J. Dong	3403
Comprehensive Evaluation Model-Based Fuzzy Math of Tailings Dam Stability F.Y. Wang, Z.S. Xu and L.J. Dong	3408
Physical Insight of the Source Data of a Two-Port Acoustic Source Model B. Zhang, X.J. Liu, R.X. Song, B. Liu and T. Feng	3413
KF-MA Model for Short-Term Traffic Flow Prediction Based on SCATS Data W. Wu, H.D. Liu and W.G. Zhou	3418
Optimization Algorithm for Solving a Kind of Mathematical Problems H.W. Jiao and K. Li	3423
A Traffic Flow Forecasting Model Based on Variable Dimension Fractal Combined with Weekly Similarity H.Z. Dong, J.J. Xu and S. Ma	3427
Simulation Platform Development for Random Space Vector PWM G.Q. Chen and J.L. Kang	3433
Automatic Landmark Detecting by Flickr Photo Clustering Z. Liu	3438
Automatic Image Tagging via a Generative Probabilistic Model Z. Liu	3443
A Pruning Method Based on Conditional Misclassification W.X. Xu, J. Xu, X.M. Liu and R. Dong	3448
Grey-Fuzzy Comprehensive Judgment of the Debt Risk of Highway Project Y. Chen and J.B. Zhai	3453
A Fault Predication Algorithm Based on Artificial Immune Particle Filter Y.K. Qiao, Q. Zhang and J.S. Zhang	3459
Objective Evaluation of Seam Pucker Using Complex Wavelet and Fractal Dimension of Textural Image W.Q. Song and J. Zhang	3464
The Micro-Interaction Language in Web-Base Collabarative Learning J.F. Ren and L.N. Liu	3469
Estimation of Doppler Parameter for Formation-Flying Satellite SAR System Z.L. Zong, J.H. Hu and L.D. Zhu	3473
Relationship between Kinematics Characteristics and Link Lengths in Crank-Rocker Linkages C.Z. Wang	3478

A Roadbed Earthwork Allocation Model Based on ACO Algorithm K. Miao, X. Sun and L. Li	3483
Multi-Objective Optimization Algorithm for Instrument Integrated Development G.X. Wu and X.L. Xu	3487
Computer Aided Lung Nodule Detection on CT Data T. Jia, C.D. Wu and Y. Wei	3492
Neural-Fuzzy Control for Isolation Platform Based on Hexapod Parallel Mechanism W. Zhu, D.J. Kong and J.M. Deng	3497
Electro-Hydraulic Proportional Speed Control on Walking-Beam Conveyer C.G. Sun, J. Luo, S. Liu and P. Zhang	3502
Guiding Simulation Model Verification by Model Checking W. Xia, Y.P. Yao, X.D. Mu and F. Xing	3508
Embedding the Importance of Commercialisation of University's Research in the Engineering Education in Malaysia W.M.H.W. Hussain, M.N.A. Rahman, N.I. Yaakub, Z.A. Zainol and W.K. Mujani	3514
Data Fusion for MFL Signal Characterization Q. Song	3519
Effects of Apparatus Parameters on MFL Signals Using Orthogonal Experimental Design Q. Song	3524
Surface Defect Detection Using Texture Features and RBFN Q. Song	3529
Real-Time 3D Space Coordinate Acquisition of Medical Visualization Data Z.L. Hu, J.B. Gui, J. Zou, J.Y. Rong, Q.Y. Zhang, D. Xia and H.R. Zheng	3534
Inverse Classification Problem of Quantitative Attributes A.G. Li, X. Zhou and J.L. Zhang	3538
Research on Innovative Talents Training Mode Based on Off-Campus High-End Practice Environment J.L. Dong, J.M. Wu, C.H. Li and J. Shi	3543
The Static Structural Complexity Metrics for Large-Scale Software System H.H. Zhang, W.J. Feng and L.J. Wu	3548
Research on the Control of Thermal System of a Spacecraft Based on Fuzzy Theory Z.Q. Peng, L. Zhu, J.Y. Huang and H.W. Yuan	3553
Teaching Reform and Study on Hydraulic Engineering Construction Based on CDIO Pattern in Higher Vocational Colleges Y.Q. Wang, L. Du, Y.H. Wang and B. Chen	3559
Channel Selection and Feature Extraction of ECoG-Based Brain-Computer Interface Using Band Power H.B. Zhao, C. Liu, C.Y. Yu and H. Wang	3564
Speed Prediction of ESPCP System Based on Neural Network X. Luo, S.J. Wang, X.R. Lv and H. Sun	3569
A Balanced Multiway Search Tree for Multi-Dimension Searching A.G. Li, C. Zhang, J.L. Zhang and Z.H. Zhang	3574
Choquet Integral with Respect to High Order Extensional L- Measure H.C. Liu, W.S. Chen, C.C. Chen, Y.D. Jheng and D.B. Wu	3579
Effect of Sine Bar Manufacturing Accuracy on Angle Measurement H.M. Wang	3584
A Kind of Automatic Verification Apparatus for Dial Indicator H.M. Wang	3589
Research on Path Planning of Mine Rescue Robots Based on Fuzzy Control Y.H. Liang and C.T. Cai	3593
Research on Flame Simulation Based on Improved Particle System and the Texture Mapping J. Ni and H.X. Liu	3601
Development of a Unified Resource Base for E-Learning S.F. Lu, H. Yang and G.Z. Yang	3606
A Multi-Step Reinforcement Learning Algorithm Z.C. Zhang, K.S. Hu, H.Y. Huang, S. Li and S.Y. Zhao	3611

The Effect of Zirconium Incorporation on the Brønsted Acidity of Zeolite: A DFT Study H.L. Zhang, A.M. Zheng and Z.W. Deng	3616
Study on the Dynamic Characteristics Analysis and Failure Prognosis of a PWA J.F. Ren, M. He and J.F. Xu	3620
Data Acquisition and Processing System for Vehicle's Braking Performance Based on Visual C++ Y.F. Zhan, R.Y. Sun and X. Zhang	3627
Study of Pavement Identification Approach Based on Wavelet Analysis R.Y. Sun, Y.M. Shan and B. Wang	3632
Road Surface Identification Approach Based on Vehicle Dynamic Parameters B. Wang, R.Y. Sun and X.M. Liu	3640
A Simulation Study on Choquet Integral with Respect to Extensional L- Measure H.C. Yao, H.C. Liu and Y.D. Jheng	3647
Cutting down the Difficulties of SCM Implementation: A Comparison between Iranian and Malaysian Companies M. Manzouri, M.N.A. Rahman, H. Arshad and J.A. Ghani	3652
Genetic Algorithm for Assembly Sequences Planning Based on Heuristic Assembly Knowledge H. Pan, W.J. Hou and T.M. Li	3657
Network Security Situation Prediction Using Artificial Immune System and Phase Space Reconstruction Y.Q. Shi, T. Li, W. Chen and Y.M. Fu	3662
Research on License Plate Recognition Technology Z. Ma, J.L. Li and X.F. Tan	3667
Order-Variable Multi-Pulses Linear Prediction Speech Coding J.L. Li, Z. Ma and M.Z. Wu	3672
The Past and Future of <i>Phyllostachys nigra</i> in Putuo Mountains B. Li, W.P. Hu and N. Sun	3677
Human Tracking Method Based on Maximally Stable Extremal Regions with Multi-Cameras L. Zhang, G.J. Dai and C.J. Wang	3681
The Comprehensive Evaluation of Regional Agricultural Brand Competitiveness Based on Fuzzy Gray Analysis G.J. Tong and W. Wang	3687
An Equilibrium Principle on the AON Network for Single-Machine Scheduling Problem with Time Lags C.Y. Yu and X.C. Luo	3692
A Novel Efficient Mining Algorithm for Frequent Patterns on Biological Multiple Sequence W. Liu and L. Chen	3697
Control of Testing Device Based on FluidSIM-P J. Liu and Y.J. Lv	3702
A Color Error Correction Mode for Digital Camera H.K. Ye	3706
Tooth Contact Analysis of the Double Circular Arc Tooth Spiral Bevel Gear R.L. Zhang, T. Wang and H.M. Li	3711
Research of Motor Fault Diagnosis by Detecting Dynamic Model Parameters J.X. Long	3716
Delaunay Triangulation-Based Hazard Area Avoidance for Spacecraft Safe Landing S.M. Fei, Y. Zhao, J. Yang and L. Huo	3721
A RSA-Based Data Integrity Check without Original Data in the Cloud Computing J.H. Zhang, X. Liu and C.L. Liu	3726
Prediction Analysis of Electromagnetic Interference Based on Gray Prediction Theory H.J. Zhang, Y.T. Wang, S.T. Wang and M. Wu	3731
Microscopic Phase-Field Simulation of the Order-Disorder Transition of Antiphase Domian Boundary Formed between DO₂₂ Phases M.Y. Zhang, K. Yang and Z. Chen	3736

A Dynamic Sensory Quality Evaluation Model Based on Panel Data and Linguistic Information Processing D.L. Zhang	3741
A Novel Smooth Support Vector Regression Based on CHKS Function Q. Wu	3746
The Application of Agent Technique in E-Commerce H.B. Zhang, F.Y. Zhu and N. Zhu	3752
An Efficient Hierarchical Clustering Algorithm and its Application for Image Retrieval W.M. Xu, K.L. Fang and H.R. Zhang	3757
Condenser Fault Diagnosis Based on FNN and Data Fusion F. Xia, H. Zhang, D.G. Peng, H. Li and Y.K. Su	3762
Application of Time Series Analysis in the Analysis and Forecasting of Track Geometry Status C.L. Jia, W.X. Xu and H.N. Wang	3767
Study on Data Management of High-Speed Railway Transport Equipment Based on Metadata C.L. Jia, W.X. Xu and H.N. Wang	3771
Calculating Urban Storm Intensity Formula Using Genetic Algorithm L. Xu, T. Shang, X.G. Ma and L. Lian	3776
Attitude Estimation with Complementary Filter R.H. Chang, X.D. Mu and X.W. Shen	3781
An Improved “Data Mules” Scheme Based on Controlled Working Area and Designed Trajectory J. Wang, C.X. Qiu and X.G. Qi	3785
Detection Method of Gradual Fault Signal Based on Wavelet Transform in the Dynamic System H.L. Du, Z.F. Wang, F. Lv and W.X. Du	3790
A Prediction Method of Power Energy Saving Potential Based on Rough Set Neural Network J.Y. Li, Y.J. Wei, J.C. Li and Y.Z. Zhao	3795
Data Driven Multivariate Adaptive Regression Splines Based Simulation Optimization H.P. Mao, Y.Z. Wu and L.P. Chen	3800
LabVIEW over BACnet, a New Approach for Electromechanical Equipment Remote Monitoring System P. Ren	3807
Optimal Parameters and Characteristics of Shunted Piezoelectric System with Negative Capacitance in Series W.Q. Zhang, X.Y. Wu and W. Cao	3812
Research on Contact Deformation Experiments in Stiffness Measurement of Spring Tubes Y.F. Li, Z.H. Ma and G.L. Wang	3818
Generation Method for Specification Surface Model of Flatness B. Kuang, X. Cheng, M.F. Huang, Y.H. Sun and Y.X. Wang	3823
Analysis of Bridge-Type Nano-Positioning Stage L. Ma, Z.F. He and H.K. Ouyang	3828
Analysis the Interface of Amplifier in GPON System by PSpice L. Li and J.J. Zhang	3833
Research of Nonlinear PID Control Method for Time Delay Systems W.B. Liu and M.X. Wang	3839
Importance-Performance Analysis Based on Choquet Integral with Respect to L-Measure S.J. Lee, H.C. Liu, S.M. Chen and Y.D. Jheng	3844
Implementation of the Object-Oriented Data Model in Oracle Database L.J. He, D.G. Wang, S.Z. Bao and J. Yun	3849
Image Segmentation Method for Wheel Set Online Measurement K.H. Wu and T. Ban	3854
High-Speed Acquisition and Processing Method for High Resolution Image of Wheel Set K.H. Wu and J.X. Fan	3859
An Array Nonlinear Kalman Tracker for Indoor GPS Signal J.C. Ding, L. Zhao, J. Liu and S.H. Gao	3864

CMM Inspect Path Planning for Precision Concave Revolved Surfaces W.M. Pan, Y.J. Yu, W. Ma and Y.G. Liu	3869
Kinematic Chain Isomorphism Identification Based on Loop-Code J.H. Sun	3874
Rotor Speed Identification of PMSM on DTC System Based on PSO and CMAC Neural Network Algorithms L. Li and S.Z. Cao	3879
Crack Pattern and Ductility of Connections Composed of CSSEUHSC Columns and RC Beams Subjected to Reversal Cycle Loads J. Zhang, C.W. Yan and J.Q. Jia	3884
Some Similarity Measures of Interval-Valued Intuitionistic Fuzzy Sets and Application to Pattern Recognition Q.S. Zhang, H.X. Yao and Z.H. Zhang	3888
Prediction for Relative Dynamic Elastic Modulus of PVA-ECC under Freezing and Thawing Cycles H.F. Hou, S.G. Liu, C.W. Yan and J.W. Bai	3893
Identifying the Mastery Concepts in Linear Algebra by Using FCM-CM Algorithm H.C. Liu, Y.K. Yu, J.M. Yih and C.C. Chen	3897
Adaboost Classification-Based Object Tracking Method for Sequence Images J. Jia, Y.J. Yang, Y.M. Hou, X.Y. Zhang and H. Huang	3902
Finite Element Analysis of Ballastless Track Rail-Floating Slab's Dynamic Characteristics L.Y. Liu, J. Wang and R. Lv	3907
WSN Image Watermarking Algorithm Based on Multi-Wavelet X. Li, Y. Jiang, J.J. Song and W.L. Cui	3912
Active Subdivision Snake Scheme Z. Shi and F. Li	3917
Analyzing the Test of Problem Solving Abilities by Using GM(0,N) D.B. Wu and H.L. Ma	3922
Study on Bi-Level Programming Model for Traffic Control on Massive Activities L.Z. Zhang and M.N. He	3927
Research on Improved Multidimensional Scaling Localization Algorithm for Wireless Sensor Network L. Tao, S. Xu, H.Y. Chen and H.X. Xun	3932
An Improved Particle Swarm Optimization Algorithm Applied to the Unified Evaluation of Circularity Error Z.Y. Wu, J. Gou and C.C. Cui	3937
A New Algorithm of Discretization of Consecutive Attributes Based on Decisions in Rough Sets W. Pan, R. An and H.J. Yang	3942
The Research of Extracting Minimal Decision Rules from the Decision Table in Rough Sets W. Pan, Y.J. Huang, Y.S. Wang and H.J. Yang	3948
A Novel Segmentation Algorithm for Complex Images Based on Valid Gradient W. Pan and N.F. Yang	3954
Study on Regional Traffic Control Optimization Based on State Analysis L.Z. Zhang, L. Jia and M.N. He	3959
Computation Model of Case Similarity Based on Uneven Weight Distance Coefficient S.M. Hou, L.J. He, W.P. Xu, H.T. Fan and Z.Q. Sheng	3965
The Research of PWM Controlling Capacitance SVC Based on RB-IGBT K. Wang, B. Chen, W.H. Chen, H. Xu and J.X. Yuan	3970
Automatic Fuzzy Based System for Carbon Estimation in a Basic Oxygen Furnace M. Zhang, Y.R. Chen, L.F. Xu and Y.Q. Wang	3976
Reading and Controlling on UG Files by OpenGL Based on Object-Oriented Methods X.L. Sui, Y.Z. Li, J.T. Zhang and J.W. Jiang	3981
A Continuous Control for Stabilizing the Extended Nonholonomic Double Integrator: Theory and Simulation Results Y. Peng, M. Liu, S.R. Xie and J. Luo	3987
Motion Planning of Nonholonomic Systems with Tracking Control Lyapunov Function Y. Peng, M. Liu, Z.J. Tang, S.R. Xie and J. Luo	3992

Barriers of SCM in SMEs M.N.A. Rahman, H. Wasilan, B. Md Deros and J.A. Ghani	3997
Research on Flatness Error Measurement of Revolving Body End-Face P. Guan, T.B. Yu and W.S. Wang	4002
Hypothetical Analysis on Basis of View G.L. Wang and Z.Q. Wang	4007
A Novel Public Encryption and Key Agreement Based on Permutation Rational Function P.C. Wei, H.X. Wu, H.Q. Yang and X. Shi	4012
MCU-Based Detection and Control System Design of a Kernel Hardness Tester Y. Cao, X.J. Li and L.W. Yue	4018
Particle Swarm Optimization for Scattering Coefficients in One-Dimensional Non-Uniform Media Y.M. Wang, D.M. Wang, X.X. Zhong and G.Q. Shi	4023
Research and Improvement of DV-Hop Localization Algorithm for Wireless Sensor Network X.G. Wang and J.K. Lin	4028
Optimization of Highway Construction Based on Prim Algorithm H. Zhao, S.C. Qin and S. Zhu	4033
Automatic Keyword Extraction Algorithm and Implementation H. Zhao, C.S. Bai and S. Zhu	4041
Education of Master of Engineering via Constructivist Perspective H. Zhao, S. Zhu and L. Li	4050
Study of Control Algorithm for Indirect Stabilized Optical Seeker Y.F. Xu, Z.Y. Zhang, K. Li and M.K. He	4053
A Novel Cyber Physical Systems Model X.W. Liu, Z.H. Gao and J.G. Yu	4058
Review on Research and Progress of Corrosion Inhibitors X.D. Zhao, J. Yang and X.Q. Fan	4063
Fuzzy Clustering Algorithm Based on Improved Particle Swarm Optimization and its Application X.Y. Li, J.X. Sun, J.H. Fu and G.H. Gao	4067
A Low Power Monitoring and Tracking System for Multi-Container Based on the Improved LEACH X.Y. Li, S. Liang, B.B. Pang and Y.J. Ren	4072
On the Evaluation Method of Wavelet Analysis for Surface Roughness M.F. Huang, X. Cheng, B. Kuang and J.T. Huang	4077
The Think Aloud Experiment of the Designing Process of an Expert Q. Fan, Y. Zhang, L.H. Jiang, Y. Li and F. Hou	4081
Testing Study on Wear Mechanism of Fluororubber by 45# Steel under Different Speed in Oil Medium H. Sun and S.J. Wang	4084
The Intelligent Controller Design of Parallel Online Mixing and Supplying Glue System F.H. Meng, L.P. Sun and L.K. Zhu	4089
Research of Real-Time Monitoring Technology for Progressing Cavity Pumping Operation S.J. Wang and H. Sun	4094
Vibro-Acoustic Coupling Analysis of Aero-Engine Combustion Chamber Model Y.T. Ai, S.J. Li, B.H. Yin and S.M. Bai	4100
Product Lifecycle Oriented Quality Management System for Individualized Customization X.Y. Sun, X.Y. Jiang, S.J. Wang and J.Q. Jin	4105
Process Quality Control Method for Individualized Customization Based-Customer Satisfaction X.Y. Jiang, X.Y. Sun, S.J. Wang and X.M. Zhang	4110
Adjustable Respiratory Mechanical Parameters Lung System for Medical Patient Simulator Z.H. He and G.S. Zhu	4115
A Simple Method for Solving the Vehicle Power Demand X.H. Zeng, Q.N. Wang and S. Zheng	4120

Rheological Investigation of ZK60 Magnesium Alloy Feedstock for Metal Injection Moulding Using Palm Stearin Based Binder System	
M.R. Harun, N. Muhamad, A.B. Sulong, N.H. Mohamad Nor and M.H.I. Ibrahim	4126
Composing Multi-Resource Systems by Category Theory	
H.F. Lai	4131
Improving Production Line Performance: A Case Study	
W.H. Wan Mahmood, M.N.A. Rahman, M.D. Baba and J.A. Ghani	4136
Product and Vendor Development Programme in Encouraging Supply Chain Management: A Case Study	
W.H. Wan Mahmood, M.N.A. Rahman, M.D. Baba and A.R. Ismail	4141
Fuzzy Neural Network Blind Equalization Algorithm Based on Signal Transformation	
Y.C. Guo and Z.X. Liu	4146
Solid-Phase Crystallization of a-Si:H by RTA	
R.M. Jin, D.Z. Li, L.L. Chen, X.J. Han and J.X. Lu	4151
Quantum State in Solid-Phase Crystallization of a-Si:H by FA	
R.M. Jin, D.Z. Li, L.L. Chen, X.J. Han and J.X. Lu	4154
Temper and Wear Resistance of Wide-Band Laser Cladded WC Coating	
F.Z. Kong, X.D. Hu, J.H. Yao and C.H. Lou	4157
Multi-Scale Edge Extraction Based Stereo Matching Algorithm	
J. Lian, L.H. Li, X.Y. Shen and X.P. Hao	4162
Parameters Influences during Biodiesel Production	
A. Kovač Kralj and D. Kralj	4167
Optimal Design and Simulation of Active Vibration Isolation Platform Based on Fuzzy Control	
Y. Zhang, M.M. Xia, J.Y. Qin and Z.F. Fang	4176
Effect of Particle Size on Structure and Dielectric Properties of 0-3 PMN/EP Composite	
M.X. Shi, Z.X. Huang, Y. Qin and H.M. He	4181
Three-Dimension Reconstruction of Pit Corrosion Damage Morphology and Digital Simulation	
S.L. Lv, Z.G. Wang, C.L. Xu and W. Zhang	4186
Multi-Objective Optimization of Fine-Pitch Gear Based on Variable-Grain Strategy	
F.Q. Zhao and T. Wang	4191