## **Engineering Decisions for Manufacturing Systems**

Selected, peer reviewed papers from the 2013 2nd International Symposium on Manufacturing Systems Engineering (ISMSE2013), July 27-29, 2013, Singapore

von Zhang Jun, Honghua Tan

1. Auflage

Trans Tech Publications 2013

Verlag C.H. Beck im Internet: www.beck.de ISBN 978 3 03785 845 5

## **Table of Contents**

## **Preface and Organizing Committee**

## **Chapter 1: Applied Materials Engineering and Materials Processing**

Abrasive Waterjet Cutting of Aluminum Alloys: Workpiece Surface Roughness N. Tosun, I. Dagtekin, L. Ozler and A. Deniz	3
Investigation of Tool Life in Turning of AISI D6 Steel N. Parlak, L. Ozler and N. Dogru	10
<b>An Theoretical Study of the EDM Electrolytic Intermittent Grinding Compound Processing</b> J.M. Yang and S.M. Shen	16
<b>Specifics of Microstructure and Phase Composition of High-Speed Steel R6M5</b> M. Skakov, B. Rakhadilov and G. Karipbayeva	20
Wetting Behavior of Polymer Melts on Bulk Metallic Glasses X. Zhang, B.L. Sun, W.N. Feng, Q.X. Zhang and Q. Li	25
Influence of Mooring Chain Steel Strength on Stress Corrosion Cracking X.Y. Cheng, H.Y. Chen, W.Q. Liu and Z.J. Zhang	32
Research of Electrolytic-Plasma Carbonitriding and Nitriding Influence on Phase Composition of the Stainless Steel M. Skakov, S. Kurbanbekov and A. Zhilkashinova	40
Study on the Notch Strength and Notch Sensitivity of Composite Modified Double-Base Propellants	
S.Q. Hu, Y.T. Ju, Z. Wei and C.S. Zhou	44
Monitoring the EDM Characteristics of Ti-6Al-4V Process Stable Using Individual Moving Range Control Chart S.H. Tai, C.Y. Hsu and C.I. Lin	50
Cutting Performance of Cemented Carbide Using Single Crystal Diamond for Tool Material in Die and Mold Manufacturing K. Kazumasa, F. Katsuya and H. Satoru	56
Relationship between Controllable Process Parameters on Bump Height in ENIG Z. Sauli, V. Retnasamy, F.A.A. Fuad, P. Ehkan and M.H. Ab Aziz	62
Aluminium Surface Grain Size Analysis on RIE Treatment Z. Sauli, V. Retnasamy, F.A.A. Fuad, P. Ehkan, M. Palianysamy and A.K.T. Yeow	67
Shear Speed Analysis on Sn-3.9Ag-0.6Cu Solder Z. Sauli, V. Retnasamy, F.A.A. Fuad, P. Ehkan, O.T. Say and V. Rajendaran	72
Bump Height at Low Temperature Analysis Z. Sauli, V. Retnasamy, F.A.A. Fuad, P. Ehkan and S. Taniselass	77
Study of Changes the Tool Wear of the Cutting Tool Part of a New Cast Iron GTW 35-04 during Drilling	
J. Jurko, A. Berdis, J. Gecák and J. Nemcová Changes in Mechanical Properties of Cast Iron GTW 35-04 under the Surface Parameter	82
during Drilling J. Jurko	86
Fabrication and Properties of WC-Al <sub>2</sub> O <sub>3</sub> Cemented Carbide Reinforced by Single-Walled Carbon Nanotubes	
T. Bai Nanofibers/PVA Blended Nano Fibre Matrix for Nervous Tissue Regeneration	91
P. Zhang and S.S. Wu	95
<b>Investigation of Surface Integrity in Path Controlled Grinding of Crankshaft Pin</b> M.C. Zhang and Z.Q. Yao	100
$ \begin{array}{c} \textbf{Effects of Texture Density on Tribological Performance of Laser Peen Textured Surface} \\ K.M.\ Li,\ Z.Q.\ Yao\ and\ Y.X.\ Hu \end{array} $	106
<b>Importance of the Meshing Accuracy for Stress Evaluation in All-Ceramic Restored Teeth</b> S. Porojan, F. Topală and L. Porojan	112

<b>Synthesis of Peptide Lipid (N</b> <sup>+</sup> C <sub>5</sub> Gly2C <sub>16</sub> ) X.J. Zhao, L.Y. Zhang, L.M. Jim and S.D. Fan	118
Effect of Homogenization on Recrystallization of Twin Roll Cast AA3003 Alloy Y.Y. Tu and D.Z. Zhang	122
Influence of the Top Metal Electrode on P-V Hysteresis Loops Behavior of 1-µm Thick PZT Films Deposited on a Pt/TiN/Si Substrate Prepared by MOCVD Masruroh, M. Umeda and M. Toda	127
Preparation of $TiO_2/ACF$ in Caprolactam Tetrabutyl Ammonium Bromide Ionic Liquid J. Han	132
Study of Laser Cladded Layers Structure Applied in Practice I. Kovaříková, E. Hodúlová, B. Šimeková, K. Šalgó and M. Kmec	137
Research on Absorbing Property of Cement-Based Material Blending with Silica Fume and Culver Zed Fuel Ash Y. Zhang, B. Wang and X.H. Wang	141
Electrical Characteristics of Pt Schottky Contact to Semipolar (11-22) n-GaN Depending on Si Doping Concentration S.M. Jung, K.K. Kim, S.N. Lee and H.S. Kim	146
Numerical Simulation of the Occlusal Contacts in Roots Restored with Complete Ceramic	140
Materials L. Porojan, F. Topală and S. Porojan	152
Effect of Ferrule Designs on Stresses of Endodontically Treated Teeth Restored with Pressed Ceramics	102
L. Porojan, F. Topală and S. Porojan	158
Chapter 2: Design and Engineering Researches in Mechanical Engineering	
The Flow Characteristics of Nanometer Microspheres in the Vessel Y.B. Yang, L.M. Qiao, R. Gu, X.S. Liu and G.S. Zhou	167
Research and Application of Special Vehicle Design Based on the FMEA Q. Feng, X. Wu, J. Luo and B. Qi	171
Control Strategy of Restraining Elastic Vibration of Flexible Manipulator Arm Based on Increasing Axial Tensile Force and Structure Damp G.R. Liu, X. Wang and W.J. Wu	177
Stability Analysis of Elastic Vibration of Flexible Manipulator Arm Based on Routh Criterion	100
Y. Chen, G.R. Liu and W.J. Wu Research on Air Deflector Optimal Design and Matching for Heavy-Duty Vehicle Based on	182
Design of Experiment Technology J. Chen, T. Song and D.F. Wang	188
Dynamic Characteristics of a Gantry Milling Machine under the Influence of Linear Guide Preload	
J.P. Hung, Y.L. Lai and Y.R. Chen	194
Compressor and Throttle Characteristics for Models L. Smolarik, D. Mudroncik and M. Strbo	200
Prediction of Temperature Distributions of Cold Forging Process for a CamBolt by FEM D.B. Kim, S. Kim, J.G. Park, H.S. Shin, W.Y. Kim, J. Lee, I.H. Lee and H. Cho	207
<b>3D Quasi-Dynamic Load Contact Analysis of Conjugate Spur Gear</b> J.S.S. Wu, P.J. Hsu, J.P. Hung and Y.L. Lai	213
Friction Resistance between Valve Made of TiAl Alloy and its Guide Made of Phosphor	
Bronze A. Rylski and K. Siczek	220
The Influence of Fatigue Life for Shoulder Fillet Parameter in Stepped Shaft under Torsion Load Y.Z. Yuan	228
The Performance of Steel Beam during the Cooling Phase and the Impact of Fire Parameters	228
X.Y. Yang	232

Kinematics Analysis of a 3-RRR Spherical Parallel Mechanism with Coaxial Input Shafts Y.L. Hou, X.Z. Hu and D.X. Zeng	237
Vehicle Dynamics Model Establishing and Dynamic Characteristic Simulation R. Wang, H. Zhang, X.S. Li, X.L. Zheng and Y.Y. Ren	244
Consider Roll of Heavy Vehicle's Modeling Research R. Wang, H. Zhang, X.S. Li, X.L. Zheng and Y.Y. Ren	250
Equal Life Optimization of Shells Based on Kiln Axis Alignment X.Y. Yang, Y.G. Xiao and X.M. Lei	257
Factor Analysis of Dynamic Characteristics of Balance Valve Effect on the Stability of Crane X.H. Xie and X.F. Liu	263
Numerical Simulation of Low Mach Number Steady and Unsteady Flow Past a Circular Cylinder with Preconditioning Method	267
N. Cao, Y.F. Liu and S.J. Luo  Study on Road Geometric Alignment Parameters Based on Vehicle Handling Stability	207
Simulation X.L. Zheng, X.S. Li, C.W. Jiao, G. Bai and Y.Y. Ren	273
Study on Transverse Baffle Design Parameters on Influence of Baffle Anti-Sloshing Effect by FLUENT Simulation	200
X.L. Zheng, X.S. Li, H.F. Liu, Y.N. Wang and M. Yang  Optimal Design of Wind Turbine Blades with Wilson and BEM Method Integrated	280
J.J. Ding, H. Wang, L.P. Sun and B. Ma	286
Simulation Research on Hydraulic Brake System of Low-Floor Light-Rail Vehicle X.J. Zhang and W.Q. Zhu	292
Numerical Simulation of Lateral Jet Interaction a Slender Body in Supersonic Flow S.J. Luo, Y.F. Liu and N. Cao	296
Research Pressure Loss Based on Gas Liquid Two Phrase Flow Experiment System Y. Zhang and W.L. Zhang	302
Numerical Simulation of Gear Shaping for Planetary Gear Based on the MASTA Software L.H. Yi	307
Dynamic Analysis of Helical Planetary Gear Train X.Z. Liu and J. Zhang	312
Spectral Element Simulation of Complex Particulate Flows D. Liu, Y.F. Wang and H.B. Zhang	318
Design and Realization of Total Performance Simulation Platform for Aircraft Engine Based on Modelica G.X. Chen and J. Fan	324
Research on Multi-Solver Simulation Interface of Aero-Engine Compressor	
Y. Zhao, J. Jin and J. Fan  Design and Experimental Research of a New Horizontal Wave and Flow Generation Device	331
S.M. Wang and D.T. Lei  Finite Element Analysis for Double Anterior Cruciate Ligament Reconstruction Analysis C.M. Kuo, G.C. Tsai and W.L. Yeh	337 344
About Determination of Stress Concentration in Bodies of a Complex Shape G.A. Zhurayley and Y.E. Drobotov	350
The Research on Coupling of Fluctuating Pressure and Corresponding Noise of Stilling Pool	
Base Slab Z.H. Hu, W.D. Guo and X.Q. Cai	357
Chapter 3: Environmental Engineering and Energy Sources Engineering	
Influence of Slope Gradient on Distribution Rule of Geostress Field in River Valleys Q.T. Pei, H.B. Li, Y.Q. Liu and J.G. Jiang	365
Usage of Ti-TiO <sub>2</sub> Electrode in Microbial Fuel Cell to Enhance the Electricity Generation and its Biocompatibility  E. Taskan, H. Hasar and B. Ozkaya	371

The Method of Tree Dynamic Modeling under Wind Field T.N. Li, S. Yu and F. Yang	377
3D Displacement Vector Field Analysis Technology Application for Analysis of the Slope Surface Deformation Monitoring H.F. Sun and K.P. Hou	381
Simulation Research on Mixing Structure of Kitchen Waste Biological Processor S. Lin, R. Zhang, Z. Ma and C.Y. Liu	387
Preparation and Water-Absorbing Capacity of Poly(Acrylic Acid)/Montmorillonite Composites K. Chen, T.Y. Zhang and X.P. Zheng	393
Improved Grey Forecasting Model for Taiwans Green Accounting C.I. Lin, S.L. Lu and S.H. Tai	398
The Study of Outdoor Water Cooling System Suitable for Cold Regions J. Zhang, Z.D. Zheng and S. Lin	404
Electric Vehicle Battery Distribution Network Optimization C.S. Xie, C.Y. Zhou and C.C. Zhao	408
Effect of Limited Irrigation on Water Consumption and Grain Yield of Spring Maize ( <i>Zea Mays</i> )	
H.J. Zhang and J.H. Li	415
Effect of Limited Water Supply on Photosynthetic Characteristics of Spring Maize ( <i>Zea Mays</i> ) H.J. Zhang and J.H. Li	420
CFD Simulation of Insulation Performance of Air Curtain Used in the Cold Store C. Miao, J. Xie, Z.L. Gao, Z.Z. Du and J.L. Zhu	425
Effect of Water with Anti-Freezing Material Based Cooling for Split Air Conditioning System	
N. Balaji and P.S. Mohan Kumar	432
Simulation Study of HTP Decomposition within Silver Screen Catalyst Bed of the Monopropellant Gas Generator W. Wang, B.Z. Xia and H.H. Sun	436
Chapter 4: Opto- and Microelectronics	
<b>Design of Dimmable Quasi-Resonant Fly Back LED Driver Based on OZ9992</b> G.M. Chen, S. Wu, J.H. Shen and K. Zhao	445
Computational Simulation of High-Concentration Erbium Media for Lasers Development N.B. Pereira Junior, A.F. Henriques Librantz, W.A. Luz Alves and A. Melo Deana	450
Research on Length Optimization of Fiber of Length Measurement Method Based on Opto- Electronic Oscillator	151
J.G. Zhu, T.H. Guo and T. Zhang  5mm × 5mm Sized Slug on High Power LED Stress and Junction Temperature Analysis  Z. Sauli, V. Retnasamy, F.A.A. Fuad, P. Ehkan, V. Rajendaran and K. Nazuhusna	454 460
Chapter 5: Measurements, Detection, Signal and Data Processing	
Micro-Bridge Structure Design of UFPA with Highly Sensitive Pixels M.Y. Fan and L.F. Zhang	467
Diagnostic Methods Assigned for Monitoring the Operating Fault State of Production Equipments S. Šoltésová and P. Baron	473
An Incremental Locally Linear Embedding Algorithm with Non-Negative Constraints of the	4/3
Weights J.Z. Hu and Q.C. Xu	478
The State Recognition for Rotary Machines Based on Fractal Theory and Neural Network Q. Huang, X.Z. Ouyang and Q.P. Huang	485

Super-Resolution Imaging in a Close-Packed Synthetic Aperture Digital Holographic	
Microscopy H.Y. Tu, Y.L. Lee and C.J. Cheng	490
<b>Study on Hidden Information of Microelectronic Packaging Image Series with PCA</b> S.H. Cao, L. Han and J.H. Li	495
<b>Measurement of Static Performance of Inductive Proximity Switch for a Mobile Robot</b> T.T. Tsung and H. Nguyen	502
Research on PCA Based Sensor Fault Detection and its Application L. Cheng and Z.G. Yao	508
<b>Key-Frame Extraction Method from Single-Lens Undersea Video Sequences</b> X. Li, F.X. Gao, T.X. Yan, D.Z. Wang, L.S. Chen and Z.H. Guo	514
C* <sub>pmk</sub> S.F. Wu	520
An Extrema Extension Method Based on Support Vector Regression for Restraining the End Effects in Empirical Mode Decomposition X.M. Xue, J.Z. Zhou, Y.C. Zhang, X. Jian and X.M. Wang	526
An Improve Firefly Algorithm and its Application P. Liu and Y.G. Li	533
A Novel Bat Algorithm of Solving III-Conditioned Linear Equation Group R.H. Zhou and Y.G. Li	538
Testing and Analysis of Several Global Optimization Algorithms Y. Zhang and J.L. Xie	543
Intrinsic Dimensional Correlation Discretization for Mining Task Y. Sang, H.W. Song and J. Zhao	548
Near-Infrared Spectroscopy Signal Extraction and Processing Design K. Zhao, J.H. Jiang, J.F. Fu and J.B. Xu	555
Experimental Analysis of Laser Scattering Patterns for the Surface Inspection of Crystalline Wafers in Solar Cell G.B. Kim	560
Chapter 6: Mechatronics, Control and Automation of Manufacture	
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building	569
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu Automatic Current Sharing Technology in the DCS Power System Applications Research	569 575
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit	575
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He  A Research for Angle Optimization of the SRM Used in Electric Actuator of Valves	575 580
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He	575
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He  A Research for Angle Optimization of the SRM Used in Electric Actuator of Valves D.H.Y. Yang, D. Zhao and Y.X. Jiang  Design and Implementation of Constant Palstance Control System of Combine Cylinder Based on STM32  J.L. Yan, D. Zhao and Y. Qin	575 580
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He  A Research for Angle Optimization of the SRM Used in Electric Actuator of Valves D.H.Y. Yang, D. Zhao and Y.X. Jiang  Design and Implementation of Constant Palstance Control System of Combine Cylinder Based on STM32  J.L. Yan, D. Zhao and Y. Qin  Design of Micro-Positive Pressure Control System for Clean Plant Air Conditioning J. Dong	575 580 586
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He  A Research for Angle Optimization of the SRM Used in Electric Actuator of Valves D.H.Y. Yang, D. Zhao and Y.X. Jiang  Design and Implementation of Constant Palstance Control System of Combine Cylinder Based on STM32  J.L. Yan, D. Zhao and Y. Qin  Design of Micro-Positive Pressure Control System for Clean Plant Air Conditioning	575 580 586 592
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He A Research for Angle Optimization of the SRM Used in Electric Actuator of Valves D.H.Y. Yang, D. Zhao and Y.X. Jiang Design and Implementation of Constant Palstance Control System of Combine Cylinder Based on STM32 J.L. Yan, D. Zhao and Y. Qin Design of Micro-Positive Pressure Control System for Clean Plant Air Conditioning J. Dong A Self-Repairing Control Scheme for Quadrotor Helicopter via Active Disturbance Rejection Control	575 580 586 592 599
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He  A Research for Angle Optimization of the SRM Used in Electric Actuator of Valves D.H.Y. Yang, D. Zhao and Y.X. Jiang  Design and Implementation of Constant Palstance Control System of Combine Cylinder Based on STM32  J.L. Yan, D. Zhao and Y. Qin  Design of Micro-Positive Pressure Control System for Clean Plant Air Conditioning J. Dong  A Self-Repairing Control Scheme for Quadrotor Helicopter via Active Disturbance Rejection Control  Q.B. Wu, F.Y. Chen and C.Y. Wen  Research on Searching Guidance of TV Guided Missile	575 580 586 592 599
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He  A Research for Angle Optimization of the SRM Used in Electric Actuator of Valves D.H.Y. Yang, D. Zhao and Y.X. Jiang  Design and Implementation of Constant Palstance Control System of Combine Cylinder Based on STM32  J.L. Yan, D. Zhao and Y. Qin  Design of Micro-Positive Pressure Control System for Clean Plant Air Conditioning J. Dong  A Self-Repairing Control Scheme for Quadrotor Helicopter via Active Disturbance Rejection Control  Q.B. Wu, F.Y. Chen and C.Y. Wen  Research on Searching Guidance of TV Guided Missile  H.P. Wang and Z.Q. Liu  Two-Tone Colored Petri Net and its Application in PLC	575 580 586 592 599 603 609
The Preliminary Study of Wall Climbing Firefighting Rescue Robot for High-Rise and Super High-Rise Building B. Li, J.F. Jin, S.Q. Gu, L. Lu and L.Z. Xu  Automatic Current Sharing Technology in the DCS Power System Applications Research J.F. Fu, Z. Wang, X.T. Duan, X.N. Li and G.F. Xie  Based on Orthogonal Experiment Method PID Simulation Control of Pumping Unit Z.K. Zhang and L. He  A Research for Angle Optimization of the SRM Used in Electric Actuator of Valves D.H.Y. Yang, D. Zhao and Y.X. Jiang  Design and Implementation of Constant Palstance Control System of Combine Cylinder Based on STM32  J.L. Yan, D. Zhao and Y. Qin  Design of Micro-Positive Pressure Control System for Clean Plant Air Conditioning J. Dong  A Self-Repairing Control Scheme for Quadrotor Helicopter via Active Disturbance Rejection Control  Q.B. Wu, F.Y. Chen and C.Y. Wen  Research on Searching Guidance of TV Guided Missile  H.P. Wang and Z.Q. Liu  Two-Tone Colored Petri Net and its Application in PLC  J.H. Yang  Design of Robot Lawn Mower Based on Computer Vision	575 580 586 592 599 603 609 618

<b>Broadband Low-Frequency Vibration Energy Harvester with a Rolling Mass</b> X.F. He, Y. Zhu, Y.Q. Cheng and J. Gao	635
<b>Bottleneck Simulation of Two-Lane Traffic CA Model with Turn Signal</b> R. Kang and K. Yang	640
RANSAC Feature Based Master-Slave Tracking System for Multi-AGV L.P. Jiang, B. Zhang, Q.X. Cao and C.T. Leng	645
Robotic Three-Dot Force Feedback to Suppress Surface Contact Slipping in Robot Drilling C.J. Li, R.X. Qu, S.Q. Li, S.J. Zhu and J. Yao	650
State Feedback Controller Design for CSTR Based on Kalman Filter H. Wu, Z.B. Shan and Y.W. Shi	657
<b>Task-Oriented Servo Loops Control of a 6-DOF Manipulator for Rescue Robot</b> W.H. Su, X.D. Ren, W.C. Zhang and F. Niu	663
A Novel and Efficient Method for Digital Printing W.G. Ji, H. Wu, J. Shen and M.F. Wang	668
Induced Power Aggregation Operators and their Applications in Group Decision Making J.H. Park, J.M. Park, Y.C. Kwun and J.H. Koo	672
Design and Implementation of Control System in Warm Extrusion Forming Process Manipulator for Steel Connecting Sleeve X.J. Zhang, X.H. Ma, F.X. Zhang and H.Q. Cao	678
Piezoelectric Bulk Material for the Fabrication of Membrane Actuators Using Surface Electrodes for Actuation	
S. Zaehringer, M. Spornraft and N. Schwesinger	682
On Reliability Study of a New Generation of Crane Controllers X.C. Liu and Y.T. Liu	688
<b>Development of Robotic System for Free-Form Surfaces Polishing Based on CAM Data</b> F.Y. Lin	694
Adaptive Control for NC Position Table Base on Radical Basis Function Neural Network	699
J. Ma, H.Y. Wu, X.M. Ji and Y. Lei	099
Chapter 7: Information Technology in Manufacturing Systems	099
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration	
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung	707
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen	
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung  The Platform of SCRP and the Construction of Low-Carbon Supply Chain	707
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung  The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen  Safety Analysis for Complex Dynamic Systems M. Strbo, P. Tanuska, L. Smolarik, I. Hagara and A. Gese  Research and Design of Intelligent Library System Based on RFID	707 713 719
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen Safety Analysis for Complex Dynamic Systems M. Strbo, P. Tanuska, L. Smolarik, I. Hagara and A. Gese Research and Design of Intelligent Library System Based on RFID H.Y. Xie Research on the Developing Platform for Complex Product	707 713 719 726
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen Safety Analysis for Complex Dynamic Systems M. Strbo, P. Tanuska, L. Smolarik, I. Hagara and A. Gese Research and Design of Intelligent Library System Based on RFID H.Y. Xie Research on the Developing Platform for Complex Product S.F. Wu, T.X. Su and Z.Y. Wang An Improved Bat Algorithm and its Application in the Logistics Distribution Center	707 713 719
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen Safety Analysis for Complex Dynamic Systems M. Strbo, P. Tanuska, L. Smolarik, I. Hagara and A. Gese Research and Design of Intelligent Library System Based on RFID H.Y. Xie Research on the Developing Platform for Complex Product S.F. Wu, T.X. Su and Z.Y. Wang	707 713 719 726
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen Safety Analysis for Complex Dynamic Systems M. Strbo, P. Tanuska, L. Smolarik, I. Hagara and A. Gese Research and Design of Intelligent Library System Based on RFID H.Y. Xie Research on the Developing Platform for Complex Product S.F. Wu, T.X. Su and Z.Y. Wang An Improved Bat Algorithm and its Application in the Logistics Distribution Center Location Problem	707 713 719 726 732
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen Safety Analysis for Complex Dynamic Systems M. Strbo, P. Tanuska, L. Smolarik, I. Hagara and A. Gese Research and Design of Intelligent Library System Based on RFID H.Y. Xie Research on the Developing Platform for Complex Product S.F. Wu, T.X. Su and Z.Y. Wang An Improved Bat Algorithm and its Application in the Logistics Distribution Center Location Problem Y.G. Li Internet Public Opinion Monitoring Model Based on Cloud Computing	707 713 719 726 732 738
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen Safety Analysis for Complex Dynamic Systems M. Strbo, P. Tanuska, L. Smolarik, I. Hagara and A. Gese Research and Design of Intelligent Library System Based on RFID H.Y. Xie Research on the Developing Platform for Complex Product S.F. Wu, T.X. Su and Z.Y. Wang An Improved Bat Algorithm and its Application in the Logistics Distribution Center Location Problem Y.G. Li Internet Public Opinion Monitoring Model Based on Cloud Computing Z.T. He, X.Q. Zhang, F.W. Zhao and T.K. Ji Review of Sequence Planning of Virtual Assembly	707 713 719 726 732 738 744
Chapter 7: Information Technology in Manufacturing Systems  Intelligent Remote Medical Care System by Use of a Multiple of Network Protocol Integration K.Y. Lian, S.J. Hsiao and W.T. Sung  The Platform of SCRP and the Construction of Low-Carbon Supply Chain M. Chen  Safety Analysis for Complex Dynamic Systems M. Strbo, P. Tanuska, L. Smolarik, I. Hagara and A. Gese Research and Design of Intelligent Library System Based on RFID H.Y. Xie Research on the Developing Platform for Complex Product S.F. Wu, T.X. Su and Z.Y. Wang An Improved Bat Algorithm and its Application in the Logistics Distribution Center Location Problem Y.G. Li Internet Public Opinion Monitoring Model Based on Cloud Computing Z.T. He, X.Q. Zhang, F.W. Zhao and T.K. Ji Review of Sequence Planning of Virtual Assembly H.W. Xiang, C.Z. Chen and G.X. Chen Application of Rapid Prototyping Technology in Intelligent Optimization Design Area	707 713 719 726 732 738 744 748

Three-Phase Heuristics Algorithm for Solving JIT Materials Delivery Problem in Discrete	
Production System Z.Q. Jiang and Y. Wu	769
<b>Application of Flexible Combine-Clamp in Digital Rapid Production for Aircraft Tube</b> X.D. Xu, G.J. Li and S. Yuan	777
Three-Dimensional Process Design of Large Complex Mechanical Product B. Meng, Z.L. Wu and Y.J. Yan	782
Chapter 8: Organization of Manufacture and Engineering Management	
Risk Sharing Research Based on Utility Theory in Urban Rail Transit of BT Mode J.J. Liu	791
The Analysis and Forecast about the Supply and Demand of China's Rubber Raw Materials Based on Grey Model	
Z.J. Wang, Z. Lin and S. Liu	796
Research and Implementation of Auto Parts Proportion Model K.Q. Zhou, D.Q. Yu, Y. Xiao and X.L. Zhang	802
Research of Stochastic Demand Spare Parts Inventory for Equipment Maintenance K.Q. Zhou, Y.X. Yu, H.Z. Zhao and D.Q. Yu	808