

# Table of Contents

## Preface

<b>Research on the Electrolyte Service Life of Treating AZ91D by Micro Arc Oxidation</b> M.Q. Pan, S.C. Di, T. Chen, L.G. Chen and Z.H. Wang	1
<b>Optimization Methods of High-Speed Machining Processing Based on Fuzzy Neural Network</b> Q.P. Sun	5
<b>Trajectory Recognition and Navigation Control in the Mobile Robot</b> C.H. Yang and F.D. Wang	11
<b>Online Monitoring System for Micro-Hole Drilling Based on Rough Set Fuzzy Control</b> H. Wang, X. Li and Q.M. Ju	15
<b>Mechanical Properties Evaluation of Nanofiber/Webs</b> Y. Enomoto and I.S. Kim	20
<b>A Robust Color Pseudo-Random Coded Structured Light Technique for the Recognition of 3D Object</b> Z.Y. Xu, R.R. Xu, D.D. Cao and Y. Wang	24
<b>Experiment and Analysis of Squirrel Cage Asynchronous Magnetic Coupling</b> C.J. Yang, H.W. Gu, J.J. Wang, R.Y. Ma, Z.T. Li and S.F. Jiang	28
<b>Investigation on the Effect of Thickness to Sheet Metal Treated by Laser Peen Forming</b> S. Huang, J.Z. Zhou, X.D. Yang, H.Y. Ruan, D.H. Wei and J.R. Fan	33
<b>Classification and Recognition of Plant Leaf Based on Neural Networks</b> P. Ye and G.R. Weng	38
<b>Water Level Control Embedded Fuzzy-PID and Pole-Placement Strategy</b> B. Yu and H. Zhu	43
<b>Design of Soft Start Energy-Saving Control System for the Motors in Pumps</b> Z.S. Sheng, R.C. Zhang, G.J. Wang, H. Huang and J.J. Guan	48
<b>Over Voltage Protection Device Based on Multi-Strategy</b> H.T. Zhang and G. Li	53
<b>Research on 3D Reconstruction System for Medical Images</b> Y. Zhang, J.F. Ni and P. Liu	57
<b>Study on the VF-DPC-SVM Strategy for Three-Level Rectifier</b> G.J. Tan, Z.F. Zhao, Z.B. Ye and Y. Liu	61
<b>Architecture for 3D Scanning Based Automatic Spraying Machine</b> Z.Q. Zhou and J.H. Yu	65
<b>Calibration Method and Experimental Study of the Camera Internal Parameters Based on One-Step Movement</b> X.L. Zhu, J.J. Zhu, Y. Zhang, J.P. Zhou, L.Q. Gao and L.Y. Li	70
<b>Simulation and Test Analysis of the Torque Ripples of Brushless DC Motor for Electric Vehicles</b> Z.X. Li, X.L. Zhu and H. Jiang	76
<b>A Study of Integration for Heterogeneous Network Positioning</b> X.T. Song, Y. Zhu, S. Yan and Z.J. Chen	81
<b>Research on Sensor Fault-Tolerant Control Based on Riccati Equation for Electric Power Steering</b> D.C. Wang, C. Long and C. Huang	86
<b>Design for Multi-Parameter Wireless Sensor Network Monitoring System Based on Zigbee</b> F. Gui and X.Q. Liu	90
<b>Omnidirectional Vision Based Mobile Robot Hierarchical SLAM</b> M.H. Li, L.N. Sun and M.Q. Pan	95
<b>Investigation of a Micromixer for the MTPV System</b> G.G. Cheng, J.N. Ding and Z.Y. Ling	99
<b>A Real-Time Location and Reset Method of Cylindrical FPSO</b> X.L. Xu, Z.Y. Xu, R.R. Xu, J.K. Jiang and X.D. Guo	103
<b>Design and Application of Fuzzy Controller</b> W. Zhang, X.Y. Li, L. Li, J.Q. Lv, Y.F. Chen and X.H. Mao	107

<b>Development of a Mobile Robot Control System Using IC Tags</b> N. Kawarazaki, S. Umeda, T. Yoshidime and K. Nishihara	111
<b>Synchronization Based Control for Walking Assist Suit-Evaluation on Synchronization and Assist Effect</b> X. Zhang and M. Hashimoto	115
<b>Modeling for Subway Station Temperature Control System of Urban Rail Transit Based on Predictive Control</b> Y.D. Tian	119
<b>Kinematic Analysis of a Novel Hybrid Chinese Medical Massage Robot</b> J. Xie, L.H. Kuang and Y. Zhang	123
<b>Dexterity Analysis of 3-RCR Parallel Robot Mechanism</b> H.Z. Chen, Z.Y. Zou and H.P. Song	129
<b>On-Line Monitoring of Run-to-Run Control Performance in a Discrete Microelectronics Manufacturing</b> L. Chen	133
<b>Effect of Input Shaping on Actuator Effort of Inertial Plants</b> M.X. Dong, B. Pang, H. Liu and F.B. Li	138
<b>Development of Universal Multi-Function Digital Remote Control Electronic Switch Based on WSN</b> J. Wang, X.L. Zhang, J. Yuan, X.F. Shi and X.M. Gao	142
<b>Design of Progressive Die Based on Component in UG Environment</b> W.S. Tan, J.Z. Zhou, J. Guo, S. Huang, C.D. Wang, B. Gao and J. Sheng	146
<b>Image Segmentation Based on Improved Adaptive Genetic Algorithm</b> Z.J. Chen, X.X. Fu and X. Zhou	151
<b>System of Automatic Correction and Measurement for Hypoid Gears</b> T.X. Li, X.Z. Deng, Z.S. Gao and J.B. Li	155
<b>Segmentation of cDNA Microarray Image Using Fuzzy c-Mean Algorithm and Mathematical Morphology</b> Z.Y. Li and G.R. Weng	159
<b>Underwater Thrusters Installation for Dynamic Positioning System of Offshore Floating Vessel</b> J.J. Zhuang, Z.Y. Xu, B.N. Li, Y. Wang, H. Xu and Y.K. Zhang	163
<b>Research on Control System for the Automation Process of X-Cor Sandwich Structure Material</b> L. Liu, C.L. Lai, Y. Li and J. Xiao	167
<b>Application of Intelligent Control in the Servo System</b> J.P. Xie, X.H. Kong, Y. Zhou, Y.F. Chen and X.H. Mao	171
<b>Real-Time Detection System of Soil Moisture Based on GPRS</b> R.B. Zhang, J.J. Guo, Q. Wang, L. Zhang and X.L. Wang	175
<b>A Novel Variable Step-Size LMS Harmonic Detecting Algorithm</b> J.N. Yang, J.J. Guan, Y.M. Ning and C. Gu	179
<b>Stability Analysis and Improvement of Virtual Wall Model</b> J.L. Li, A.G. Song and X.R. Zhang	183
<b>Study on Long Span Transmission Tower's Typical Malfunctions</b> H.L. Wang and Q. Gao	187
<b>A New Control Strategy of Five-Phase Permanent-Magnet Motor Drives with a Third Harmonic Current Injection</b> G.H. Liu, L.H. Yan, D. Zhang and W.X. Zhao	191
<b>Kinematic Analysis and Simulation on Parallel Vibration Reduction Seat</b> Q.Z. Yang, G.Q. Huang, C. Long and X.B. Zhu	195
<b>An Efficient Slicing Algorithm for Asynchronous Linear Hotwire Cutting System of Expandable Polystyrene Foam</b> J.B. Hao, L. Fang and J.Y. Wang	199
<b>Research on Navigation and Obstacle Avoidance Algorithm for Autonomous Mobile Robot in Narrow Area</b> H.X. Li, J.J. Shen and S. Guo	204
<b>FEM Simulation of a Twin-Island Structure Chip in Piezoresistive Pressure Sensor</b> H.B. Pan, J.N. Ding, G.G. Cheng and H.J. Fan	208

<b>Tolerance &amp; Fit Query and Dimensioning Program Development in AutoCAD</b> Y.H. Pan	213
<b>A Continuous Control for Stabilizing the Extended Nonholonomic Double Integrator</b> Y. Peng, M. Liu, Q.J. Huang and S.R. Xie	217
<b>Synthesis and Investigation on the Mechanical Properties of the Polypyrrole Film Doped with P-Toluene Sulfonate</b> H.S. Pu, J.N. Ding, G.G. Cheng, Z.Y. Ling and L.Q. Guo	221
<b>Bio-Design and Develop of Robot Fish</b> T.L. Song, Y.P. Lu and L. Shi	225
<b>A New Algorithm for Normal Adjustment of Point Cloud</b> J.H. Sun, L.S. Zhou, B. Xiang and L.L. An	229
<b>Control of Damping Nonlinearity of Semi-Active Suspension</b> S.H. Wang and R.C. Wang	233
<b>Design of Signal Processing System for Doppler Speed Radar Based on SOPC</b> X.F. Wang, B.Q. Li and H.B. Pan	237
<b>Spectral Detector Design for Nitrogen and Moisture of Rape</b> Z.Y. Xiang, B.Q. Li, H.P. Mao and X.D. Zhang	241
<b>Research of Tower Crane Fleet Wireless Communication System Performance Experiment Based on ZigBee Module</b> X.J. Zheng, M.D. Liu and Z.Y. Xie	245
<b>Large Sized Workpiece Measurement Based on SIFT</b> Z.Y. Xu, R.R. Xu and D.D. Cao	250
<b>RTCP Function in Five-Axis Machining</b> S.T. Fan, W.P. Yang and C.J. Dong	254
<b>Nonlinear Dynamics of a Parametrically Excited Laminated Beam: Deterministic Excitation</b> X.J. Lan, Z.H. Feng, H. Lin and X.D. Zhu	260
<b>Study on Forecast of Forming Temperature of ABS Resin during Fused Deposition Manufacturing by Fuzzy Comprehensive Evaluation</b> C.L. Li, G.Y. Fu and K.B. Guo	264
<b>Vibration Suppression of Yarns via Sliding-Mode Control</b> H. Lin, Z.H. Feng and X.J. Lan	268
<b>Control System Design for High Payload Industrial Robot via High Speed Communication Bus and Real-Time System</b> W. You, M.X. Kong, L.N. Sun and C.C. Guo	272
<b>Performance Prediction and Experimental Study of a New Electromagnetic Vibration Pump</b> D.Q. Yuan, H. Zhang, R. Wang, Y.Q. He and J.P. Li	279
<b>Modal Analysis of Ball Screw Drive System by Finite Element Method</b> Y.W. Zhang and W.M. Zhang	285
<b>Intensity Control of Ultrasonic Phased Array Focusing and Steering</b> X. Zhong, B.Q. Li and H. Dai	289
<b>The Simulation and Fatigue Life Prediction of a Cable Harness in an Industrial Robot</b> J.F. Zhou and J.S. Wu	293
<b>Analysis on Mean Value Model of Gasoline Engine in HEV Applications</b> J.H. Zhou, Y.N. Yuan, G.P. Mao and J.Y. Du	299
<b>Performance Analysis of Autonomous Obstacle Negotiating Robot in Unstructured Environment</b> C.J. Wang, L.Z. Ma and T. He	304
<b>Interior Permanent-Magnet Synchronous Motors Speed Identification by Using Artificial Neural Networks Left-Inversion Method</b> Y. Jiang, G.H. Liu, W.X. Zhao and L.L. Chen	309
<b>A New Air-Conditioning Pipeline Cleaning Robot System</b> Z.X. Li, H.W. Li and Z.H. Li	313
<b>Design of Greenhouse Wireless Sensor Network Control System Based on Fuzzy Neural Network</b> R.B. Zhang, L.H. Wang, X.L. Huang and J.J. Guo	318
<b>The Design of Program for NTC Automatic Tool Change Based on S7-300</b> C.Q. Deng and B. Li	322

<b>An Implementation of Petri Net Based on Graphical Programming Language</b> T.Y. Du, D.A. Zhao and L. Huang	327
<b>Optimization of Two-State Adjustable Damping Shock Absorber</b> J.C. Fan, X.M. Sun, Y.X. Chu and X. Li	332
<b>Study on Characteristics of Stress and Parameters Influence in Microscale Laser Shock Peening</b> Y.J. Fan, J.Z. Zhou, S. Huang, W. Wang, D.H. Wei and W. Zhu	336
<b>Calibration Methods of Planar Parallel Robot</b> W.D. Li, J. Li and L.N. Sun	340
<b>Application of Genetic Algorithm in the Structural Optimization of Parallel Sensor</b> F.H. Liu and H.T. Wu	344
<b>Optimal Design of OPCM Sensor by the Orthotropic Ratio</b> Z.P. Wang, Y. Luo and W.B. Sun	350
<b>Development of Quick and Safe High Building Escape Method and Machine</b> X.L. Zhang, X.M. Gao, W.X. Gao, Q. Yao, B.Q. Li and H.B. Pan	354
<b>Modeling and Simulation of Dynamic Characteristics of the Linear Rolling Guide in Turn-Milling Centre</b> L.D. Zhu, W.S. Wang, J.Y. Yang and T.B. Yu	358
<b>Theoretical Research on the Radial Stiffness of Pre-Loaded Hollow Cylindrical Roller Bearings</b> Y.G. Wei, Y.K. Liu and X.J. Zhang	362
<b>Design of Grate Bed Heat Recovery Unit and Simulation Analysis</b> X.L. Zhang, J. Xu, L.Q. Chen and A.X. Feng	366
<b>Experimental Investigation of Ultrafast Thermalization Dynamics on Nickel Thin Films</b> N.F. Ren, Q.Y. Chen, M.L. Xu and W.F. Jin	370
<b>Fuzzy-Comprehensive Evaluation of Use Reliability of CNC Machine Tools</b> Z.J. Yang, X.C. Zhu, Y.Z. Jia, L.D. Wang, B.B. Xu, X.B. Li and J.W. Lu	374
<b>Order Picking Path Optimization Based on Genetic Algorithm</b> Z.L. Chen, S.X. Xie and D.M. Wu	379
<b>Mechanical Behavior Experimental Study of Microstructure under Tensile Loading and Electric Field</b> Q. Wang, R. Hu, J. Zhang and L.L. Jiang	383
<b>Research on Patterning Principle of Electronic-Roller in Tufting Carpet Machine</b> J.J. Sun, Z. Meng and L.H. Shen	387
<b>Study on the Improvement of Fatigue Crack Growth Performance of 6061-T6 Aluminum Alloy Subject to Laser Shot Peening</b> C.D. Wang, J.Z. Zhou, S. Huang, X.D. Yang, Z.C. Xu and H.Y. Ruan	391
<b>Preparation of Nafion/SiO<sub>2</sub> Composite Membrane of Direct Ethanol Fuel Cell</b> H.J. Ni, C.C. Lv, C.J. Zhang and P. Liao	395
<b>Research on Mathematical Model of Grinding Force in Gear Form Grinding</b> X.Z. Ren, J.P. Ding, J.X. Su and X.Y. Du	401
<b>Numerical Simulation on Temperature Field of the Molten Pool under the Variable Duty Ratio Laser with the Inner Coaxial Powder Feeding</b> G.L. Shi, S.H. Shi, S.H. Wu and Y.K. Wang	405
<b>Research of Special-Shaped Membrane Electrode Assembly for Direct Methanol Fuel Cell</b> X.X. Wang, H.J. Ni, Y. Zhu, M.Y. Huang and P. Liao	409
<b>Development of Recycling System for Fiber-Reinforced Plastics by Superheated Steam</b> J. Shi, S. Wada, K. Kemmochi and L.M. Bao	414
<b>The Development and the Present Status of the Flat-Topped Beam</b> Z. Wu, Y.K. Zhang, Y.X. Ye and H.B. Guan	419
<b>Analysis and Development of the Experimental Apparatus of the Laser-Induced Plasma Spectrum</b> C.M. Meng, H.B. Yao, Y.K. Zhang and Y.Q. Tong	424
<b>High-Performance Heat-Insulated Coating Fabric and its Technology for Producing</b> Y.M. Qian, Q. Wu and Y.D. Zhou	429
<b>Study on Micstructure and Properties of Ceramic- Lined Composite Steel Pipes Produced by Centrifugal-SHS Process</b> Y. Zhu, S.G. Sun, H.J. Ni and M.Y. Huang	434

<b>Study on the Drawing and Trimming Springback Characteristics of Hyperboloid Shallow Shell of Tailor Welded Blanks</b>	
Y.F. Jiang, Z.F. Li, Z.Z. Tang and L. Fang	438
<b>The Numerical Optimization of Laser Shot Peening Parameters Based on Response Surface Analysis</b>	
S.Q. Jiang, J.H. Wu, H.G. Xu and J.Z. Zhou	443
<b>Study on Magnetoelectric Effect in Amorphous Ribbon /PZT Laminate Materials</b>	
B.H. Bao and X.C. Tian	448
<b>Pose Normalization Based on Rotation Transformation</b>	
H. Yuan, M.Y. Pang and Z.P. Lu	453
<b>Design of a New System for Testing the Resistance of Keys of Keyboard</b>	
S.M. Yin, Q. Zhou, R.Q. Gao and P. Zhang	457
<b>Effect of CO<sub>2</sub> Laser Surface Melting on the Microstructure of AZ91D Magnesium Alloy</b>	
J.F. Chen, X.C. Li, J.T. Wang and W.N. Lei	461
<b>State-of-the-Art of Green Water on FPSO in Harsh Environment</b>	
T. Ni, Y. Wang, B.N. Li, S.T. Tang and Y.K. Zhang	465
<b>Study on the Formability of Square Box Deep Drawing of Tailor Rolling Blanks</b>	
Y.F. Jiang, L. Fang, Z.F. Li and Z.Z. Tang	469
<b>The Effect of Heat Treatment on the Microstructure of Electroless Ni-P Coatings</b>	
Y.H. Cheng, Z.C. Zhu and Z.T. Han	474
<b>Experiment of Laser Shock Processing on AISI 8620 Alloy Steel</b>	
R.H. Shen, J.Z. Lu, J.W. Zhong, L. Zhang, K.Y. Luo and Y.K. Zhang	478
<b>Soft Sensor Modeling of Biological Fermentation Process Based on tPSO-FNN</b>	
L. Huang, Y.K. Sun, X.F. Ji, Y.H. Huang and T.Y. Du	482
<b>Artificial Neural Network versus Similarity Method for Tire Model</b>	
C. Huang, C. Long and H.B. Jiang	487
<b>Friction Behaviors of SiC Particle-Reinforced Cu Matrix Composites</b>	
F.Z. Dai, X.J. Xu, J.Z. Lu, Y.K. Zhang and L. Cai	492
<b>Research on the Surface Roughness of Dry Cutting Different Levels of Austempering Ductile Iron (ADI)</b>	
X.H. Xue, X.H. Guo, T.T. Chen, D.D. Wan and Q. Wang	496
<b>Finger Milling-Cutter NC Generating Spiral Bevel Gear Tooth Surfaces &amp; its Machining Simulation</b>	
G.G. Li, X.Z. Deng and B.Y. Wei	501
<b>Experimental Study of Micro-Scale Laser Shock Peening on Copper Foils</b>	
W. Zhu, J.Z. Zhou, M. Wang, S. Huang, D.H. Wei and Y.J. Fan	506
<b>Experiment Study on Nd: YAG Pulsed Laser Cutting Carbon Fibers Composites</b>	
T. Ge, Y.K. Zhang and X.M. Chu	510
<b>Interfacial Reaction of Ni (P)-Sn Coating on Magnesium</b>	
X.L. Ge, C.J. Wang, Z.C. Chen, B. Zeng and D. Wei	514
<b>Numerical Analysis the Tribological Performance of a Laser Surface Textured Mechanical Seal</b>	
Y.H. Fu, J.H. Ji, X.J. Hua and Q.S. Bi	518
<b>The Software Development of Double-Beam Centroid Distance Measurement System in Laser Cladding Forming Process</b>	
C.F. Sun, S.H. Shi, G.Y. Fu and C.S. Li	524
<b>Effect of Volume Fraction of Nanoparticles to the Convective Heat Transfer of Nanofluids</b>	
Z.Y. Ling, T. Zou, J.N. Ding, G.G. Cheng, P.F. Fu, T.F. Zhang and A.J. Zhu	528
<b>Investigation of Laser Shock Processing on the Key Weld Zone of Offshore Platform</b>	
G.M. Liang, Z.Y. Zhang, Y.M. Chen and Z.M. Xu	532
<b>No-Excess Block Construction in Oil Drilling Platform Sevan Driller</b>	
Y.K. Zhang, C.J. Yang, C.S. Guan, T. Ni and J.J. Zhuang	537
<b>The Failure Investigations on the Thin Film Interface under the Dynamic Loading</b>	
H.J. Wang, H.X. Liu, Z.B. Shen, W. Li, Y.Y. Zheng and X. Wang	542
<b>Experimental Study of Micro Deep Drawing for H62 Brass</b>	
G.H. Lu, Z.Y. Xu, R.M. Wang and Y. Wang	548

<b>Investigation on Fatigue Performance of TC4 Alloy by Laser Shock Processing with Different Processing Parameters</b> K.Y. Luo, F.Z. Dai, L. Zhang, J.W. Zhong and H.B. Guan	552
<b>Research on Cutting Performance of High-Speed Steel Drills during Drilling the Powder Metallurgy Nickel-Based Superalloy</b> Y. Qiao, X. Ai and Z.Q. Liu	556
<b>Fatigue Crack Propagation Experiment and Simulation on 7050 Aluminum Alloy</b> X.D. Ren, Y.Z. Huangfu, Y.K. Zhang, D.W. Jiang and T. Zhang	560
<b>Research on Constructing Surrogate Model of Coronary Stent Mechanical Property</b> X. Shen	564
<b>Effects of Processing Parameters on the Laser Deposited Co-285 + WC Coatings</b> G.F. Sun, R. Zhou, P. Li and Y.K. Zhang	568
<b>The Effect of Process Parameters on Strain Rates in Laser Shock Forming</b> Y.F. Jiang, Z.Z. Tang, L. Fang and Z.F. Li	572
<b>Study the Effect of Synchronized Force on Combination Frame Structure of Large Forging Press</b> F.F. Wang, L.H. Zhan, M.H. Huang, Y.J. Wang and M. Liu	576
<b>Analysis of the Thermal Response in Micromachine under the Thermal Shock</b> Y.Z. Wang and X.N. Song	583
<b>Theoretical Calculation and Numerical Analysis of Residual Stress in Laser Peen Forming of Metal Plate</b> J.Z. Zhou, S. Huang, J. Sheng, J.R. Fan and Z.C. Xu	588
<b>The Investigation of the First Order Size Effect in Micro-Plastic Forming</b> Y. Wang, J.J. Wang, J.X. Wang, Z.Y. Xu and P.L. Dong	592
<b>An Efficient and Accurate Method of Relief Segmentation</b> B. Xiang, L.L. An, J.H. Sun and L.S. Zhou	596
<b>Study of the Produce Technology and its Material Characteristic of Cold-Roll Twisted Steel</b> B.S. Xing, C. Du and X.F. Wang	600
<b>Mechanism Research of Low-Stress Threshold of Plastic Accumulation under Super-Low Repeated Impact Stress</b> G.Y. Fu and S.H. Shi	605
<b>The Effects of the Expander Lens on the Output of the High Energy Nd: Glass Solid-State Laser</b> H.B. Guan, Y.K. Zhang, Y.X. Ye, C.Y. Cui, X.M. Qian and Z. Wu	609
<b>2D CFD Analysis of Micro Arc-Groove on the Surface of Tribopairs</b> P.Y. Zhang, Y.H. Zhang, X.J. Hua, X.K. Liu, B.F. Yin and Y.H. Fu	614
<b>Microstructure Evolution of Pearlitic Lamella Impacts at Ultra-High Strain Rates</b> Y. Xiong, T.T. He, F.Y. Zhang, L.F. Zhang and F.Z. Ren	619
<b>Mechanical Effects during Pulsed Laser and Metals Interaction in Neutral Solution</b> H. Zhang, J.W. Xu, J.S. Zhao and G.R. Hua	623
<b>Influence of Laser Shock Processing on the Weld Line and Finite Element Simulation</b> J. Zhang, A.H. Sun, L. Zhu and X. Gu	627
<b>Phases Transformation Analysis of ZrO<sub>2</sub> Ceramics after Laser Shock Processing</b> L.F. Zhang, Y.Z. Wang, Y. Xiong and J. Lu	632
<b>Nanoindentation and Friction/Wear Behaviors of a Magnetron Sputtered Cnx/Sic Films on Magnesium Alloy</b> J.P. Mo, X.N. Cheng, X.J. Xu, D.F. Xia and X.N. Hao	637
<b>The Analysis about Double-Wall Carbon Nanotubes Resonant with the Phenomenon of Energy Dissipation</b> Q.Z. Zhou	642
<b>Laser Cladding of Ni-Based Hardfacing Alloy Replacing Stellite06</b> S. Liu, S.H. Shi, G.Y. Fu and H.P. Wei	647
<b>Simulation and Experiment of High-Speed Dynamic Plate Deformation Process Shocked by Pulsed Laser</b> Y.Q. Tong, H.B. Yao, Y.K. Zhang, M.Y. Chen, B. Yuan and C.M. Meng	651
<b>Structural Topology Optimization for Street Lamp Bracket</b> Y. Wang, G.N. Zhu and Z.W. Zhu	655

<b>Effect of Carbon Nanotubes on the Properties of Natural Rubber Composites</b> H.X. Jiang, Q.Q. Ni and T. Natsuki	660
<b>Monte Carlo Simulation of Light Distribution in Liver Tumors for 808nm Wavelength Laser</b> G.R. Hua, H. Zhang, A.P. Qian and C.J. Lv	663
<b>Investigation on the Combustion and Emission Characteristic of Diesel Engine with EGR</b> B.F. Yin, Z.W. Xu, J.G. He, Y. Xu and Y.Q. Li	668
<b>Influence of Thickness and Substrate on the Transient Reflectivity of Copper Films</b> N.F. Ren, R.X. Wang, J.F. Gu and J.Q. Ren	672
<b>Effect of Strain-Rate on the Fracture Morphology of LY2 Aluminum Alloy by Laser Shock Processing</b> J.Z. Lu, K.Y. Luo, L. Zhang, J.W. Zhong, X.G. Cui and Y.K. Zhang	677
<b>Numerical Simulation Optimization and Preparation of Cu/ZrW<sub>2</sub>O<sub>8</sub> Functionally Graded Films</b> J. Li, X. Yan, C. Xu, L. Zhang, M.W. Li and X.N. Cheng	681
<b>Study on the Properties of the Laser Cladded Cobalt-Based Alloy Coating on T10 Tool Steel</b> C.Y. Cui, X.G. Cui, Y.K. Zhang, Q. Zhao and J. Lu	686
<b>Numerical Simulation and Calculation of the Temperature Field during Laser Surface Melting the Pure Al</b> X.G. Cui, C.Y. Cui, X.N. Cheng, X.J. Xu and J. Lu	690
<b>Microstructure of Laser Cladded Cobalt-Based Alloy Coating on T10 Tool Steel</b> Q. Zhao, Y.K. Zhang, C.Y. Cui, X.G. Cui and J. Lu	694
<b>Optimization of Process Parameters for Vacuum Casting Micro-Gear</b> Y.C. Dai, J.Z. Zhou, S. Huang, J. Guo and L. Xiao	698
<b>Fundamentals of Selective Laser Sintering of 316 Stainless Steel Powder</b> P.K. Bai, Y.X. Li and B. Liu	703
<b>The Microstructure and Properties of LY12 Aluminum Alloy by Ultra-High Plastic Strain</b> L.F. Zhang, K.Y. Luo, J.Z. Lu, Y. Xiong and Y.Z. Wang	708
<b>Carboxymethyl Chitosan Nonwoven Scaffold for Bone Regeneration</b> X.X. Bao, A. Teramoto and K. Abe	712
<b>Effect of Easing Device on an Air-Jet Loom of Double Back Rest System</b> S.Y. Wang, Z.H. Feng and F. Lv	717
<b>The Energy Distribution of Tire-Road Noise and Noisy Speech Based on Wavelet Packet</b> Z.Y. He and L.H. Luo	721
<b>Surface Modification of Polyethylene Film by Atmospheric Pressure Glow Discharge Liquid Deposition Polymerization</b> X.M. Jiang, Y.N. Rui and G.Q. Chen	725
<b>"OF + N" Theoretical Method and Practice to Create Inventive and Innovative Topics</b> Y.N. Rui, X.M. Jiang and K.Q. Liu	730
<b>Research on Modeling of EPS with Bond-Graph Theory and Simulating of Steering Maneuverability</b> J. Tang, H.B. Jiang, G.Q. Geng and N.W. Xue	736
<b>Yarn Tension Analysis in Typical Carpet Tufting Equipment System</b> Y. Xu, Z.J. Sun, Z. Meng, Y.Z. Sun and G.F. Chen	741
<b>Automatic Location of Pills in Woven Fabric Based on Gabor Filter</b> W.D. Gao, S.Y. Wang, R.R. Pan and J.H. Liu	745
<b>The Pyrocarbon Deposition Techniques of Mechanical Heart Valve Prostheses</b> J.H. Zhang and X. Chen	749