## **Table of Contents**

Preface

Remelting Technology and Microstructural Evolution of Semi-Solid Al-7Si-2RE Alloy S. Xie, R.X. Yi, X.Y. Guo, X.L. Pan and X.Q. Zheng	1
Study on Prediction Model and Experiments of High-Speed Milling Force for Stainless Steel 316	
W.F. Zheng, J.Q. Wu, C. Liu, G.H. Li and G.Y. Tan	6
<b>Research on Velocity Directional Manipulability of Dexterous Robot Hand</b> J.F. Pei and J.S. Cheng	11
<b>Design of High Speed NC Crankshaft Grinding Machine</b> X.J. Wang and Z.H. Liu	17
<b>Dynamic Property Simulations of Hydraulic Cylinder Based on Simulink</b> X.S. Jin, B.H. Rong and X.Z. Tang	22
Malfunction Signal Analysis of NC Machine Tool Gear Based on Kalman Y.S. Luo, Y. Yang, Y.Z. Li and X.J. Wang	28
Comparative Studies of Activated Carbon-Attapulgite and Zeolite-Attapulgite Composite Adsorbent on Congo Red Adsorption Z. Weng, Z.Q. Jing, Y. Kong and W. Shen	34
Simulation Experiment on Friction Coefficients during Warm Deep Drawing of Magnesium Alloy Sheet	
T.F. Zhang, S. Xie, J.H. Huang and Z.H. Guo	38
<b>Topological Synthesis of Planetary Gear Trains</b> Y.F. He, Q. Yu and Y.M. Wang	43
<b>The Design of Surface Geometric Microtexture Based on Function</b> B.K. Li, Y.W. Liu, D.W. Zuo and N.N. Li	51
<b>Experimental Measurement of Quantum Entanglement and Quantum Information Remote</b>	
Control Z.G. Wang	55
The Friction and Wear Properties of VC Coating by TD Process C.Z. Zhou, D.J. Kong and Y.F. Yan	61
<b>Study and Application on Automatic Welding of Bellows Based on Laser Measurement</b> W.H. Zhao, Z.Y. Duan and S. Liu	66
Classification of Wear Debris Using Weighted Fuzzy Cluster Method D.Q. Peng and F. Xu	70
The Artificial Neural Network and Regression Analysis Approach to Prediction of the Fiber Diameter of Spunbonding Fabrics B. Zhao	74
Improving Design of Automobile Drive Axle Housing Base on ABAQUS N. Sang	79
<b>Design and Testing of the Copper Pipe and Aluminum Pipe Welding Control System</b> Y. Zhang, Q.D. Li, T.L. Sun and X.C. Zhang	84
Analysis of the Milling Distortion due to Residual Stress Based on Analytical Method Y.W. Liu	88
<b>The Development of a New Type Dissolving Instrument of Gallstone</b> B.Q. Zhu, J.Q. Niu, Q.L. Jin, Z.L. Yu and C.H. Piao	92
<b>High Voltage DC Power Supply Used in Electrospinning</b> Y.Y. Liu, C.J. Jing, Q.X. Hu, Q.W. Li and Q.G. Wang	96
<b>P-CMAC-Based Control Method and its Application in Filament Tension Control</b> D.X. Chen and G. Wang	101
Effects of Ultrasonic and Mechanical Stirring on Microstructures and Properties of Nano-Composites	
R.D. Xu, J.L. Wang and Y.Z. Zhang	105
Manufacture and Characteristics of Fibrous Composite Z-Pins X.X. Wang and L. Chen	110

Numerical Study on Shock Wave Propagation with Obstacles during Methane Explosion Z.M. Qu	114
Experimental Researches on Temperature-Dependent Tensile Properties of Laminated Resin Composites Reinforced by Plain Woven Fabric	110
G.W. Chen, J.L. Li and G.F. He Scratching Experimental Research on the Effects of Cutting Fluids on the Machinability of	119
Glass BK7 in Diamond Cutting Process M. Zhou and P. Jia	123
Modal Analysis and Design of Six Dimensional Vibration Damping Device Based on	
Hexapod Platform W. Zhu, D.J. Kong and A.P. Hu	128
Analysis of Nozzles of Rapid Prototyping System Oriented to Bio-Manufacture M.H. Chen, T.C. Shi, X. Hu and J.H. Cai	132
The Anti-High Voltage Design of a Double Switching Forward DC/DC Converter A.H. Wang	139
Enterprise Life Cycle's Decision-Making Characteristics in Various Stages and Innovation Management Strategy Analysis	1.10
Y.J. Miao  Function Design of Coal Cutting Machinery Pased on Variant Design	143
Function Design of Coal Cutting Machinery Based on Variant Design C.Y. Zhao, W.D. Wu and D.Y. Shi	148
The Underwater Bubbles Image's Acquisition and Processing P. Cheng, J.A. Wang, D.H. Qin and G.Y. Mei	152
The Research of Optical 3D Measuring Precision Influencing Factor in Reverse Engineering F. Su	157
Orientation Evolution and Nucleation Mechanism of UFG-Copper Prepared by SD-AARB with Heat Treatment	
J.L. Wang and Q.N. Shi	163
Microstructure Characterization of Alumina/Carbon Nanotubes Composite Coating S. Bi, X.J. Su, G.L. Hou, Z. Xiao and G.Q. Gu	168
Comparative Experimental Research on Cutting Superalloy Used New Coated Carbide Tools	
X.Y. Wang, S.Q. Pang and Q.X. Yu	173
Visualization Research of Roadheader's Memory Cutting Research H.Q. Zhao and S.S. Wang	177
Optimization Design of Two Dimensional Vibrating Platforms Using Dual Flexure Hinge Structure	
H. Ding, S.J. Chen and K. Cheng	181
The Application of Grey Relational Fault Tree Analysis in Mine Hoist Overrelaxation Accident	40.
P.S. Wang  Development of a Macausing System for Stiffness Evaluation of Micro Torsion Por	185
<b>Development of a Measuring System for Stiffness Evaluation of Micro Torsion Bar</b> C.J. Liu and B.S. Zhu	190
<b>Ball End Milling of Glass with Inclined Cutter</b> Y.X. Qin, J.H. Jia, Z. Wei, M.L. Gu, T.H. Li and Y.T. Wang	195
<b>Tool Wear in High Speed Milling of SiCp/Al2024 Metal Matrix Composites</b> Y.J. Wang, M. Zhou, S.N. Huang and Y.J. Zhang	200
Studying Technology of Collaborative Virtual Prototyping of Louver under ADAMS	
Platform F.C. Liu and L.Y. Yang	204
Research on Accuracy Verification for Three-Dimensional Measurement Machine with Non-Contract and Surface Scanning	200
S.G. Niu and L.Y. Yang  Finite Element Simulation and Analysis of Strain and Strain Rate of Material in Micro-	208
Milling	212
Y.Z. Sun and H.T. Liu  New Support Fast Generation and Application in Stereolithgraphy Apparatus	212
B. Qian	217

Modeling and Simulation of Cop Slide Groove Mechanism Based on Virtual Prototype Technology	
D.G. Chang, C.S. Zhang, N.N. Yu and S.L. Yao	222
<b>Research on Information Construction of SME and Information Talent Cultivation</b> S.B. Wang and C. Wang	226
Effects of Splicing Chamber Parameters and Splicing Air Pressure on Splicing Performance D.G. Chang, C.F. An, Z. Yang and L.P. Liu	231
Rapid Tooling of Mixer Mixing-Blade of Concrete Mixer P. Xing, X.J. Yin and J.Y. Zhao	236
Active Service Using Acquaintance Nodes in Intelligent Manufacturing Environments R. Wang	241
Research on Machined Surface Quality for High Speed Turning Titanium Alloy Membrane Discs and Optimization of Cutting Parameters W. Zhang, M.L. Zheng, M.M. Cheng and W.Y. Shi	246
Preparation and Performance of Porous Membrane Materials Using the Sol-Gel Method P. Zhang, G. Chen, B. Guo and S.K. Cheng	251
Study on the Model of Surface Toughness Forecasting in Powder-Mixed Pulse Electrochemical Polishing Based on Neural Network X.S. Zhao and M. Fang	254
Study on Phosphorus Adsorption Dynamics of Fly Ash Filtering Material	
S.W. Cao, Z.Q. Jing and X.Z. Zhang	259
Research and Application of Stamping Technique of Automobile Covering Panel Parts X.L. Guo, H.M. Lu and W.X. Xu	263
<b>Process Parameters Optimization of Ballscrew Manufactured by Cold Rolling</b> F.K. Cui, X.J. He, Y. Li and Z.R. Han	268
On the Study of Electric Vehicle Regenerative Braking Z.L. Han and Y.Y. Wang	273
Effect of Heat Treatment Process on Gear Distortion H.M. Wang, X.C. Ma and X.J. Wang	276
The Modeling and Implementation of Virtual Enterprise Based on Multi-Agent System J.B. Wang, J. Pang and B.C. Jiang	280
The Research of Network Congestion Control Based on Multi-Agent H.B. Wang, H.X. Yang, D. Wang and J. Wu	285
Effect of Cu <sup>2+</sup> Doped in Sol on Properties of Sealed Film on Anodized Al Alloy Q. Zhou, X. Wang, L.F. Zhang, X. Ma, H.B. Li, C.L. He and P. Zhao	290
Ultrasonic and Vibration Signals Processing for Computing Dynamic Modulus of Elasticity of Intact and Damaged Wood S.Y. Ni, H.D. Xu and L.H. Wang	295
A 3D Reconstruction Method Based on Binocular View Geometry Z.Y. Liu, G.Q. Wang and D.P. Wang	299
Fabrication of Refined Isometric Crystals of Semi-Solid Al7Si2RE Alloy S. Xie, R.X. Yi, X.Q. Zheng, Z. Gao and X. Xia	304
The Prediction of Fiber Diameter of Spunbonding Nonwovens by Using Neural Network	
and Empirical Statistical Methods B. Zhao	309
A New Red Emitting Phosphor Mg <sub>2</sub> SnO <sub>4</sub> : Eu X.J. Wang and X.C. Zhou	313
The Sensitivity Analysis of Reliability about Large Winding Hoist Cylinder Shell Y.X. Li and G.L. Zhou	317
Failure Modes Analysis of Electromagnetic Flowmeter Based on Grey Relational Analysis Z. Zhou, L.B. Li, Y. Qin, D.Z. Ma and B. Niu	322
Microcystin-LR Degradation of Titanium Dioxide Process by Solar/ S-Doped C. Liu, W. Chen, M. Wang and Z. Cao	327
The Research of Bionic Robot Dynamic Target Tracking System P. Wang, X.F. Ye, S.C. Kang and J.L. Xin	332
Research on Integration of PDM and ERP System C. Wang, S.B. Wang and F.L. Zhang	337

Experiment and Study on Real-Time Testing System of Fertilizer Amount Based on ATS665 Precision Seeder K.Q. Wang, F.Y. Qu and B. Zhao 34	42
The Investigation of Tool Wear in High Speed Cutting INCONEL718	47
Location Decision of City Logistics Facility Based on Fuzzy Synthetic Evaluation	51
Model of End Milling Force Based on Undeformed Chip Surface with NURBS in Peripheral Milling	-
	56
Agent Based State Monitor Framework for RP Manufacture Process Y. Yao, J.Y. Liang, F. Wang and K. Zhou 30	63
The Researchment for Tiny and Embedded Solid Error Check Algorithm of CAD Model C. Hu and M.H. Xu	68
Research on Drilling Process of Nickel-Based Super-Alloy J. Wu and R.D. Han	73
Evaluation of Regional Technological Innovation Efficiency Based on Principal Component Analysis and DEA H.M. Chen, Z.Y. Wu and W. Jin	78
The Research of Tissue Engineering Scaffold about Spinal Cord Injury	70
	83
Vehicle	90
Analysis of the Competitiveness of Service Outsourcing Demonstration City in China W. Wang and J.F. Cheng	94
The Operational Efficiency Analysis of Listed Companies in Road-Transportation Industry of China Based on DEA	
	99
	04
, , , , , , , , , , , , , , , , , , , ,	08
	13
	18
<i>5,</i>	23
The Realization of the Key Technology in Image Capture Based on the Three-Dimensional Grating Surface Measuring Apparatus X.D. Xie, J.T. Cheng, W.L. Zhao and S.B. Xiao  42	28
The Expert System Design of Shearer Spiral Drums	33
<b>Experimental Study for the Optical Cutting Tool Path of High Speed Milling Al-Alloy</b>	37
State-of-the-Art in Micro-Forming of Ultra-High Strain Rate	41
Forming Principle and Error Analysis of Ballscrew Manufactured by Cold Rolling	45
Gear Fault Diagnosis Based on Wavelet-Support Vector Machines	50
Experimental Study on Carbide Tool Wear Characteristics Test for High Speed Finish Milling Aluminum Blades	<i>-</i> 4
	54
Study of Tribological Properties of MoS <sub>2</sub> /Cu-Fe Matrix Self-Lubricating Composites Prepared by Induction Sintering at Elevated Temperature C.Q. Fu and Z. Wang 4:	58

Empirical Study on Determine the Weight of Industry-University Cooperation Education Quality Evaluation Index G.F. Du	463
Memory and Human Nature and our Developments: Hypothesis from Narrow Dimensions and Generalized Dimensions K. Yu and J.W. Luo	469
Costume and the Self-Extension: The Functions of Costume in Elmer Gantry from the Perspective of Material Culture J.W. Luo and K. Yu	474
Study on Energy-Saving Mode of High-Quality Anti-Corrosion Micro Arc Oxidation Coatings on Magnesium J.J. Xi, P.N. Wu, J. Zhao and W. Wang	479
Trial on C <sub>3</sub> N <sub>4</sub> Coating Cutter Hard-Dry Cutting on Hardened Steel H.D. Yang, X.Q. Xia and Z.H. Qing	483
Effects of Spindle Speed on Surface Qualities in WPC Sawing X.L. Guo, H.N. Liu, W. Gao, P.X. Cao and Y. Guo	487
<b>Preparation of Compact Micro-Arc Oxidation Coatings on Aluminum Alloys</b> P.N. Wu, J.J. Xi, J. Zhao and T.J. Wang	492
Numerical Simulation of Stamping Forming of Automobile Cover H.M. Fang and G.S. Zhang	496
Springback Analysis of Stamping Forming of Auto Beam G.S. Zhang and H.M. Fang	502
Parameterized Finite Element Analysis System of Turbine Rotor Thermal Deformation Based on the Secondary Development of ANSYS N.J. Wang, X.W. Jin, J. Wang and H.L. Diao	506
Study on Information Technology Adoption in Rural Areas Based on Network Externality L. Cen and F.L. Zhang	509
Design and Kinematic Analysis of Two Novel 1-Translation and 2-Rotation Parallel Mechanism X.Q. Huang, H.P. Shen and X.M. Xin	513
Study on Processing and Model Building of Composite Structure Forming for 3-D Regenerative Bone Scaffold D.L. Liu, V.Y. Liu, O.Y. Liu, F. You and H.C. Zhang	518
D.L. Liu, Y.Y. Liu, Q.X. Hu, F. You and H.G. Zhang  Monitor On-Line and Fault Diagnosis to High Speed Centrifugal Hydrogen Compressors  Based on the Theories of EMD and Correlation Dimension  H.I. Liu, X.P. Li and Y.N. Rui	523
Theoretical and Experimental Research on Tapping Forces of Nickel-Based Superalloy GH4169	
Y.L. Tang, R.D. Han and L. Geng  Research on Mechanical Structure Optimization Oriented to Dynamic Characteristics	528
M. Hu, T.Y. Wang, S. Yang, Z.F. Qiao and D.P. Li  Fault Diagnosis of Hydraulic Pump Based on Multi-Sensor Data Fusion	533
Y. Liu, D.W. Zuo, Y.H. Wang, J. Han and X.Q. Yang  Study on Universal Testing Platform of Engineering Machinery	539
X.Q. Yang, Y.M. Gao, Y. Liu and J. Han  Chip Formation of Highly Efficient Cutting Titanium Alloy Membrane Disk	544
S.C. Yang, M.L. Zheng and Y.H. Fan	549
Study of High Efficiency in Green Cutting Nickel-Based Superalloy GH4169 R.D. Han, H. Wang, Y. Zhang and Q.W. Yao	555
Study on Product Customization Design Knowledge Framework Based on Ontology Z. Gao, X.M. Ji and H. Guo	560
On the Optimization of Internal Control System from the Perspective of Corporation Governance S.H. Zhang	564
Investigation of Fiber Diameter in Spunbonding Process via Mathematical Modeling B. Zhao	567
Research on Characteristics and Models of China's Cooperative Education C.M. Liu, Z.L. Wang and J.L. Chen	571

The Distribution of Rare Earth Element on A356 and its Influence on A-Solidification Z.Q. Zheng, X.G. Xiong, K.M. Chen and Z.R. Zheng	575
Dynamic Response Characteristic Analysis of the Wind Turbine Tubular Tower Based on ANSYS Workbench Z.H. Liu and X.J. Wang	580
Study on the Design of Co-Operative Education Quality Evaluation Indicators G.F. Du, Y. Zhao, C. Ma and S.P. Yu	583
Reciprocating Pump Bearing Fault Diagnosis System of Virtual Instrument Based on Probabilistic Neural Network	<b>700</b>
J.F. Pei and C.J. Shan  Porous Pipe Dispersion Aquaculture Aerator Research Based on Two-Phase Flow Characteristics	588
Q.D. Chen and Q.Z. Chen  Research on Characteristics and Models of China's Cooperative Education	593
C.M. Liu, Z.L. Wang and J.L. Chen  Research and Development on the Open PMAC-Based CNC System Software	598
M. Pan  Influence of Laser Surface Melting on Wear Resistance of AZ91D Magnesium Alloy	602
J.F. Chen, X.C. Li, R.X. Li and L.D. Shen  Nonlinear Speed Control of a Series DC Motor	607
B.X. Tang and Z.J. Wang The Failure Diagnosis of the Step-Up Gearbox in the Finishing Mill and the Formation of its	612
Intelligent System S.S. Chen and P.P. Yang	618
<b>Study on Dynamical-Filtering Roller-Type Oil Screen Pipe Based on Ordinary Gear Train</b> S.J. Xin and I. Zhong	623
The Influence of Surface Tension on Lubrication Characteristics J.P. Liu and X.Y. Zhang	627
<b>Design on Disc Cam Mechanism of Roller Follower</b> A.P. Hu, D.J. Kong and W. Zhu	631
The Arc-Length Method from Controlling Load to Controlling Electric Potential X.B. Yang	636
Fan Rotating Stall Fault Diagnosis and Treatment J. Hu	642
<b>Degree of Freedom of Twin Tripod Universal Joints</b> D.G. Chang and B. Zuo	647
Kinematics Simulation of Twin Tripod Sliding Universal Joints D.G. Chang, B. Zuo and Z.D. Liu	651
Used-Car Dismantling and Recycling of Key Technologies Y. Liu and Z.W. Chen	655
Motion Simulation of Twin Tripod Sliding Universal Joints D.G. Chang, Z.D. Liu and B. Zuo	660
<b>A Proof Research on Regional Integration of Industry Based on the SWOT Analysis</b> T. Li and C.Y. Zhang	663
The Influence of Processing Parameters on Gas Penetration in GAIM for Thick-Wall Parts H.L. Shen and L. Feng	669
The Research of Recovery Process of Accident Vehicle Based on FEA J.G. Dai	674
The Application of Air Pickax in Quicklime Feeding System B.M. Chen and F.X. Yang	679
Optimal Design Methods of Mechanical Product Driven by Key Performance of System Y.H. Hu, L.H. Zhang and S.X. Wang	683
Light-Strip Model Based Highlight-Line Method for Surface Interrogation B.G. Yang, H.C. Shen and W.S. Zong	688
Reliability Simulation of Mining System for Mechanized Coal Face C.Y. Dong, D.H. Pan, J.T. Shi and X. Liu	695
Removal of Pb(II) from Aqueous Solution Using Composite Filter Material Made of Fly Ash H.Q. Xue, X.D. Liu, Z.Q. Jing and C. Zhao	700

The Method of the Coal Mining Machine Height Control Based on Magneto-Rheological	
<b>Tactile Reappearance</b> C.R. Tang, C. Zhao and H.J. Li	704
A Research on Management Entropy Model and Its Application in the Process of Business	701
Growth M.L. Zhang	709