

Table of Contents

A Methodology of Off-Line Optimization for NC Milling Process Y.X. Yao, C.Q. Liu, J.G. Li, H.J. Jing and S.D. Chen	1
Experimental Study on Ultrasonic Grinding and Polishing for Large-Scale Silicon Wafer W. Bleck, M. Wang, D.W. Zuo, M. Wang and Y.N. Rui	6
The Research on the Method of Ultrasonic and Electric Spark Combined to Machine Diamond Cupping Mould Y.N. Rui, M. Wang, D.W. Zuo and M. Wang	10
The Influence of Grinding Parameters on the Superficial Hardening Effect of 48MnV Microalloyed Steel B. Xiao, Y.C. Park, H.H. Su, W.F. Ding, Y.C. Fu and J.H. Xu	15
Virtual Reality in Optimizing the Groove of Blade Y.Q. Chen, Z.J. Li, Q.B. Huang, Y. Ma and D.Y. Yang	20
Research on High Speed Ball-End Milling Forces B. Jiang, M.L. Zheng, S.C. Yang and M. Fu	25
Framework and Modeling of Networked Manufacturing for Automobile Die J.K. Sun, Z.Q. Li, C.Z. Huang and Q. Gao	30
Primary Study of Polishing with Flotative Abrasive Balls Y. Dai, W.T. Liu, J.L. Yuan, X.J. Yu and Z.Z. Zhou	35
Effect of TiN Addition on the Low Temperature Degradation of Ceramic Tool Materials 3Y-TZP J. Sun, C.Z. Huang and J. Wang	40
Experimental Study on Green Cutting with Water Vapor as Coolant and Lubricant R.D. Han, J.Y. Liu, Y. Zhang and L. Zhang	45
Research on Vibration Tapping of Hardened Steel R.D. Han and B.L. Yin	51
Research on Theory and Technique of Point Form Grinding for Quadratic Surface Flank of Twist Drill C. Li, M. Wang and D.W. Zuo	56
Corrosion Resistance of TC4 Alloy Implanted by La⁺, Mo⁺ X.F. Li, Z.S. Wei, D.W. Zuo and M. Wang	61
Double-CCD Stereoscopic Vision System Monitoring Chip Shape H.H. Xu, X.F. Li, D.W. Zuo and M. Wang	66
Machining Accuracy Enhancement by Modifying NC Program H.J. Jing, Y.X. Yao, S.D. Chen and X.P. Wang	71
Dynamic Calibration of Metal Cutting Dynamometer Y.Q. Huang and Y.S. Xu	76
Experimental Research on Technology of Ultrasonic Vibration Aided Electrical Discharge Machining (UEDM) in Gas Q.H. Zhang, J.H. Zhang, Q.B. Zhang and S.P. Su	81
Neuron Optimization Based PID Approach for Cutting Force Control S. Jiang, Y.S. Xu and J. Wu	85
FEA and Precision Machining on Ceramic Plunger Couple X.L. Tian, X.J. Tang, A.B. Yu and X.P. Bi	90
Friction and Wear Behaviors of Three Ceramic Composite X.F. Yang, J.X. Deng, J. Zhou, S.Q. Yao and C. Li	94
Volumetric Positioning Errors of CNC Machining Tools and Laser Sequential Step Diagonal Measurement J.H. Shen, H.T. Zhang, H.T. Cao, J.G. Yang and C. Wang	98
Sawing of Granite with Side-Slotted Diamond Segments Y.Q. Yu, Y.F. Zhang, Y. Li and X.P. Xu	103
Study on the Wear and Breakage of PCD Tools for Turning Si-Al Alloy Pistons J.H. Zhang, X.H. Zhang, L. Li, Z.H. Shang and W.F. Bai	108
Quality Analysis of Pulsed Laser Cutting of Superalloy Sheet S.J. Lv, Y. Wang and S.J. Ji	113

Study on the Multi-Scale Nanocomposite Ceramic Tool Material H.L. Liu, C.Z. Huang, J. Wang and B.Q. Liu	118
Effect of Nano-Scale Al_2O_3 on Mechanical Properties of TiB_2 Ceramic Tool Materials M.L. Gu, C.Z. Huang and J. Wang	123
Theoretical Analysis on the Machining Mechanism in Ultrasonic Vibration Abrasive Waterjet H.T. Zhu, C.Z. Huang, J. Wang, Y.X. Feng and R.G. Hou	127
A Study on Design of Ultra-Precision Micro-Feed Stage Q. Zhang and Z.S. Lu	131
Study on High-Speed WEDM in Gas T. Wang and X.F. Zhang	136
FEM Simulation of the Residual Stress in the Machined Surface Layer for High-Speed Machining S.Y. Wang, X. Ai, J. Zhao and Z.J. Lv	140
Cutting Temperature in High Speed Milling of a Near Alpha Titanium Alloy G.S. Geng, J.H. Xu, Y.C. Fu, Y.F. Ge and C. Su	145
Simulation of Velocity Field of Two-Phase Flow for Gas and Liquid in the Abrasive Water Jet Nozzle R.G. Hou, C.Z. Huang, J. Wang, Y.X. Feng and H.T. Zhu	150
Effect of Nano-Scale TiN on the Mechanical Properties and Microstructure of Si_3N_4 Based Ceramic Tool Materials B. Zou, C.Z. Huang, J. Wang and B.Q. Liu	154
Nanomechanical Properties of Single-Crystalline Silicon Wafer Irradiated by High-Energy Femtosecond Laser Pulses Y.S. Wang, Y.C. Liang, S. Dong, W.W. An and B. Wang	159
Thermal Characteristics of the Headstock System on the NC Precision Lathe C. Guo and Q.H. Sun	164
A Parametric Interpolator with Smooth Kinematic Profiles for High Speed Machining Y.P. You and J. He	169
The Application of FEM Technology on the Deformation Analysis of the Aero Thin-Walled Frame Shape Workpiece H. Guo, D.W. Zuo, S.H. Wang, M. Wang, L.L. Xu and J. Hu	174
Interference-Free Tool Path Generation for 5-Axis NC Machining with a Flat-End Cutter L. Xie, X.Y. Ruan, M. Li and Q.J. Wu	180
Forces in Surface Grinding of Granites with a Brazed Diamond Wheel H. Huang, G.Q. Zhang, Y.J. Zhan and X.P. Xu	185
Study on Surface Quality of Nano ZrO_2 Ceramics in Grinding by the Aid of Ultrasonic Vibration D.H. Xiang, Y.P. Ma, B. Zhao and M. Chen	190
The Development of Special Drills for High-Efficient Drilling Austenitic Stainless Steel Part I: Drill Comparison and Experiment Research G. Liu, M. Chen, L.L. Jing, Z.G. Hu, X.F. Zhu, Z.W. Li and H. Xu	195
The Development of Special Drills for High-Efficient Drilling Austenitic Stainless Steel Part II: Coating Selection and Experiment Research M. Chen, G. Liu, L.L. Jing, Z.G. Hu, X.F. Zhu, Z.W. Li and H. Xu	200
Deposition of Diamond Films on Smooth Surfaces of Cemented Carbide Inserts with Cobalt Boride Interlayers Y. Wang, Y.P. Ma, F.H. Sun, Z.M. Zhang and M. Chen	205
Fabrication and Application of Diamond-Coated Bearing Support Implements F.H. Sun, Y. Wang, Z.M. Zhang and M. Chen	210
The Design of Noncircular Gear of Constant Pressure Angle and the Realization of Its Wire-Electrode Cutting L.G. Zhao, D.W. Zuo, L. Fan, R.F. Chen, D.S. Li and M. Wang	215
Investigation on the Cutting Performance of a New Kind of Nickel-Based Super Alloy D.L. Wang and Y.Q. Kong	220
ELID Grinding Based on the State Control of Passivating Films C.Z. Ren, J.M. Che, T.Y. Wang, W.D. Jin and X.M. Jin	225
Electronic Subdividing Method for Linear Encoder of High Speed Position Detection W. Zuo, J.F. Zhi, S.T. Huang and G.M. Zhao	230

Numerical Simulation of Machining Distortion of Residually Stressed Aircraft Aluminum Components	
Q.C. Wang, X.D. Hu, W. Li and J.L. Yuan	235
Experimental Study on the Laser Direct Fabrication of Stainless Steel Components	
J.L. Song, Q.L. Deng, C.Y. Chen and D.J. Hu	239
The Application of Cryogenic Pneumatic Mist Jet Impinging in High-Speed Milling of Ti-6Al-4V	
Q.L. An, Y.C. Fu and J.H. Xu	244
Study on Non-Burr & Sharp-Edge Protecting Grinding Method of Functional Edge	
G.L. Wang, X.D. Pan, D.X. Shao and Z.S. Lu	249
Research on Field-Induced Oxidation Processing Technology by Contact-Mode AFM in Ambient Air	
S.M. Ji, L.B. Zhang, L. Zhang, X.J. Jia, Q.L. Yuan, J.L. Yuan, J.X. Shi and Y.L. Wang	254
Research on Properties and Formation Mechanism of Ceramic Coatings Prepared by Micro-Arc Oxidation on 2024 Aluminum Alloy Surface	
W.S. Zhao, T.Z. Xin, Z.L. Wang and J.C. Liu	259
Study on the Testing Technology of Main Residual Stress of Metal Sheet Based on Soft X-Ray Diffraction Stress Analyzer	
A.X. Feng, Y.K. Zhang, D.W. Zuo, D.J. Kong, C.J. Yang, S.M. Yin, H.K. Xie, J.Z. Zhou and J.Z. Lu	264
The Effects of Rare Earth on the Hot Pressing of Cu-Sn-TiH₂ Bonded Diamond Composites	
Y.Q. Yu, X.R. Tie, Y. Li and X.P. Xu	269
Modeling and Real-Time Compensation of Cutting Force-Induced Errors on NC Turning Center	
H. Wu, G. Turyagyenda and J.G. Yang	274
Visualized Characterization of Slurry during CMP Based on LIF	
J.L. Yuan, F.Y. Lou, Z.Z. Zhou, Z.W. Wang and B.H. Lv	279
Research on Ultra-Precision Lapping Technology for Super-Smooth Surface of KTP Crystal	
B.H. Lv, J.L. Yuan, Y.X. Yao, Z.W. Wang, F.Y. Lou and P. Zhao	284
Study on the Mechanism of the Continuous Composite Electroplating Polishing for Silicon Wafer	
J.J. Zheng, Z.Z. Zhou, J.L. Yuan and P. Zhao	289
The New Technology of Floating Polishing of Large Die Surfaces	
X.C. Xu, Z.J. Yuan and Y.Q. Chen	294
Study on the Thermal Shock Resistance of Si₃N₄/TiC Nanocomposite Ceramic Tool Materials	
J. Zhao, X. Ai and Z.J. Lv	299
Modeling of Material Removal in Workpiece Lateral Ultrasonic Vibration Grinding of Fine-Crystalline Zirconia Ceramics	
Y. Wu, B. Zhao and X.S. Zhu	304
Analyses on the Solution Areas of Multi-Point Machining Constraints	
R.Q. Wang, W.Y. Chen, M. Jin, J.Y. Pang and H.T. Ye	309
Study on Motion Model of Abrasive Particle and Surface Formation Mechanics under Two Dimensional Ultrasonic Grinding	
B. Zhao, Y.Y. Yan, Y. Wu, F. Jiao and C.S. Liu	314
Cutting Parameters Optimization of High-Speed Milling of Thin-Walled Graphite Electrode	
Z.L. Hu, C.Y. Wang, L. Zhou, H. Fu and J. Chen	319
Application of the Restoration Algorithm of Cutting Tool Images Based on Fuzzy Theory to Monitor Tool Wear Condition	
Y.L. Wang, S.M. Ji, Y. Xie, X.J. Lan, J.S. Lu and S.S. Jin	324
PCBN Tool Wear Mechanism in Interrupted Hard Turning SAE8822 Hardened Steel	
L. Xiao, M.X. Zeng, D.H. Wen, H.H. Wu and B.H. Si	329
PCBN Tool Wear Mechanism in Hard Turning Hardened Bearing Steel	
S.J. Dai, D.H. Wen and J.L. Yuan	334
The Analysis and Calculation of Shock Track during Laser Shock Forming	
S.M. Yin, C. Jin, Y.K. Zhang, J.Z. Zhou and J.C. Yang	339

Selective Laser Sintering of Multi-Component Cu-Based Alloy for Creating Three-Dimensional Metal Parts D.D. Gu and Y.F. Shen	344
Modal Analysis of Circular Diamond Saw-Blade for Deep Sawing of Granite Y. Li and X.P. Xu	348
Performance Evaluation of Electro-Rheological Fluid and Its Applications to Micro-Parts Fine-Machining Q.S. Yan, F.F. Bi and N.Q. Wu	352
Balling Process in Selective Laser Sintering 316 Stainless Steel Powder Y.F. Shen, D.D. Gu and Y.F. Pan	357
A Study on Ontology-Based Modeling Technologies for the Construction Machinery Conceptual Design Knowledge Management J. Hu, W.H. Liao, Y. Dai and H. Guo	361
Identification Method of Structure Transfer Function for Machine Tools Based on Pseudo-Random Process Q.S. Zhang, W. Zhang and Y.S. Xu	366
Generation Process of Nanometric Machined Surfaces of Monocrystalline Cu Y.L. Tang, Y.C. Liang, X.D. Liu, J.H. Dou, D.X. Wang and J.W. Zhao	370
The Development of the Precise Double Sided Polishing Machine G.X. Hu, X.D. Hu, Y.F. Jin, X.Z. Hu and W. Li	375
Prediction of Precision Hard Cutting Force Based on Unit Cutting Model D.H. Wen, J.L. Yuan, Q.L. Yuan and B.H. Lv	380
Effect of DC-Plasma Arc Behavior on Growth of Diamond Film D.S. Li, D.W. Zuo, R.F. Chen, B.K. Xiang and L.G. Zhao	385
Analysis of Reversible Fine Machining Sequence Effect on Surface Integrity W.G. Wu, S.Q. Pang and Z.Q. Liu	391
Recent Development of Abrasive Water Jet Machining Technology C.Z. Huang, J. Wang, Y.X. Feng and H.T. Zhu	396
Research and Development of High Speed Cutting Tribology X. Ai, J. Zhao, Z.Q. Liu, J.X. Deng and J.G. Liu	401
Study on Mechanical Properties of Cermet Materials Fabricated from Ternary Boride Cladding on Both Sides Surface of Steel Substrate W.L. Huang, F.T. Liu, C.Z. Huang, Z.Q. Li and F. Dong	406
Intelligent Matching of Cutting Tools with Workpiece Materials J. Zhou, J.X. Deng, L.L. Liu, Z.Q. Liu and X. Ai	411
Numerical Simulation of Stretch Bending Process and Springback for T Section Aluminum Extrusions M.H. Chen, L. Gao, H.H. Mao, D.W. Zuo and M. Wang	416
Arc Envelope Truing of Metal-Bonded Diamond Grinding Wheel by Use of Cone-Shaped Truer J. Xie, J. Tamaki and Y. Tang	421
A New Method of Structural Synthesis about the Partly-DOF Parallel Robot Mechanisms Based on the Screw Theory J.M. Luo, G.Q. Cai, X. Chen, B.J. Yang and W. Huang	425
Research in Method of Reliability Optimization Based-On Multi-Objective Fuzzy Matter-Element with Fuzzy Chance Constraint Y.W. Zhao, F.L. Huang, Z.F. Li and G.X. Zhang	430
Silicon Atomic Layer Deposition on Nanocrystalline Diamond Y.H. Wang, J. Lu, X.H. Qi and J.B. Zang	436
Dynamic Characteristic of HSK Tooling System G.C. Wang, S.L. Wang, H.J. Pei, W.G. Wu and X.J. Hua	440
Pulse Electric Current Sintering of Iron-Base Powders Prepared by High Energy Milling Y.Y. Li, X. Li, Y. Long, M. Shao and W. Xia	445
Design and Performance Study of a 3-DOF Micropositioning Table Y.L. Tian, D.W. Zhang, C.Z. Ren and B. Yan	450
Relation Study of Roughness and Glossiness to Fractal for Granite Surface Profiles J.J. Wang and X.P. Xu	455

Experimental Research on High-Speed Machining Pearlitic Gray Cast Iron Y. Wan, Z.Q. Liu and X. Ai	459
Study on EDM Polishing of CVD Diamond Films W.Z. Lu, D.W. Zuo, M. Wang, F. Xu and X.F. Li	464
Development of an Integrated Instrument for Nucleic Acid Pyrosequencing Detection J.J. Zhu, H.N. Shi, J. Cheng, X.Y. Wei and Z.H. Lu	469
Monitoring of End-Mill Behavior with Its Projection Image D.W. Zuo and Y. Kawano	474
Job-Shop Scheduling Method Based on Modified Immune Algorithm W.L. Wang, X.L. Xu, Y.W. Zhao and Q. Guan	481
Research on Ultra-Low Feed Servo Control Technology of Ultra-Precision Machine Based on Semi-Closed Loop Control F.H. Zhang, X.W. Sun, S. Dong and L.J. Zhang	486
Direct Joining of Acrylic Rubber to Cast Iron with Functional Nanofilm by Polymer Plating Z.X. Kang, Y.Y. Li, C.W. Zhong, M. Shao and W. Xia	491
Application of Artificial Neural Net in Defect Image Recognizing of Cutting Chip Y.L. Zhao, X.L. Liu, P. Wang and H.Y. Wang	496
Genetic-Based Optimal Design of a PID Controller for Substrate Temperature in a HFCVD System S.L. Song, D.W. Zuo, G.B. Bu and M. Wang	501
Electrode Characteristics of High Pressure Synthetic High Boron Doped Diamond J.B. Zang, Y.H. Wang, W. Tang and H. Huang	507
Study on Deformation Behaviors of LD31 (6063) Aluminum Alloy Sheet by Oblique Angle Laser Shock Y.K. Zhang, D.W. Zuo, L. Zhang, D.J. Kong, J.Z. Zhou, A.X. Feng, L.F. Zhang, T. Ge and X.D. Ren	511
Research on Energy Saving EDM Pulsed Power Supply with Cyclically Superimposed Chopper Circuit S.C. Di, D.B. Wei, G.X. Chi, Z.L. Wang and J.T. Jiang	516
Creep Feed Surface Grinding NC Technology by Cup Wheel in Radome Machining M.M. Zhang, B. Lin and F. Du	521
Study on Pre-Stress Hard Cutting of Bearing Races B.Y. Ye, J.P. Liu, X.C. Liu and X.Z. Zhao	526
Numerical Analysis on Hybrid High Speed Sleeve Bearing L.L. Wang, P.Q. Ge and C.H. Lu	531
Ultraprecision Cutting of Glass BK7 M. Zhou, X.D. Liu and S.N. Huang	536
Researches and Simulations on Hydrodynamic in Super High Speed Grinding Area Y.D. Gong, H. Li, X.X. Zhao and W.S. Wang	541
Study of Inhibition to Leaching of Cobalt from Cemented Carbide Tools H.Q. Zhang, X.M. Jia, Y. Gao and S.X. Hou	546
A Two-Dimensional Fast Tool Servo Used for Real Time Error Compensation in Taper Turning D. Gao, Y.X. Yao and Z.J. Yuan	551
Development of a New Virtual Environment System for Assembly G.H. Liu, Y.X. Yao and H.Z. Zhang	556
Influence of Polishing Parameters on Chemical Mechanical Polishing Processes of LiTaO₃ Wafer H. Yuan, X. Wei, H.W. Du, W. Hu and W. Xiong	561
The Control System Construction of the Multifunctional Combined CNC Machine M.Y. Huo, Q.H. Zhang, J.H. Zhang and X. Ai	566
Research on Endless Wire Saw Cutting of Al₂O₃/TiC Ceramics J.F. Meng, J.F. Li, P.Q. Ge and R. Zhou	571
Nano-SiC Particles Reinforced Plasma Sprayed WC-Co Coating by Laser Melting Process J.F. Zhao, Y. Li and L. Wang	575
Study on the Complex Tools Coating Technology by EDM Y. Fang, Z.L. Wang and W.S. Zhao	579

Machinability for Turning of 1Cr18Ni9Ti Austenitic Stainless Steel with Ceramic Tool Z.Q. Liu, J.M. Wang and Y. Wan	584
Tool Wear Characteristics in High Speed Milling of Ti-6Al-4V Alloy with Nitrogen Gas Medium W. Zhao, N. He, L. Li and Z.L. Man	588
Investigation of Manufacturing Technology in Electroplating CBN on Gear-Honing-Tool M. Lv, M.D. Zhang, G. Ya and P. Xu	593
Study on Precision Control of Direct Metal Forming X.D. Hu, W. Li, Q.C. Wang, N. Qian and W.H. Zhao	597
Research on Software Error Compensation of Ultra-Precision Lathe J.J. Du, W.B. Lee, C.F. Cheung, S. To, Y.X. Yao, D. Gao and J.G. Li	602
The Mechanism and Experimental Study on Laser Peen Forming of Sheet Metal J.Z. Zhou, Y.K. Zhang, X.Q. Zhang, C.J. Yang, H.X. Liu and J.C. Yang	607
Ultra-Speed Plastic Deformation of TC6 Sheet Induced by Laser Shock Loading J.C. Yang, J.Z. Zhou, Y.K. Zhang, S.M. Yin, A.X. Feng and D.W. Zuo	612
Optimization of Cutting Conditions in Ultra-Precision Turning Based on Mixed Genetic-Simulated Annealing Algorithm Z.S. Lu and M.H. Wang	617
A New Fuzzy Variable Structure Control of a Type of Nonlinear Multivariable System P. Wei, Z.L. Wang and L.H. Qiu	623
The Image Similarity Analysis Technique Applied to the Tool Wear Monitoring in Face Milling Y.T. Liang, C.J. Lo and W.C. Chen	628
Thermal Shock Resistance of a New Ceramic Tool Material and Its Microstructural Characterization C.H. Xu, C.Z. Huang, X. Ai and H.Y. Wang	632
Erosion Wear and Design Model of Functionally Gradient Ceramic AJM Nozzle L.L. Liu, J.X. Deng and J. Zhou	637
Vibration Analysis of ID Slicing Process and Wafer Measurement X. Wei, R.W. Huang, S.H. Lai and Z.H. Xie	641
Preparation of Nanocrystalline Diamond Films on Molybdenum Substrate by Double Bias Method F. Xu, D.W. Zuo, W.Z. Lu, X.F. Li, B.K. Xiang and M. Wang	646
Study on Networked Technical Service System Oriented Production Process T.B. Yu, Y.D. Gong, J. Liu, G. Yu and W.S. Wang	651
Effects of Dynamic Characteristics of High-Speed Machine Tool/Cutting Tool System on Machining Quality S. Zhang, X. Ai, J. Zhao and J.G. Liu	656
The Abrasion Mechanism of Diamond Coated Blades with Ultraviolet-Cured Resins C.Y. Yao, W. Peng and T. Gao	661
On Manufacturing of Long Stainless Steel Fiber with Fin by Multi-Tooth Tool and Mechanical Properties of the Fiber Z.P. Wan, Y. Tang and F.Y. Zhang	666
A New Magnetic Polishing Liquid (MPL) for Precision Surface Finishing J. Jiang, Y.B. Wu, X.Y. Wang and M. Kato	671
Influence of Tooling Parameters in High-Speed Milling of Hardened Steels A. Iqbal, N. He, L. Li, W.W. Zha and Y. Xia	676
Deducing the Coefficient of Non-Free Cutting of Major Cutting Edges of a Standard Twist Drill L.S. Xiong, H.M. Shi and Y.J. Chen	681
Microstructure and Property of Nickel Electroformed Using Rotating Cathode in Hard Particles Z.W. Zhu and D. Zhu	686
Quality Testing for Pressed Raised Character on Metal Label Using GRBF Networks C.H. Lu, J.H. Cao, J.M. Li and X.Y. Li	691
Development of High-Speed Cutting Database System with Hybrid Intelligent Reasoning K.J. Xiang, Z.Q. Liu and X. Ai	696

Study on Dry Electrical Discharge Assisted Profile Truing and Dressing of Diamond Wheel Y. Wang, X.J. Zhou and D.J. Hu	701
Effect of Sintering Temperature on the Mechanical Properties of Rare Earth Oxides Toughened Cermet Tool Materials L.Q. Xu, C.Z. Huang, S.L. Wang and Z.W. Liu	706
Nanometer Positioning System Based on Ball Screw L.H. Lu, Y.C. Liang, H. Tachikawa, Y.F. Guo and A. Shimokohbe	710
Study on the Adhering Disrepair and Groove Optimization of Cutting Tools for Difficult-to-Machine Materials Z.J. Li, Y.N. Cheng, G.Y. Tan, Y.B. Wang and Y.M. Rong	715
Study and Application on CVD Diamond Tools T. Fu, Q.X. Yu and S.Q. Pang	720
Research on Influence of Crystal KDP Anisotropy on Critical Condition of Brittle-Ductile Transition in Ultra-Precision Cutting M.J. Chen, Y.C. Liang, J.H. Wang and S. Dong	725
Research on Electrochemical Micromachining System and Related Techniques X.H. Li, Z.L. Wang and W.S. Zhao	731
FEM Simulations on the Milling Dynamics of the Thin-Walled Structure Components K. Wu and N. He	736
Effects of Methane Concentration on Growth of Carbon Balls in Anode Nozzle and Arc Stability of DCPJ CVD Plasma Torch R.F. Chen, D.W. Zuo, D.S. Li, B.K. Xiang, L.G. Zhao and M. Wang	742
Study on the Two-Axle Bending with Elastic Roller Forming Technique of Non-Circular Cross-Section Tubular Parts Based on the Feed Force Control J. Yan, D.W. Zuo and M. Wang	748
Machining Simulation and Experimental Research of Complex Surface Parts Based on the PMAC Y.C. Liang, M.J. Chen, Y.Z. Sun and W.X. Guo	753
Carbon Nanotube as Probe for Atomic Force Microscope Z.W. Xu, Y.C. Liang, S. Dong, L.Q. Gu, T. Sun and Q.L. Zhao	758
AFM for Preparing Si Masters in Soft Lithography X.L. Zhao, S. Dong, Y.C. Liang, T. Sun and Y.D. Yan	762
Effects of the Substrate on the Determination of SEBS Thin Film Mechanical Properties by Nanoindentation Y.Z. Cao, Y.C. Liang, S. Dong, T. Sun and B. Wang	766
Grains Ultra-Refinement of Materials Imposed by Pulse Laser M. Zhou, X.Q. Zhu, Q.X. Dai and L. Cai	770
A Suspending Abrasives and Porous Pad Model for the Analysis of Lubrication in Chemical Mechanical Polishing J.Y. Liu, D.M. Guo, Z.J. Jin and R.K. Kang	775
Research on Periodic Structures Aroused by Femtosecond Laser Irradiation on Single-Crystalline Silicon Wafer Y.S. Wang, S. Dong, Y.Q. Yang, Y.C. Liang and Y.H. Wang	779
Investigation on Adhesion Work and Its Effects on Micro Friction X.J. Zhang, Y.K. Dong, Y.G. Meng and S.Z. Wen	784
Precision Gravity Center Position Measurement System for Heavy Vehicles X.T. Zhao, H.Z. Jiang, S.T. Zheng and J.W. Han	788
Study on Nanometric Machining Process of Monocrystalline Si Y.L. Tang, Y.C. Liang, D.X. Wang and J.W. Zhao	792
Measurement of Roundness and Sphericity of the Micro Sphere Based on Atomic Force Microscope X.S. Zhao, T. Sun, Y.D. Yan, Z.Q. Li and S. Dong	796
Three-Dimensional Micromachining Based on AFM Z.J. Hu, S.G. Zhang, X.H. Zheng, Y.D. Yan, T. Sun, Q.L. Zhao and S. Dong	800
A Study of Precision Sub-Dry Cutting Mechanism J.L. Ren, S. Lu, J.J. Ren and S.D. Gong	805
A Research of Image-Based Visual Control in Microassembly under a Microscope S.J. Tian, B. Li, Z.D. Jiang, J.J. Guo and H.Y. Zhao	809

Study on the Compound Fuzzy Motion Control for the Ultra Precision Machine Tools B. Wang, Y.C. Liang and S. Dong	813
Fast Positioning Technology of High Acceleration Stage Y.T. Li and H. Ding	817
Study on Cutting Coloring Stainless Steel by Abrasive Waterjet H.T. Zhu, C.Z. Huang, J. Wang, Y.X. Feng and R.G. Hou	822
Fabrication of Nanoscale Gratings by Nanoimprint on Silicon Wafer X.Q. Fan, H.H. Zhang, S. Liu, K. Jia and Z.Y. Gan	825
Modelling of Fused Biconical Taper Process for Fibre Coupler C.J. Shuai, J.A. Duan and J. Zhong	829
Kinematics and Simulation for a High-Precision Parallel Kinematic Platform Y. Hu, H. Hu and B. Li	834
Analysis of the Static Performance of Externally Pressurized Gas Journal-Thrust Bearing with Slot Restrictors J.J. Du, Y.X. Yao, D. Liu and D.W. Feng	838
Inertial Fusion Micro-Target Semiautomatic Assembly Z.R. Qiu, L.Y. Nie, G.X. Zhang and C.J. Yao	843
Study on Comparative Experiments of Performance of Conventional and Nanocrystalline Diamond Film M. Chen, Y.P. Ma, D.H. Xiang and F.H. Sun	847
Mechanochemical Polishing of Single Crystal Diamond with Mixture of Oxidizing Agents C.Y. Wang, C. Chen and Y.X. Song	852
A Model for Milling Force Prediction in High-Speed End Milling of P20 Mold Steel J. Zhao, X. Ai, S.Y. Wang and Z.W. Liu	856
Static Performance Analysis of Orifice Compensated Externally Pressurized Gas Spherical Bearing Based on FEM Y.X. Yao, D.L. Qin and H.B. Zhang	860
Evaluation of the Development Level of China' s Precise Finishing Industry S. An, J. Wang and J.P. Qian	864
Analysis and Application of Acoustic Emission Signals in Accurate Grinding Machining Y.D. Gong, H. Li, T.B. Yu and W.S. Wang	868
Design and Control of Planar Parallel Mechanisms with High Speed and High Precision L.N. Sun, Y.J. Liu, J. Li and J. Cui	872