

Table of Contents

Diamond Turning Freeform Optics W. Jiang, B. Tse, R. Louie and F. Chan	1
Fabrication of Light Guide Plate on PDMS-Based Using MEMS Technique for Application of LED-Backlight C.H. Chien and Z.P. Chen	7
A Review on Machining of Micro-Structured Optical Molds O. Riemer	13
Novel Approach to Fabrication of 3D Micro-Structures by Laser Machining H.T. Young, F.F. Lin and S.B. Hong	19
Numerical Control Interpolation Algorithm of Aspheric Surface Based on the Genetic Algorithms and Neural Network F.H. Zhang, D.J. Chen and L.J. Li	25
Production of Micro-Optical Lenses Using Micro-Jet Drop-On-Demand M. Nagao, H. Okabe, K. Oyoshi and S. Sakano	30
Research on Mathematical Models of New Diamond Turning for Non-Axisymmetric Aspheric Mirrors C.S. Han, L.J. Zhang and S. Dong	35
Single-Point Diamond Turning of Aspheric Mirror with Inner Reflecting Surfaces K.S. Chon, Y. Namba and K.H. Yoon	39
Study on Manufacturing Process Optimizing of Lightguiding Plate for Soft Computing Y. Lin	43
Study on Micro Fabrication of Mold Insert for Microlens Arrays by Micro Dispensing Y.K. Shen, Y. Lin, D.Y. Sheu, M.D. Ger, Y.H. Hu, R.H. Hong and S.M. Wang	48
Study on Micro-Feature of Backlight Module for Micro Injection Molding Technology Y.K. Shen, Y. Lin, J.L. Lee, F.H. Liu, C.W. Wu, K.L. Ou, W.Y. Wu and Y.C. Tu	53
Development of a Dynamic Model for Ultra-Precision Raster Milling L.B. Kong, C.F. Cheung, S. To and W.B. Lee	58
Toward the Accurate Coverage of Aspheric Surfaces Using Two-Dimensional Scanning Paths for Minimizing Regular Errors H.B. Cheng, J.F. Zhi, Y.T. Wang and J. Bian	64
Ultraprecision Ductile-Regime Cutting of Optical Glass M. Zhou, Y.C. Liang and S.N. Huang	69
A Non-Contact Displacement Sensor with Diffraction Grating Metrology System for Profile Measurement Y.R. Chen, X.D. Yang and T.B. Xie	74
Absolute Measurement of Aspheric Surfaces Using White-Light Interferometry S.P. Chang, T.B. Xie, X.Z. Wang and J. Guo	80
An Enhanced Common Path Interference Measurement Method for Optical Refractive Indices C.C. Wang, M.J. Jang and Y.H. Peng	86
An Optical System for the Ball Grid Array Inspection and Measurement Using the Back-Propagation Neural Network Technology S.F. Chen	92
Analytical Calculation of the Light Extraction Efficiency of Micro Cavities Light-Emitting Diodes P.C.P. Chao, L.D. Liao, Y.H. Fan, C.Y. Shen, Y.Y. Kao and J.S. Huang	98
Automatic Optical Inspection and Laser Cleaning of Image Sensors J.M. Lee and U.C. Cho	104
Evaluating Frequency Error Property of Wavefront of Large Optics by PSD Collapse X.F. Cheng, W.G. Zheng, X.D. Jiang, H. Ren, J. Yuan, X.D. Yuan, L. Zhang and X. Xu	108
High Accuracy Confocal Full-Field 3-D Surface Profilometry for Micro Lenses Using a Digital Fringe Projection Strategy L.C. Chen and Y.W. Chang	113
Aspheric Mirror Testing with Phase Retrieval Method X.J. Hu, Z.W. Zheng, Y.F. Dai and S.Y. Li	117

An Investigation of Form Errors Predicted Model for Injection Moulded Aspheric VCD Lens	
S. To, B.Y. Jiang, C. Weng and W.B. Lee	123
Design of a Highly-Efficient Light Guide Plate for the Edge Lighting Backlight Module	
P.C.P. Chao, L.D. Liao, C.W. Chiu and C.Y. Shen	128
Enhancement of the Optical Performances for the LED Backlight Systems with a Novel Dual Lens-Cap	
P.C.P. Chao, L.D. Liao, C.W. Chiu and C.Y. Shen	132
Free-Form Reflector Design Using Differential Evolution Algorithm	
B. Yang, G.F. Jin and Y.T. Wang	138
Microlens Array Homogenizer for Laser Illuminated Projector	
C.H. Chen, C.C. Chen and P.H. Yao	143
Package for Side Emitting LED	
Y.N. Pao, P.H. Yao, Y.T. Sun and C.H. Tien	148
Side-Emitting LED Lens Design for Generating Planar Lighting Source	
Y.T. Sun, Y.N. Pao and T.H. Lin	152
The Design of an Integrated Pick-Up Head for High-Density Digital Versatile Disk, Digital Versatile Disk and Compact Disk	
W.S. Sun and C.C. Sun	156
The Driver Circuit and Focusing Lens Designed for the Laser Range-Finder	
M.F. Chen, I.F. Li and C.W. Hu	160
The Optimization of Directly-Under-Light Type Backlight Module Structure for Brightness Uniformity	
C.F. Chen and L.M. Lu	166
Waveguide Structure Design of Adiabatic Optical Directional Couplers Weighted by Sin-Square Function	
C.F. Chen, Y.S. Ku and K.H. Chen	172
A Study on Glass Molding Press and Pitch Error Analysis of a V-Grooved Quartz Fiber Array Block	
U.C. Cho	178
Analysis on Anti-Vibration Characteristic of Synchronism Phase-Shifting	
Y.M. Wang and X.J. Liu	182
Nanoindentation Size Effect of KDP Crystal by Instrumented Indentation Testing	
H.X. Wang, J.H. Wang and S. Dong	188
Polarization Variation of Laser Beam Intervening Multiple Reflections within a Paraboloid of Revolution-Shaped Cavity	
C.Y. Ho, M.Y. Wen and J.C. Tsai	193
Profiles Detection in Ring Convex Forming by ACLN with Sub-Pixel Accuracy	
J.P. Wang, G.M. Huang and S.H. Yurs	199
Residual Strain Measurement of Femtosecond Laser Microexploded Glass by Nanoindentation	
S. Dong, Y.S. Wang, Y.Q. Yang, Y.C. Liang, T. Sun, Y.H. Wang and Z.R. Zheng	205
The Application of Motif Characterizing Method in the Surface Topography Evaluation of MEMS Device	
S.H. Wang, T.B. Xie and X.D. Yang	210
Uniformity Analysis of the Passive Film for SS316 Stainless Steel	
S.J. Lee, J.J. Lai, Y.M. Lee, M.D. Ger and S.W. Cheng	215
A Fuzzy Algorithm for Auto-Focusing Laser Diode Products	
K.C. Lee	221
Optical Surface Finish of PCD Composites by Dynamic Friction Polishing	
Y. Chen, L.C. Zhang and J.A. Arsecularatne	226
A Study of the Microstructure and Properties of Electroformed Ni-P Model Insert	
S.T. Ke, J.L. Lee, Y.M. Yeh, S.J. Lee and M.D. Ger	232
An Investigation of Surface Grinding Characteristics for Titanium Alloy with CBN Wheel	
S.Y. Lin, Y.C. Liu and C.W. Huang	237
Kinematics Calibration of Parallel Kinematic Machine Using a Developed Double-Ball Bar Gauge	
X.J. Yang, B. Li and D.L. Zhang	243

Development of a Millimeter Scale Turning Centre for Gear Hobbing S. Chan, S. Wong, T.C. Kong and R. Du	249
Diffraction Line Beam Shaper C.H. Chen, P.C. Chen, C.J. Hsu and C.J. Ting	254
Calibration of a Photogrammetric System for Semiautomatic Measurement: CaM-DisT[®] P. Arias, H. Lorenzo, C. Ordóñez and J. Armesto	259
Dynamic Characteristics in Cutting Processes for Precision Machining S.Y. Lin and Y.C. Fang	265
Barrel Chamber Polishing, Using Electrochemical Theories R.A. Mahdavinejad	272
Fabrication of High Aspect Ratio Periodical Structure on Metal Using an Electroforming Process W.C. Chuang, C.K. Chao, W.C. Chang and C.T. Ho	280
Fractal and Wavelet Methods Used in the Feature Extraction of Machining Processing from 3D Machined KDP Surfaces M.J. Chen, Q.L. Pang, J.H. Wang and K. Cheng	284
Improving Machining Accuracy of the EMM Process through Multi-Physics Analysis S.J. Lee, J.J. Lai, Y.M. Lee, C.Y. Lee, K.T. Yang and C.W. Peng	290
Effects of the Tool Angles on the Machined Surface Quality of KDP Crystal in Diamond Turning J.H. Wang, M.J. Chen, S. Dong and S.Q. Wang	297
Surface Finishing of SKD 11 Tool Steel via Plasma-Based Electron Beam Irradiation Y. Daichi, S. Sano, Y. Uno and A. Okada	302
The Analysis on Penetrating Efficiency in High-Energy Beam Drilling J.E. Ho and H.T. Young	308
Laser Patterning Indium Tin Oxide Thin Films on Glass Substrate M.F. Chen, Y.P. Chen, W.T. Hsiao and Z.P. Gu	315
Precision Machining of Silicon Carbide with Diamond Micro Tool Array (DMTA) Q.L. Zhao, G. Yu, T. Sun and S. Dong	321
Stiffness Analysis for a Novel Parallel-Robot Based High-Precision Flexible Assembly Fixture H.J. Yu, B. Li, X.J. Yang, Y. Hu and H. Hu	327
Studies on Ni-Mo-P Coatings by Electroless Deposition Y.H. Chou, C.Y. Bai, M.D. Ger, S.J. Lee, C.Y. Lee and C.L. Chao	333
The Design of an Atmospheric Pressure Plasma Torch Used for Polishing Ultra-Smooth Surfaces J.F. Zhang, B. Wang and S. Dong	340
The Influence of Surfactant CTAB on the Microstructure and Material Properties of Nickel Microelectroforming Y.C. Chen, S.L. Kuo, J.L. Lee, S.T. Ke, C.H. Wong and M.D. Ger	346
The Current State and Development Trends of Deterministic Ultraprecision Optical Surfaces Machining Technology S.B. Luo, H. Yang, J.M. Zhang and C.T. Pang	351
The Wear Behavior of Pulse Current Electroforming Ni-P-SiC Composite Coatings K.H. Hou, M.C. Jeng, Y.K. Shen and M.D. Ger	358
A Scanning White-Light Interferometric Profilometer for Smooth and Rough Surface R. Dai, T.B. Xie and S.P. Chang	364
A Contact Stylus Profilometer Based on Linnik Interference Microscope J.P. Yun, L.L. Zhang, T.B. Xie and G.Y. Hu	371
A Novel Time Based Current Compensator for LED Back Light Modules Y.H. Fan, C.J. Wu, C.C. Fan, K.W. Chih and L.D. Liao	377
A Rapid Prototyping Apparatus for Forming Ceramic Parts F.H. Liu and Y.S. Liao	383
Design of the Servo System for the Micro Milling Machine B. Wang, J.X. Wang and Y.C. Liang	389
3D Micro-Scale Profile Measuring System H.T. Young and W.Y. Lin	394

Automatic Optical Inspection on TFT-LCD Mura Defects Using Background Image Reconstruction	
L.C. Chen, C.C. Kuo and P.A. Yen	400
Stress Birefringence in Photonic Crystal Fibers Used in a Novel Field Installable LC Type Optical Connector	
S.I.E. Lin	404
Structural Design of a Bench-Type Ultra-Precision Machine Tool for Micro-Structured Optical Components	
Y.H. Yang, S.J. Chen, X.Z. Sun and K. Cheng	408
Subaperture Stitching Interferometry: Problems, Algorithms and Experimental Verification	
S.Y. Li, S.Y. Chen, Z.W. Zheng and Y.F. Dai	413
The Integrated Packaging Process for Optical Sensor and RFID Used in Harsh Environment Conditions	
C.W. Wu, Y.K. Shen, C.U. Lee, C.S. Wei and C.C. Hsiao	419
The Study of Fabrication of the Liquid Core Waveguide Nutrient Sensor	
C.W. Wu, Y.K. Shen, Y.L. Lee, C.S. Wei and C.C. Hsiao	425
A Novel Nanofluid Synthesis System for Preparation of Nanofluid	
H. Chang and S.C. Lin	431
Block Copolymer Films Hierarchical Assembly in Confinement	
Y.Z. Cao, S. Dong, Y.C. Liang, T. Sun and Y.D. Yan	437
Fractal Contact Model between Rough Surfaces in Considering Elastoplastic Deformation and Adhesion Force	
J.H. Horng, J.S. Lee, M.Y. Ku and C.H. Chen	442
Microfluidic Parallel Form Mixer Utilizing Chaotic Electric Field	
H.T. Yau, C.L. Chen and C.C. Cho	449
Synthesis of ZnO Nanoparticles by a Novel Gas Condensation System	
H. Chang, C.S. Jwo, T.T. Tsung, P.S. Fan, Y.C. Wu and M.H. Tsai	454
Review of Etchants for Copper and its Alloys in Wet Etching Processes	
O. Çakır	460
Research and Simulation on the Wear Uniformity of Lapping Plate	
J.L. Yuan, W.T. Liu, Z.W. Wang, D.H. Wen and Z.Z. Zhou	466
Analysis of Correcting Ability of Ion Beam Figuring	
L. Zhou, Y.F. Dai, X.H. Xie, C.J. Jiao and S.Y. Li	470
An Experimental Study on Flow Characteristics of PBK-40 for Glass Molding Press Simulation	
S.H. Chang, Y.M. Heo, G.H. Shin, Y.M. Lee, J.J. Kang and T.S. Jung	476
Experimental Study of Microelectrode Array and Micro-Hole Array Fabricated by Ultrasonic Enhanced Micro-EDM	
W.L. Zeng, Y.P. Gong, Y. Liu and Z.L. Wang	482
ASPHERO5 – Simulation and Analysis of Aspherical Polishing Process	
R. Boerret, A. Kelm, H. Thiess and V. Giggel	488
Microstructure Optics Designed for LED Traffic Signal Lighting	
L.M. Fok, M.H. Pun, D. Louie and L.M. Li	493
Solution for Best Fitting Spherical Curvature Radius and Asphericity of Off-Axis Aspherics of Optical Aspheric Surface Component	
G.J. Dong, C.S. Han and S. Dong	499
Optical Modeling and Analysis of Laser Centering Tester	
T.T. Liao and P.D. Lin	504
Determining the Thickness and Refractive Index of a Birefringence by Using an Improved Accurate Measurement System	
Y.L. Yeh, C.C. Wang, M.J. Jang, Y.P. Lin and K.S. Chen	510
Analysis on the Performance of Differential Confocal Pointing Signal	
J.H. Zhang and X.M. Gao	516
Method of Analyzing the Singlet F-Theta Scan Lens for Laser Drilling System	
M.F. Chen, Y.P. Chen, C.W. Hu and C.C. Chen	521
Advanced Smart High Ratio Zoom System with Global Optimization	
Q.X. Ding and H. Liu	527

Analysis and Optical Design of 1:1 Projection Lithography System Q.H. Lin, J.Y. Zhou and W.J. Li	533
Application of Dynamic Optical Theory in Zoom System Y. Hu, Y.G. Fu, Z.Y. Liu, T.Y. Gao, L. Zhang and Z.J. Wang	539
An Experimental Study of the Formation of Tool Marks Made by Facet Diamond Cutting Tools in Single-Point Diamond Turning M.C. Kong, W.B. Lee, C.F. Cheung and S. To	544
Optical System Design with High Resolution and Large Field of View for the Remote Sensor J. Chang, Z.C. Weng, Y.T. Wang, D.W. Cheng and H.L. Jiang	550
Recognition of MEMS Microstructure Feature Based on Pattern Analysis and Classification K. Hu, X.Q. Jiang and X.J. Liu	555
An Improved Data Processing Method in Differential White Light Spectral Interferometry for the Measurement of Thickness of Ultra-Thin Metallic Foil Y.L. Du, H.M. Yan and X.D. Zhang	560
A Study on the Characteristics of Micro Deep Hole Machining Processes T.I. Seo, D.W. Kim, M.W. Cho and E.S. Lee	566
Novel Error Separation Method for Straightness Measurement Z.Q. Yin, S. To and L.B. Kong	572
ELID Assisted Precision Conditioning of Coarse-Grained Diamond Grinding Wheel Q.L. Zhao, E. Brinksmeier, O. Riemer and K. Rickens	578
Study on Anastomosis Feature in Polishing Zone in Aspheric Optics Machining G.L. Wang, Y.F. Dai and S.Y. Li	584
A Predictive Model Construction for the Sheared Planes in Sheet Metal Shearing Process Y.C. Hsu and T.S. Yang	590
A Kinematic Study on a Novel Press System W.H. Hsieh	595
Single-Point Diamond Turning of Plasma-Nitrided Stainless Steel C.L. Chao, C.C. Chen, C.J. Chang, H.S. Dong, K.J. Ma, W.Y. Hsu, K.C. Huang and C.W. Chao	601
Fabrication of Large-Area Imprint Mold with High-Aspect-Ratio Nanotip Arrays of Sub-Micron Diameter C.J. Ting, H.Y. Tsai and C.P. Chou	607
Feasibility Study on UV YAG Laser Patterning on Diamond Film H.Y. Tsai, C.J. Ting, K.L. Kuo and C.P. Chou	613
Effects of Surface Cleanness, Bonding Pressure and Contact Area of ACF on Interfacial Impedance of Chip on Glass Bonding in Flat Panel Display Assembly J.C. Tsai and W.T. Wang	618
A Study of Glass Milling Using Rotary Ultrasonic Machining K.L. Kuo	624
Study of Mold Design on SD Card with 3D Mold-Flow Analysis S.M. Huang, R.Y. Jou, J.C. Lin and K.S. Lee	629
A Study of Process Parameter Optimization for Passive Component Precision Extrusion W.S. Lin, K.S. Lee, S.M. Huang, R.Y. Jou and J.C. Lin	634
The Study of Precision Hard Turning of the Hardened Mold Steel W.S. Lin	640
Modeling the Surface Roughness for Fine Turning of AISI304 Stainless Steel W.S. Lin	644
The Optimal Process Analysis for Precision-Drilling of Mold Steel SKD61 W.Y. Lin and B.Y. Lee	649
Design of Protective Coatings for Glass Lens Molding K.J. Ma, H.H. Chien, W.H. Chuan, C.L. Chao and K.C. Hwang	655
A Study on Tool Deflection Trend Using Real Captured Images in Micro Endmilling Process G.H. Kim, G.S. Yoon, Y.M. Heo, S.H. Jang, T.I. Seo and M.W. Cho	662
Research on Quick Polishing of CVD Diamond Film C.L. Chao, W.H. Fan, W.C. Chou, C.Y. Chien, H.Y. Lin and J.G. Duduch	668
Design of Sword-Form Electrode and Ultrasonic-Aid in Electrochemical Finishing of AISI 4340 Surface P.S. Pa	674

Performance Assessment of Design Electrode in Ultrasonic-Aided of Freeform Surface Finishing P.S. Pa	680
A Method to Improve Uniformity of Material Removal of Chemical Mechanical Polishing in LCOS Process Y.H. Sun, R.K. Kang and D.M. Guo	686
Current Situation and Trend of Ultra-Precision Abrasive Machining J.L. Yuan, D.X. Hu, Z.W. Wang and D.H. Wen	690
Study on Effects of Grinding Speed on Finish and Precision Machining in Quick-Point Grinding S.C. Xiu, S.X. Yuan, C.H. Li and G.Q. Cai	696
Diamond Machining of Steel Molds for Optical Applications E. Brinksmeier and R. Gläbe	701
Research on Kinematic Analysis and Post Processing Arithmetic for NC Machine Tool for Bonnet Tool Polishing Y.X. Yao, S.Z. Yu and D.G. Xie	707
Prediction of Surface Roughness in High Speed Milling Process Using the Artificial Neural Networks D.W. Kim, Y.J. Shin, K.T. Park, E.S. Lee, J.H. Lee and M.W. Cho	713
Fabrication of Phase Mask for Optical Fiber Grating Q. Liu, J.H. Wu, L.L. Fang and C.M. Li	719
Optimization of Free-Form Illumination Optics K. Kataja, M. Aikio, K. Niemelä and M. Aikio	724
Experiment Research on Temperature Field in Ultrasonic Assisted Grinding Engineering Ceramics G.F. Gao, C.S. Liu, B. Zhao, F. Jiao and Q.H. Kong	728
Parameters Optimization of the Ultrasonic External Cylindrical Lapping Process for Nano ZTA Engineering Ceramics Using Response Surface Methodology F. Jiao, B. Zhao, C.S. Liu and X.S. Zhu	733
Theoretical Analysis and Experimental Verification of Triangular Fracture Defects of MgO Single Crystal Substrate in Lapping or Polishing Process K. Wang, R.K. Kang, Z.J. Jin and D.M. Guo	739
Development of a New Optical Coordinate Measurement Machine in Cylinder Coordinates Z.W. Zheng, L.D. Jia, S.Y. Li and Y.F. Dai	745
A Large Measuring Range Profilometer for Three-Dimensional Surface Topography Measurement X.D. Yang, J.C. Li and T.B. Xie	750
Design of Ion Beam Figuring Machine for Optical Mirrors C.J. Jiao, X.H. Xie, S.Y. Li, L. Zhou and Y.F. Dai	756
MgF₂ Film Deposited by IAD with End-Hall Ion Source Using SF₆ as Working Gas J.C. Hsu, P.W. Wang and H.L. Chen	762
Stage Equipped with Single Actuator for Nano-Positioning in Large Travel Range Y.C. Wang, C.J. Lin, C.J. Chen and H.C. Liou	768
Effect of the Adhesive Mass at the Cantilever Beam Tip Position Y.L. Yeh, C.C. Wang, M.J. Jang, K.S. Chen and Y.P. Lin	773
Study on CAN-Based Lighting and Identifying System for Automobiles F.L. Chen, X.Y. Fan and G.C. Ma	779
Fast Computing Model for Thermal Field of Auto Lamp H. Liu, J.G. Li and Y.T. Wang	783
Iterative Model for Simulating Light Intensity Variation of LED H. Liu, Y.N. Shen and Q. Chen	789
Regular Dot Pattern of Light Guide Used in Liquid Crystal Display Backlight X. Meng, X.T. Li, Z.F. Cen and S.T. Deng	795
Ultra-Thin Design of Large Backlight Module Used in Illuminating Advertising Pictures S.T. Deng, X.T. Li, Z.F. Cen and X. Meng	800
The Investigation of Dynamic Drift Angle Measuring System of Turning Platform Based on Laser-Linear CCD Technology L. Zhang, Y. Yu and C.Z. Liu	805

Curvature Spectrum Correction in High Spectral Resolution Minitype Spectrometer L.Q. Sun, H.Y. Qiu, Z.Y. Huang, E.Y. Zhang and Q. Tian	810
Monitoring of Temperature Distribution within a Silicon-Based Micro Reformer Using Array Micro Sensors C.Y. Lee, S.J. Lee, C.L. Dai, C.H. Wu and G.W. Wu	816
Study on Accuracy Test Methods for Sun Sensors F.F. Chen, J. Feng and M.H. Wang	822
Pulsed LED Illumination for High Speed Imaging M. Aikio, H. Lindström, E. Juntunen, K. Kataja and H. Keränen	827
Manufacturing of Mold Insert with Micro Fluidic Channel Using Micro Cutting Process W.C. Jung, Y.M. Heo, G.S. Yoon, K.H. Shin, M.W. Cho and T.I. Seo	832
Study of Etch Rate and Surface Roughness in Chemical Etching of Stainless Steel O. Çakır	837
Integration of Micro Temperature Sensor and Heater in a Stainless Steel-Based Micro Reformer C.Y. Lee, S.J. Lee, C.L. Dai, C.H. Wu and M.D. Ger	843
Application of Porous Silicon on the Gas Diffusion Layer of Micro Fuel Cells C.Y. Lee, S.J. Lee, C.L. Dai and C.W. Chuang	849
Integration of Micro Array Sensors in the MEA on Diagnosis of Micro Fuel Cells C.Y. Lee, S.J. Lee and G.W. Wu	855
Metal Bipolar Plate with Micro Sensors C.Y. Lee, S.J. Lee, C.L. Dai, C.L. Hsieh and Y.M. Lee	861
Research of Vacuum Pump with Nano-Lubricant C.S. Jwo, L.Y. Jeng, H. Chang and S.L. Chen	867
Solid Deformable Multibody Dynamic Problems in Precision Manufacturing Systems Y.L. Hwang	873
Thermal Transpiration of Liquid in Nanoscale Channel: A Molecular Dynamics Simulation Study M.S. Han	879
The Electrochemical Micro-Fabrication Method for Micro-Scale Flow Channels S.J. Lee, Y.M. Lee, C.Y. Lee, J.J. Lai, K.T. Yang and F.H. Kuan	885
Improving Machining Accuracy of the EMM Process through Multi-Physics Analysis S.J. Lee, J.J. Lai, Y.M. Lee, C.Y. Lee, K.T. Yang and C.W. Peng	891
Characteristics of Micro-Precision Machining of Glasses by Powder Blasting W.S. Yoo, Q.Q. Jin, D.S. Park, E.J. Seong and J.Y. Han	897
Study on the Influence Factors of Electrochemical Micromachining Z.L. Wang, B.G. Zhu, W.L. Zeng and L.Z. Sun	903
Research on Surface Microstructures of Nanocomposite Ceramics in Two-Dimensional Ultrasonic Ultraprecision Grinding B. Zhao, J.L. Tong, Y. Wu and G.F. Gao	909
Research on Material Removal of a New Micro Machining Technology Based on the Magnetorheological Effect of Abrasive Slurry J. Yu, Q.S. Yan, J.B. Lu and W.Q. Gao	914
Method of Examining Surface Cracks on Monocrystalline Silicon F.Z. Fang, Y.C. Liu, Q.X. Pei and X.T. Hu	920
Nano Molding Technology for Optical Storage Media with Large-Area Nano-Pattern H.G. Shin, H.Y. Kim and B.H. Kim	925
Heat Transfer Investigations of a Nano-Porous Silicon Film Deposited on a Flexible Cyclic Olefin Copolymers Substrate R.Y. Jou	931
Photocatalytic and UV Characterization of TiO₂ Nanofluid Prepared by SANSS on HVAC C.S. Jwo, C.C. Chen, H. Chang, S.L. Chen and S.J. Ho	937
Effects of Light Wavelengths on the Performance of Color Absolute Judgments S.M. Huang and J.C. Lin	942
Investigation on Elliptic-Shaped Flaring Process of Metal Tube with Finite Element Method C.T. Kwan	949
Diffraction Effect in Proximity Printing of Circular Aperture Array J.C. Tsai, M.Y. Hsieh and H.H. Yang	955

Frequency Spectrum Features of Material Removal Function in Optical Manufacturing H.B. Cheng, J.F. Zhi, S. To and Y.T. Wang	961
Study of Ultrasonic Field in Polishing Based on Coupling Vibrations of Liquid X.Z. Huang, Z.N. Guo, Z.G. Huang, Q.H. Li, Z.Q. Yu, T.M. Yue and W.B. Lee	967
Influence of Process Parameters on T-Shape Tube HydroForming Characteristics for Magnesium Alloy S.Y. Lin, C.M. Chang and C.K. Chang	973
A Finite Element Analysis for the Initial Blank's Shape Design of Sheet Metal in Deep Drawing Process T.S. Yang, Y.C. Hsu, H.S. Lin and S.Y. Chang	980
An Empirical Approach for Identification of Sources of Machining Errors in Ultra-Precision Raster Milling S. To, H. Wang, B. Li and C.F. Cheung	986
Investigation on Steady-State Wire Drawing for Strain-Rate Sensitivity Materials H.R. Shih and C.T. Kwan	992
Stress Analysis of Optical Fiber Sensor Embedded Composite Subjected to Tri-Axial Normal Loadings S.C. Her and B.R. Yao	998
A Quasi-Steady-State Thermal Model for Laser-Assisted Cutting of Zirconia Ceramics C.Y. Ho, M.Y. Wen and S.Y. Lin	1003
Investigation of the Chip Types in High Speed Machining of SKD11 Steel S.Y. Lin and S.H. Cheng	1009
The Study of High Speed Turning of the Hardened Mold Steel SKD11 by Ceramic Cutting Tools W.S. Lin	1015
The Influence of Light-Cured Repairing on the Stiffness of Composite Material X.L. Yu, Z.M. Zhao and H.M. Yu	1021
Effect of Different Coating Materials on Cutting Performance in High-Speed Machining of Mold Steels S.Y. Lin, S.H. Yu and M.L. Wu	1026
Chemical Detoxification of AflatoxinB1 in Rice by Several Solutions through Fluorescence Spectral Experiment W.L. Chen, Q. Zhou and D. Xing	1032
Dynamic Design for a Novel Parallel Kinematic Machine with Passive Linkage Y. Hu, B. Li, D.Z. Su and H. Hu	1037
Rearrangeable Nonblocking 8×8 Matrix Optical Switches Based on Extended Banyan Network Y. Zha, D.G. Sun, T.G. Liu, Y. Zhang, X.Q. Li and J.F. Jiang	1043
Measurement of Progressive Addition Lenses Q. Wang, J.C. Yu and H. Chen	1048
The Process of Interior Progressive Addition Lens L.L. Qin, J.C. Yu and H. Chen	1054
Light Guide Plate Based on Sub-Micron Gratings Y. Ye and L.S. Chen	1061
Novel Algorithm for Computer-Aided Alignment of Wide Field of View Complex Optical System X.F. Yang and C.Y. Han	1066
High Brightness White Organic Light Emitting Devices Employing Phosphorescent Iridium Complex as RGB Dopants R.L. Song and Y. Duan	1072
A Novel Living-Cell Imaging System Design with Ultra-Long Working Distance and High Numerical Aperture G.L. Huang, Z.H. Dong, C. Deng, S.K. Xu, J. Zhu, X.Y. Yang and G.F. Jin	1077
Comparative Study of MRI and Photoacoustic Imaging on Brain Blood Perfusion Function of Rat/Mouse Q. Zhou, S.H. Yang, W.L. Chen, Y. Dong and L. Huang	1083
Microscopic Three-Dimensional Imaging Theory Based on RIKES L.N. Guo, Z.L. Tang and D. Xing	1089

Highly Efficient and Unusual Structure White Organic Light-Emitting Devices Based on Phosphorescence Sensitized 5,6,11,12-Tetraphenyl-naphthalene W.L. Jiang, Y. Duan, H.Y. Li, D.C. Li and G.Y. Ding	1095
Photoacoustic Imaging Application in Tumor Diagnosis and Treatment Monitoring L.Z. Xiang and F.F. Zhou	1100
Scanning Photoacoustic Tomography of Biological Tissues with a Piezoelectricity Double-Ring Sensor H. Wang and L.Z. Xiang	1105
Key Issues in Measuring the Velocities of Nanoparticles in Nanofluids M. Qian, X.W. Ni, J. Lu and Z.H. Shen	1111
Experimental Study on the Detection of Surface-Breaking Defects on Metal with the Scanning Laser Line Source Technique G. Yan, C.Y. Ni, Y.F. Shi, Z.H. Shen, J. Lu and X.W. Ni	1117
Monitoring of Blood Flow by Drug Stimulation on Mouse Brain Using Non-Invasive Photoacoustic Imaging Technology S.H. Yang and Y.Q. Lao	1123
Study of Stray Light and Cross-Talk of the Capillary Array Electrophoresis J. Wang, L.Q. Wang, Y. Shi, H. Zheng and Z.K. Lu	1128
Fabrication of Micro-Grating Structure on Glazed Stainless-Steel by Two-Beam Holographic Method Using Nanosecond Laser Pulses H. Zhang, Y. Zhou and L.S. Chen	1133
Modulation Transfer Function for a Multichannel Laser Induced Fluorescence Analyzer and its Numerical Calculation Y. Shi, L.Q. Wang, H. Zheng, J. Wang and Z.K. Lu	1138
Correlation Study between a New Interferometric Asphere Metrology System and Fizeau Interferometer M.F. Kuechel and D.M. Sykora	1142
Novel Design of Confocal Fluorescence Detecting System for Capillary Array and Microchip DNA Fragment Analysis H. Zheng, L.Q. Wang, Y. Shi, J. Wang and Z.K. Lu	1147
Thermal-Hygro-Mechanical Design for CMOS Image Sensor H.C. Hsu, H.Y. Lee and Y.C. Hsu	1151
Fast Photoacoustic System Based on an Acoustic Lens and the Peak Detection Technology H.C. Zhang, Z.L. Tang, Y.H. He and L.N. Guo	1157
Machinability in Precision Grinding of Aspheric Optical Lens with Diamond Wheel S.Y. Baek, J.H. Lee, E.S. Lee and J.T. Lee	1162
A Study on the Grinding to Improve Profile Accuracy of Aspheric Lens S.Y. Baek, E.S. Lee and J.K. Won	1168
The Roughness Measurement and Assessment of the Super-Smooth Surface of Hard Disks S.M. Yang and X.Q. Jiang	1174
Propagation Properties of Partially Polarized Gaussian Schell-Model Beams through an Aperture Lens with Spherical Aberration L.Z. Pan, C.L. Ding, J.H. Yang and X. Yuan	1180
Research on Coupling Technique of Q-Switched Laser with Fiber G.C. Song, W. Quan, Y.S. Cai and H.Q. Wu	1187
Inspection Technology for F-Theta Lens: Practices and Discussions H. Li, S. To, L.B. Kong, C.F. Cheung and W.B. Lee	1191
FE Analysis and Position Accuracy Estimation of Machining System for Lens of Mobile Devices S.Y. Baek, E.S. Lee, J.H. Lee and M.J. Shin	1197
Micromachining of an In-Fiber Extrinsic Fabry-Perot Interferometric (MEFPI) Sensor by Using a Femtosecond Laser Y.J. Rao, M. Deng, T. Zhu, Q.T. Tang and G.H. Cheng	1203
Aberrations of the Human Eye across the Horizontal Visual Field W. Quan, G.C. Song, F.Y. Liu and Z.Q. Wang	1207
A Study of Two-Stage Micro Injection Compression Molding Process for Diffractive Optical Lens C.C.A. Chen and S.C. Kao	1211

Design of Geometric Error Measuring System on a Miniaturized Machine Tool with Optics W. Wang, S.H. Kweon, Y.S. Kim and S.H. Yang	1215
Experimental Survey of Photon in the Light Quanta ($h\nu$) and Study of Interaction Mechanism of Moving Photons and Moving Electrons outside Atomic Nucleus J.S. Feng	1221
Optical Design of Very Large Four-Mirror Systems L.R. Zhu and W.M. Shen	1231
A HDRI Camera Based on SLM Z.B. Chen, J. Xu, B. Lin, X.X. Ni and Z.K. Lu	1237
An Issue and its Processing in PIS Testing J. Xu, Y. Li, Z.B. Chen, X.X. Ni and Z.K. Lu	1242
The Application of Surface Fairing Technique in Progressive Lens Processing J.J. Du, S. To, C.F. Cheung, W.B. Lee and X.W. Miao	1246
Intelligent Vision Based Technique Using ANN for Surface Finish Assessment of Machined Components M.R. Narayanan and S. Gowri	1251
General Study on the Dimming Control of the LED Lighting Device Y.K. Cheng, K.W.E. Cheng and Z.H. Shi	1257
A Study of the Scallop Generation Mechanism in Ultra-Precision Raster Milling S.J. Wang, S. To, C.F. Cheung and W.B. Lee	1262
Modeling and Tolerancing for Complex Aperture Imaging Systems D.W. Cheng, Y.T. Wang, M.M. Talha and J. Chang	1268
A Framework of a Surface Generation Model in Fast Tool Servo (FTS) Machining of Optical Microstructures T.C. Kwok, C.F. Cheung, S. To and W.B. Lee	1274
Investigation on the Modeling and Ageing Characteristics of the HID Car Headlight Automotive System P. Dong, K.W.E. Cheng, D.H. Wang and B.P. Divakar	1280
Grain Size Effect in Sheet Metal Microforming Simulation Adopting Strain Gradient Concept W.B. Lee, Y.P. Chen and S. To	1285
Target Tracking in Micro Injection Molding K.L. Yung, H. Liu, Y. Xu, H. Hu, S.M. Ko, M. Kwan, K.S. Lau and K.F. Tam	1292
Research of Surface Generation Mechanisms in Single-Point Diamond Turning C.F. Cheung, W.B. Lee, S. To and L.B. Kong	1296
Fabrication of Nanotemplate and Nanowires from Bulk Aluminum at Room Temperature C.Y. Chan, B.K. Jin, K.L. Yung and Y. Xu	1302
Study on Flow Imbalance during Filling a Multi-Cavity Mold Using a H-type Runners S.Y. Yang, T.C. Huang, P.H. Huang and T.Y. Ko	1306