

# Table of Contents

## Preface and Organizing Committee

## Chapter 1: Thin Films

<b>The Fabrication of <math>\text{La}_{0.9}\text{Sr}_{0.1}\text{CoO}_3</math> Thin Films and its LITV Effect Applications</b> X.F. Wei, L.S. Zhang, P.J. Wang and Y. Fang	3
<b>Influence of Co Removal for Improving Diamond Films Adhesive on WC-Co Substrates by DC-PCVD</b> Y.F. Liu, L.C. Yin, L.X. Zhao and Y.J. Zheng	7
<b>Influence of Sputtering Pressure for Radio Frequency Magnetron Sputtering (103) Oriented AlN Films on (100) Silicon Substrate</b> S.B. Jhong, S. Wu and M.S. Lee	12
<b>Study on the Titanium Film in the Pressure Self-Adaptive Water-Tight Junction Box of Underwater Vehicle</b> Z.L. Yuan, H.C. Huang, Y.Y. Ye and J.X. Leng	16
<b>Research and Development of Parylene Thin-Film Deposition and Application for Water-Proofing</b> W.C. Kuo and C.Y. Hsu	23
<b>A Novel Polyethersulfone Flat Sheet Membrane Prepared from a Lower Critical Solution Temperature System</b> J. Diao, J.F. Xu, S.T. Li, X.H. Cao, C.Y. Liu and C.J. He	29
<b>A Development of Polarization Experimental Processes and Analysis Mechanical Behavior for COC and PVDF Films</b> C.C. Lin, F.M. Lai and C.M. Yang	33
<b>Fabrication and Characterization of Ga and N Co-Doped <math>\text{SnO}_2</math> Films by MOCVD</b> J. Huang, X. Pei and F. Ji	37
<b>Development High Stiffness Ratio of Stiffened Membranes for Small Flat Speakers</b> F.M. Lai, M.Y. Wu, C.M. Yang and W.S. Shih	44
<b>Slow-Release Antibacterial and Physical Properties of PVA Antibacterial Film</b> P. Jiang, X.H. Hao and M. Sun	48
<b>Surface Modification of PEOT/PBT Membrane with Silk Fibroin Anchoring and its Potential Application in Artificial Salivary Gland Construct</b> J. Zhu, M.S. Li, L.Q. Wang and X.L. Zhu	52
<b>Bi-Sb-Te Based Thin Film Thermoelectric Generator</b> Z.K. Cai, P. Fan, Z.H. Zheng, X.M. Cai, D.P. Zhang, T.B. Chen and P.J. Liu	60
<b>Preparation of Epitaxial <math>\text{YBa}_2\text{Cu}_3\text{O}_{7-y}</math> Films and <math>\text{CeO}_2</math> Buffer Layer on Ni-5at.%W Substrates by MOD Method</b> Y.Q. Huang	64
<b>Preparation and Testing of Polylactic Acid Ultra Thin Fiber Membrane as the Sustained Release Material</b> J.X. Yu and T.Q. Liu	68
<b>A Green Pre-Film for Carbon Steel by Cerium Salt in Seawater</b> L.L. Gao, Z. Zhang, W.Z. Wang, X.Y. Hou, J. Wang, X. Gao, C. Chen and Z.D. Cui	72
<b>Effect of Sc Doping on Ferroelectric and Dielectric Properties of <math>\text{Bi}_{0.9}\text{La}_{0.1}\text{FeO}_3</math> Thin Film by Sol-Gel Process</b> X.Y. Zhang, X.W. Qi, J.Q. Qi, X. Wang, H.H. Chen, G.F. Sun and R.X. Zhong	78
<b>Stress Study of Membrane Flapping Wing Based on Mooney-Rivlin Model</b> C.J. Yu	83
<b>The Characterization of CdS Thin Film Prepared by CBD Method</b> P.J. Cao, P. Fan, G.X. Liang, Z.H. Zheng, D.P. Zhang, X.M. Cai and J.R. Chi	88
<b>Electrical Heating Properties of PEDOT Thin Film Prepared by <i>In Situ</i> Polymerization</b> J. Qi, N.B. Huo, Z.Y. Cui and J. Wu	92
<b>Preparation of Stabilized Aluminum Titanate Film via Nonhydrolytic Sol-Gel Route</b> W.H. Jiang, Q.M. Jiang, J.M. Liu, Q.X. Zhu and Q. Zhang	96

<b>Annealing Effects on W-Doped VO<sub>2</sub> Thin Films Prepared from Magnetron Sputtering</b> S. Chen, C.Z. Dong, L.F. Zhang and Z.M. Yu	101
<b>Properties of Vanadium Oxide Films Prepared by DC Reactive Magnetron Sputtering at Different Oxygen Partial Pressures</b> R.G. Huang, D.P. Zhang, T. Zhang, Y. Li, Y.T. Chen, Y.L. Zhong and P. Fan	105
<b>Simulation of Ion Distribution on both Sides of Insulation Film in Saltwater under Static Electric Field</b> L. Gu	110
<b>1-xGe<sub>x</sub>Te Thin Films Evaporated Using Electron Beam and Resistance Heating Respectively</b> B. Li, P. Xie, S.Y. Zhang and D.Q. Liu	116
<b>Microstructuring of Polystyrene Films by Template-Leaching Technique</b> M.M. Xue and G.F. Li	120
<b>Carbon Nitride Films Prepared by PECVD in CH<sub>4</sub>-NH<sub>3</sub> Precursor</b> J. Ni and X.P. Hao	124
<b>Preparation of the Reed Cellulose Membrane by Using NMMO Method</b> M.L. Pan, W.J. Li, M.R. Wang and C. You	128
<b>The Structure and Frictional Properties of Aluminum Alloy Anodic Oxide Film</b> S.Y. Chen, Y.Z. Yang, J. Liang and C.S. Liu	132
<b>The Anti-Oxidation Properties of MoS<sub>2</sub>/Sb<sub>2</sub>O<sub>3</sub> Films</b> Y.S. Zhang, H. Zhou, Z.H. Wan, J. Zheng, R.P. Sang and L.M.C. Yang	136
<b>Influence of Film Hole Diameter on Soil Water and Nitrogen Transport and Distribution Characteristic under Facilities Conditions</b> H.X. Wu, D.J. Cheng, L.J. Wang and L. Liang	141
<b>Static Characteristics of Air Bearing Film with the Linear Accommodation Coefficients in HDDs</b> H. Yu, B.J. Shi and J.D. Ji	146
<b>The Research of Solar Film Reactor Technology Designing</b> S.T. Liang, J.X. Lu, J.H. Ji, L. Gao, H.W. Li and H.Q. Liu	150
<b>Thermoelectric Properties of Zn-Sb Thin Films Grown by Ion Beam Sputtering</b> P.J. Liu, P. Fan, Z.H. Zheng, D.P. Zhang, X.M. Cai, Z.K. Cai and T.B. Chen	154
<b>Preparation and Photocatalytic Activity of Heteropoly Acids/Polyvinylidene Fluoride Thin Films</b> L.M. Wang, Z.C. Du, Q. Li and S.M. Wei	158
<b>Preparation of Lead Zirconate Titanate Thin Film Using Magnetron Sputtering</b> L.Y. Yu, Y. Wang and G.H. Yao	162
<b>Microstructure Characterization of the Reaction Interface between CBN Grain and Titanium-Deposited Film</b> W.F. Ding, Y.M. Liang, J. He, L. Tang, J. Yu and Z.W. Liu	166

## Chapter 2: Surface Engineering/Coatings

<b>Formation of Two-Layer Heat-Resistant Coatings on TC11 Alloy by Electro-Spark Alloying Method</b> Z.O. Dolgiy, W.Z. Shao, A.V. Kozyr and S.V. Martynov	175
<b>Tribological Properties of Ni-Base Alloy Coatings Reinforced by SiC Particles</b> T. Xu, Y.F. Tan and B. Liu	181
<b>The Effect of Thiourea Additive to Elimination of the Iron Dissolved in Flux Solution of Hot Dip Galvanizing Process</b> K.M. Moon, M.S. Oh, J.P. Won, M.H. Lee and Y.H. Kim	186
<b>Research of the Nonlinear 3D Surface NC Machining Technology</b> H.J. Liu, J. Huang and S.Y. Zhi	190
<b>Effect of Al on Zn-Al Filler Metal Wettability on Pure Copper Surface</b> M. Zhang, Y.B. Lin, J.Q. Lv and H.L. Jiang	196
<b>Effect of Isothermal Heat Treatment on Abrasive Wear Resistance of HVOF WC-10Co-4Cr Coating</b> K.Y. Ding, T.T. Cheng and P.C. Lu	200

<b>Research on Friction and Wear Properties of Plasma Spraying Ni-Base Alloy Coatings on Aluminum Alloy Surfaces</b>	
L. He, Y.F. Tan, B. Cai, H. Tan, L. Gao and Z.W. Zhang	207
<b>Surface Modification of Brucite and its Application in Flame Retardant Polypropylene Composites</b>	
A.L. Zhang, T. Chang, S.X. Li, S. Wang and S.J. Chi	214
<b>A Study of the Anti-Fouling Property of the Electroless Ni-P-Sn Coating</b>	
X.J. Tian, Y. Zou and H.Y. Cui	218
<b>Impact of Coating Adhesive on Printability of Inkjet Paper</b>	
Y. Zhang	222
<b>Friction Performance of the Bionic Surfaces with Convex Domes</b>	
H. Sun, L.J. Xiao and Z.Y. Fu	226
<b>Influence of Triethylamine Inhibitor Addition on the Sealing Process of 6063 Al Alloy</b>	
H.C. Yu, X.X. Huang, Y.Y. Han and D.P. Wei	230
<b>Wear Resistance of Al<sub>2</sub>O<sub>3</sub>, Al<sub>2</sub>O<sub>3</sub>-40wt.%TiO<sub>2</sub> Coatings Prepared by Plasma Spraying on H13 Hot-Worked Die Steel</b>	
R.G. Song, P.H. Tang, C. Wang and G. Lu	235
<b>Study of Surface Hardening to Injectors of Gasoline</b>	
N. López-Perrusquia, M.A. Doñu-Ruiz, J.V. Cortes-Suarez, L.D. Rosado-Cruz and D. Sanchez-Huitron	239
<b>AZ31 Magnesium Alloy Surface Laser Alloying of SiC-316L Composite Coating</b>	
G.Y. Xiong, M. Yu and L.Z. Zhao	243
<b>Study on Alloyed Surface Layer of Wear Resistant Castings by Evaporable Pattern Castings Infiltration Process</b>	
D.C. Yang	247
<b>Surface Treatment and Application in Acrylic Polyurethane Coating of ZnO Nano Powder</b>	
J.L. Pang	251
<b>Measurement of Curved Surface Roughness by Polychromatic Speckle Method</b>	
J. Huang, Z.H. Yuan and Y.F. Ge	256
<b>Microstructural Characterization and Thermal Barrier Effects of Conventional and Nanostructured ZrO<sub>2</sub>-7wt.%Y<sub>2</sub>O<sub>3</sub> Thermal Barrier Coatings Deposited by Plasma Spraying</b>	
D.S. Wang, Z.J. Tian, S.L. Wang and L.D. Shen	260
<b>Analysis of Plastic Strain versus Different Depth between Two Fractal Surfaces under Different Deformation Characteristics</b>	
L.F. Lai, C.H. Gao and J.M. Huang	265
<b>The Electrochemical Behavior of Surface Modified Spinel LiMn<sub>2</sub>O<sub>4</sub></b>	
C. Yang	269
<b>The Corrosion and Oxidation Resistance Improvement of DZ4 Ni-Based Superalloy Irradiated by High Intensity Pulsed Ion Beams</b>	
X.X. Mei, J.Q. Fu, X.F. Liu, J. Xu and Y.N. Wang	276
<b>Study of MoS<sub>2</sub>-Ti Composite Coatings Applied in Precision Ball Bearings</b>	
H. Zhou, J. Zheng, J.X. Hu, R.P. Sang and Z.H. Wan	281
<b>Microstructure Analysis of TiC Reinforced Ni-Based Composite Coating by Plasma Cladding</b>	
J.X. Gong, J.B. Lu and Y. Liu	286
<b>Development and Application of Repairing and Protection Technologies for Desulfurization Pump</b>	
T.J. Li, W. Li, Y. Li, F.G. Liu, L.Y. Liu and B. Wang	290
<b>The Effects of Voltage on Cu-Ce Infiltration Layer of 304 Stainless Steel by Double Glow Plasma Surface Metallurgy</b>	
F. Tang, J.Y. Xu, Y. Tang, C. Gao, P. Gao, B. Gao, W.H. Mo and Y.M. Li	298
<b>Microstructure and Hardness of Surface Composite Layer Fabricated by Evaporative Pattern Casting Technology</b>	
R.Y. Zhang, G.Y. Zhao and Y. Chen	302
<b>The Hybrid Effect of Al and Cr in Zinc Bath on Galvanizing Coatings</b>	
Y. Liu, X.P. Su, J.H. Wang, Z. Li and H. Tu	306

<b>The Experimental Research of Non-Abrasive Cryogenic Polishing on Metal Cylindrical Surfaces</b>	
S.P. Qu and T.Z. Liang	311
<b>Preparation of the Multilayer Colorized Electromagnetic Shielding Fabric</b>	
S. Bin, Z.X. Wang and J.B. Lu	316
<b>Grain Growth Simulation of Precipitated Phase on Surface and Evaluation of the Residual Stress Distribution</b>	
T. Uehara	322
<b>Influence of SiCp Surface Treatment on the SiCp/Al-30Si Microstructure and Performance</b>	
Z.L. Ni, A.Q. Wang, J.P. Xie, M. Fang and L.J. Zhang	326
<b>Influence of Dispersion Methods on Nano-Al<sub>2</sub>O<sub>3</sub>/Ni+Co Composite Coating by Electrodeposition</b>	
Y. Liu, R.F. Li, S.R. Yu, Z.W. Han and L.Q. Ren	331
<b>The Friction and Wear Properties of Conventional and Nanostructured ZrO<sub>2</sub>-7wt.%Y<sub>2</sub>O<sub>3</sub> Thermal Barrier Coatings Deposited on TiAl Intermetallic Alloy by Plasma Spraying</b>	
D.S. Wang, Z.J. Tian, S.L. Wang and L.D. Shen	336
<b>Corrosion Resistance of Copper Infiltrated on 0Cr18Ni9 Austenitic Stainless Steel by Plasma Surface Technology</b>	
Y. Tang, J.C. Zhang, J.Y. Xu, G. Wang, C. Gao and W.H. Mo	340
<b>Deposition &amp; Characterization of TiAlON &amp; TiMoAlON Solar Absorber Coatings for High Temperature Photothermal Applications Prepared by PEM Controlled Dual-Gas Reactive Magnetron Sputtering</b>	
H.B. Geng, T. Wu and C.W. Ma	344
<b>Surface Modification of Nano-TiO<sub>2</sub> by Titanate Coupling Agent</b>	
S.W. Yu, S.J. Xiao, X.M. Sang and G.X. Hou	350
<b>The Rehealing Ability of Oxide Scales on K52 Nanocrystalline Coating after Pitting Corrosion</b>	
Z.H. Zheng, Y.Y. Lv and H.P. Bai	354
<b>Effect of Heat Treatment Temperature on Properties of SiO<sub>2</sub>-ZrO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>-Cr<sub>2</sub>O<sub>3</sub> Coatings on Stainless Steel Substrate</b>	
Q.M. Jia, Y.H. Tang and K.N. Meng	359
<b>The Study of Pyrite Surface Properties and Effect Mechanism with Xanthate Caused by the Microscopic Crystal Structure and Defects</b>	
J.X. Yu and W.L. Liu	363
<b>Study of Tribological Properties of Micro-Arc Oxidation Ceramic Coatings Prepared with Different Impulse Frequency on Aluminum Alloy</b>	
Y.G. Zheng, H. Zhou, H.J. Hu, K.F. Zhang, Z.H. Wang and Y.S. Zhang	368
<b>Microstructure and Thermal Shock Resistance of Laser Remelting ZrO<sub>2</sub>-8wt%Y<sub>2</sub>O<sub>3</sub> Thermal Barrier Coating Fabricated by Plasma Spraying</b>	
C. Wang, R.G. Song and T.J. Pan	373
<b>The Mechanism of Surface Low Defect in Sheet Metal Stamping</b>	
H.Q. Shen, S.H. Li and G.L. Chen	377
<b>Dielectric Properties of Plasma Sprayed Al<sub>2</sub>O<sub>3</sub> and Al<sub>2</sub>O<sub>3</sub>-3wt% TiO<sub>2</sub> Coatings</b>	
C.M. Deng, M. Liu, C.G. Deng and K.S. Zhou	382
<b>Study of YSZ/Al<sub>2</sub>O<sub>3</sub> Composite Coatings Produced by Electrophoretic Deposition</b>	
X.J. Lu	386
<b>Alumina and Zirconia Laminar Coating Prepared by Complex Electrolytic Deposition Method</b>	
D.R. Wang	391
<b>Study on the Signal Processing Methods of the Eddy Current Testing on the Steel Ball Surface Defects</b>	
H.Y. Zhang, F.Q. Xie and Q. Li	397
<b>Study on the Durability Comparison of STS316 Non-Coated and CrN Coated for Metallic Bipolar Plate</b>	
M.S. Moon, K.D. Woo, J.H. Oh, J.H. Song, S.J. Kang and S.M. Yang	402
<b>Investigation on Microstructure of CrN-Based Solid Self-Lubricant Composite Coating</b>	
Z. Yang, P. Zhang, Y.L. Di, Z.H. Cai and Q. Li	406
<b>Effects of RE on the Friction and Abrasion Character of Porcelain Enamel Coating</b>	
S. Zhang, Y.H. Ren, M.R. Sun, F. Hu and C.H. Zhang	410

<b>Low Cost Anti-Reflection Coating for Photovoltaic Application</b> J.J. Wu, H.C. Wu and C.Z. Zhao	414
<b>Thermal and Flow Modeling of Alkali-Metal Thermoelectric Power Generation (AMTEC)</b> K.B. Lee, S.H. Rhi, K.W. Lee, W.H. Lee, C.C. Jang, W.G. Lee, N.K. Kim and D.R. Shin	419
<b>Effect of Braided Structure on Mechanical Properties of C<sub>f</sub>/SiC Composites</b> D.K. Zhang, Y.B. Cao, R.J. Liu and Y.N. Jiao	423
<b>Recognition and Classification of Hot Strip Surface Defect Based on Binary Tree SVM</b> A.N. Wang, C. Hu, C.L. Xue and H.R. Zhang	427
<b>Failure Analysis of Valve Seat Corrosion in a Triplex Plunger Pump</b> L.A. Cai, Y. Xu, C.J. Ye and H.L. Pan	431

## Chapter 3: Modeling, Analysis and Simulation

<b>An Intelligent Decision Model for Spinning Process Optimization</b> Z.J. Lv, Q. Xiang and J.G. Yang	439
<b>Process-Parameter Optimization for Fused Deposition Modeling Based on Taguchi Method</b> J.W. Zhang and A.H. Peng	444
<b>Effect of Nonlinear Kinematic Hardening Model on Draw-Bend Springback Behavior of Dual Phase Steel</b> C. Lu, Y.L. Kang and G.M. Zhu	448
<b>Study on the Critical Plastic State of the Simply Supported Beam under Non-Linear Hardening Model</b> G.Z. Zhang and J.J. Fu	453
<b>Comparison and Verification Analysis on the Fitting Curves of Several Different Creep Models</b> Y.Y. Wang, F. Xu, Y.C. Wang, J.B. Shi and H.L. Lu	458
<b>Numerical Simulation of the 3D Turbulent Flow Field in a Cross-Flow Fan Used in the Air Conditioner</b> Y.C. Zhang, Q.G. Chen, W.B. Wang and B. Xie	462
<b>Design and FEA of 125T Face Shovel Excavator's Arm</b> M. Farooq Zaman, J. Chen, G. Habtay Gebremicheal and X.P. Pang	466
<b>Modeling and Simulation for Nutation Drive with Rolling Teeth</b> G.X. Wang, L.J. Li, H. Guan and T.M. Guan	470
<b>Numerical Simulation of LPDC Process for Thin-Walled Aluminum Alloy</b> L.Q. Zhang and R.J. Wang	474
<b>Kinematics Simulation of Parallel Mechanism Based on ADAMS</b> X.Y. Du and H.W. Liu	479
<b>Mathematical Model of Coal Mine Gas and Coal Dust Control</b> W.L. Bian and J.P. Cai	483
<b>Numerical Simulation of Effect of X-Shape Submerged Nozzle on Flow of Molten Steel in Mold</b> X.C. Cui, Y.J. Jin and Y.X. Chen	490
<b>Mechanical-Hydraulic Coupling Simulation for Hydraulic Excavator Working Mechanism</b> X.Q. Zhong and L.D. Liang	494
<b>Application Research of Damping Board in Ball Grinding Processing</b> C.A. Fu and X.J. Liang	498
<b>Numerical Simulation of Mold Filling and Solidification Process for Beam Blank Continuous Casting</b> Y.J. Jin, X.C. Cui and Z. Zhang	506
<b>Application of Numerical Simulation in Quench Cracking Analysis of Vehicle Hub Axles</b> Y.C. Xiong and G.H. Li	510
<b>Study on Blade Bend Optimization of Aircraft Engine</b> W.S. Liu, C.L. Hu, Y. Sun, G.D. Shi and X.L. Liu	516
<b>ANSYS Finite Element Analysis of a Large Space Steel Tower Frame Optimization Design Research</b> F.L. Zhao	520
<b>Simulation on Agglomeration of Liquid Inclusion Particles in Steel Based on VOF Model</b> L.F. Guo, H. Li, Y. Wang, H.T. Ling, W.C. Song and J. Feng	525

<b>Micromagnetic Simulation of Asymmetrical CoFe Nanorings</b> Z.G. Guo, L.Q. Pan, H.M. Qiu, X.D. Zhao and L.H. Yang	529
<b>Numerical Simulation of Linear Explosive Formed Penetrator by Endpoint Initiating Manner</b> R.J. Gou, S.H. Zhang and K. Fan	534
<b>Numerical and Experimental Pore Network Study on Slowly Isothermal Drying of Real Porous Media</b> Y.Y. Xu, Y.D. Yuan, Y.J. Yuan, X.A. Dang and X.D. Liu	538
<b>Simulation Analysis of Cross Wedge Rolling Hollow Parts with Mandrel</b> C.P. Yang, K.S. Zhang and Z.H. Hu	542
<b>Numerical Analysis of the Influence of Shield Tunneling to Adjacent Loaded Piles</b> F.B. Zhu	548
<b>Finite Element Analysis of Automobile Clutch Cover Assembly Test Bench Pusher</b> J. Li, Z.L. Wang, Y. Jiao, Z.B. Zheng and C.P. Shao	552
<b>The Research on Simulation Model in EDM of Insulating Ceramic Si<sub>3</sub>N<sub>4</sub></b> X.B. Xu, T.K. Xiong, L.J. Tan and Y. Zeng	556
<b>The Overall Finite Element Analysis for Hydraulic Excavator Working Device</b> Q.B. Huang, L. Shui and Z.L. Sun	560
<b>Non-Dominated Sorting Particle Swarm Optimization for Concept Design of Tanker</b> W. Ren, Y. Xiong and S.L. Zhang	564
<b>Design and Finite Element Analysis of a Hydraulic Excavator Boom</b> G. Habtay Gebremicheal, J. Chen, M. Farooq Zaman and X.P. Pang	568
<b>Application of View Cast Software in Foundry Technique Designing</b> B.F. He	572
<b>The Finite Element Analysis of Reducing Diameter of Centrifuge Pipe Mould by Hot Extrusion Process</b> J.L. Fan	576
<b>Advances of a FEM for the Failure Probability Evaluation of Masonry Vehicular Bridge Support Piers</b> L.H. Martínez-Martínez, G. Mendoza-Chavez, D.J. Delgado-Hernandez, D. De León Escobedo, E.M. Alonso-Guzmán, W. Martínez-Molina, E. Arreygue-Rocha, H.L. Chávez-García and J.C. Arteaga-Arcos	580
<b>The Research of Maintenance and Supportability Model on the Surface-to-Air Missile</b> L.Y. Peng, L.H. Liu and A.M. Deng	586
<b>Exhaust System Finite Element Analysis and Optimizing Design</b> H.J. Liu and S.Y. Zhi	590
<b>Theoretical Study of the Dynamic Effects Based on Work-Roll Model in Metal Sheet Rolling Process</b> Q.Y. Wang, Y. Zhu, R.J. Gao and Y. Zhao	595
<b>CAISM Analysis Based on Learning Styles of OT with Algebra Concept</b> J.C. Tseng, Y.H. Lin and J.M. Yih	601
<b>Analysis on Influence of Effective Turbulence Intensity on Blade Root Fatigue Load of WTGS</b> F. Gai, A.M. Cai, D.T. Zhang and L.X. Sun	605
<b>Investigation on Complex Pressure Fluctuations in a Gas-Solids Circulating Fluidized Bed Rieser</b> J. Xu, X.X. Chen, G.L. Wang and Y.D. Wei	610
<b>Finite Element Analysis for Frame of Lift Transporter</b> J. Tian, G.B. Xiao and W.D. Wang	616
<b>Evolution Solutions for the Ostrovsky Equation: A Perspective from an Auxiliary Elliptic Equation</b> C.H. Xiang	621
<b>A GPU-Based Parallel Processing Method for Slope Analysis in Geographical Computation</b> M.H. Lv, X. Wei and C. Lei	625
<b>Physical Simulation on Chill of Thick Walled Ductile Iron Casting for Spent-Nuclear-Fuel Container</b> L.P. Wang, E.J. Guo, W.Y. Jiang, Y.C. Feng, X.R. Yao and S.Z. Ren	632

<b>Numerical Simulation the Temperature Field of the Multi-Coil Batch during Annealing Process in Bell-Type Furnace</b> C.L. Mo, Q. Li, X.M. Guo and H. Wang	637
<b>Finite Element Analysis of Thermal Field of the Barrel Clamp</b> F.H. Wang, Y. Li and H. Sun	642
<b>The Influence of Work Roller Diameter on Shape of Strip in Stainless Steel Cold Strip Rolling Process with Numerical Simulation Method</b> L.L. Dong, S.Q. Xing and Y.L. Ma	646
<b>Contact Analysis of Truss Bridge Inspection Vehicle's Oriented Rollers</b> X. Wu and X.L. Hu	651
<b>Analysis of Electromagnetic Shielding Effectiveness of Metal Material</b> L.F. Liu and Q.S. Zhang	655
<b>Numerical Simulation of Thermal Shock Tests of Carbon-Containing Refractories</b> H.M. Liu	660
<b>Based on Rheological to Calculate Anchor Parameter for Foundation Pit</b> X.W. Suo and C.M. Gu	665
<b>QoS Control Strategy Simulation and Analysis Based on DiffServ</b> H.H. Shi, X. Xu, Y.J. Wang and Y.Y. Yang	669
<b>Review on the Methods of Harmonic Elimination</b> X.S. Zhou, G.Z. Chen and Y.J. Ma	673
<b>Finite Element Model Analysis on Five-Cylinder Marine Diesel's Crankshaft Based on UG and ANSYS</b> J. Luo, J. Sun and G.J. Yuan	677
<b>Static Strength Analysis of Coupling Device of Converter in Different Positions</b> X.P. Ren and X.C. Lu	682
<b>Numerical Simulation on Effect of Volute Width on Performance of a Centrifugal Fan</b> Y.K. Lv, B.J. Song and T.C. Lu	686
<b>Structural Strength Analysis of Special Dynamic Calibration Equipment for Artillery Chamber Pressure Testing System</b> H.Y. Zhang, Y. Zhang and J. Zu	690
<b>The Analysis of Twin-Screw Compressor New Liquid Film Seal Structure</b> J.P. Zhao and F.S. Shi	694
<b>Basic Research of Crank-Group Driving Mechanism</b> J.J. Cao, Y.Q. Wang and J.W. Sun	701
<b>Research on the Mechanism of Earthquake Damage of Tunnels</b> S.B. Zheng, S.P. Jiang and X.W. Wang	705
<b>Balance Analysis of Reciprocating Inertia Force Based on Multi-Body System Simulation</b> L.L. Qin and X.H. Cao	709
<b>Kinematic Analysis of the Wheeled Terrain Adaptive Locomotion with Two-Degree-of-Freedom</b> P.Y. Liu, H.T. Li, S.Y. Zhang and W.J. Wei	713
<b>Study on the Kinematics of Planar Two-DOF Hybrid-Driven Robot</b> S.T. Song, R.Q. Li and A.L. Wang	717
<b>Simulation and Analysis of Swing Motion of Lifting Load System on Rescue Vehicle</b> H.M. Liu, H. Zhao and N. Li	725
<b>The Testing and Finite Element Analysis of Temperature Distribution and Thermal Deformation in Vertical Machining Center</b> B. Fang, L. Zhang, J.F. Zhang and Y.H. Li	730
<b>Simulation and Research on Man-Machine Engineering of Trunk Lid</b> L.J. Li and L.L. Zhao	735
<b>Grey Relation Analysis on the Influence Factors of Multi-Mode Penetrators Forming</b> J.B. Wang, Q.M. Zhang, C.L. Feng and W.B. Li	739
<b>Simulation of Bicycle Helmet Impact Test Based on the CPSC Standard</b> T.L. Teng, C.C. Liang, C.J. Shih and V.H. Nguyen	744
<b>An Identification Approach of Dynamic Contact Parameters for Toolholder-Spindle Joint Base on Frequency Response Function</b> G.P. An, X.Y. Liu, Y.S. Zhao and L.G. Cai	748

<b>Conditions for Fractal Dimension Estimate Model of Spatial Objects and a Case Study</b> B. Li, M.X. Xu, Y.L. Xu and S.H. Li	754
<b>Study on Shift Schedule of Automatic Transmission Based on Road Environment and Driving Intentions</b> Y.D. Song, X.S. Cheng, X. Liu and P. Han	758
<b>Strength Analysis of Solar Sweeper Frame by Using Different Connection</b> Y. Xian and Y. Guang	762
<b>Analysis of Stiffness of Viscoelastic-Friction Damper for High-Speed Rotor System</b> W.Z. Li and F.X. Zhang	768
<b>Modeling and Simulation of Flexible Hydraulic Robotic Arm</b> L. Dai, D.L. Xu, Y. Liu and J. Wang	773
<b>An Improved Data Exchange Algorithm Based on the Relationships between Point and Triangle</b> X.H. Cheng, T. Yang and X. Liu	777
<b>Devising Mission Environment Simulation Agent of Materiel System</b> Y. Shen, J.H. Cao, W. Wu and M.F. Ni	784
<b>A 3D FE Model for Roll Forming of Ring with Complex Cross Section</b> G.Y. Zhao, R.Y. Zhang, Z.H. Guo, Z.R. Feng and S. Ying	788
<b>The Elastic Suspension Design Based on Optimized Design of Simulated Annealing Complex Method</b> W.H. Huang and Y.P. He	792

### **Chapter 3: Modeling, Analysis and Simulation**

<b>Modeling &amp; Optimization of Surface Roughness &amp; Vibration Amplitude in Heat Assisted End Milling of SKD 11 Tool Steel Using Ball Nose Tool</b> A.K.M.N. Amin, M.H.B.M. Saad and M.D. Arif	799
<b>Investigation into the Characteristic of Air Pressure Field in the Melt Blowing with Dual Slots via Numerical Simulation</b> S.F. Xin and X.H. Wang	804
<b>Design and Simulation Analysis of Transmission Mechanism for Oil Press</b> Y. Yang, S.B. Ma and H.F. Zhang	810
<b>Finite Element Analysis for the Temperature and Stress Fields of the Diesel Piston Based on CAE</b> W.F. Sun, X.B. Li, Y.J. Yu and X.L. Yang	815
<b>Slope Stability Analysis with Finite Element Method</b> J.Q. Liu and J.L. Liu	819
<b>Finite Element Analysis of Ultrasonic Vibration Assisted Milling of Ti-6Al-4V</b> H.F. Huang, D. Lu, Y.B. Wu and M.M. Yang	823
<b>Finite Element Analysis for Stereo Shelves Based on ANSYS</b> Y.F. Xie and W. He	828
<b>Design and Research on Aluminum-Plastic Trunk Lid</b> D.N. Yu, L.Y. Gu and C.Y. Lu	833
<b>Investigation of the Local Stress in the FCC Unit (Reactor Riser) Using FEA</b> D.P. Hong, N.Y. Choi, H.S. Kim, Z. Li, I. Lee and J.J. Seo	841
<b>Research on a New Scanning Process for the Flexible Forming Using Plasma Arc</b> Q.T. Li, D.P. Yu and J. Yao	845
<b>Reliability Optimization Design of Spacecraft Valve Spring</b> Y. Lin, W.M. Cui and B.F. Song	851
<b>Quantitative Analysis of Molten Metal Flow in Rotating Stirring Electromagnetic Field</b> L. Gao and R.R. Wang	858
<b>Discrete Particle Swarm Optimization Algorithm for Lot-Streaming No-Wait Flow Shop Scheduling Problem</b> L. Yang and Y.X. Pan	863
<b>Monte-Carlo Modeling of Grain Growth of Plain Carbon Strip Steel Q235 during Heating Process</b> H.Y. Ma, C.L. Mo and S.P. Du	869



<b>The Simulation of RTM Based on FLUENT</b> Y.F. Dong and X.J. Jiao	873
<b>Numerical Calculation of Optical Properties of Linear Nano-Graphite Particles</b> Y.F. Liu and C.J. Huang	877
<b>Structural Optimization and Simulation for Tractor Clutch Cover</b> F. Dong, G.L. Hu and C.H. Guo	882
<b>Composite-Insulated Boom FEM Analysis for the Application of Aerial Work Platform</b> D.P. Hong, B. Lee, C.G. Park, S.H. Hwang, S.J. You and Y. Hong	886
<b>Numerical Simulation on Deposition and Solidification Processes of a Molten Metal Droplet Generated by Drop-on-Demand Jetting</b> P.Y. Wang, H. Li, L.H. Qi, H.L. Deng and H.S. Zuo	890
<b>Decision-Making Model for Convention Site Selection</b> H.C. Huang	895
<b>The Stamping Process Simulation of Plate Using CAE Technology</b> L.M. Yu, X.L. Chen and Y. Yang	901
<b>The Numerical Simulation Analysis of the Straightening Process of the Large H-Shaped Steel</b> L. Chen, W. Tong, H. Li and Y.Y. Liu	905
<b>Fatigue Simulation of High Pressure Water Jet Cylinder</b> K. Wang, D. Ma and Y.G. Song	909
<b>Realization of High Angle of Attack Simulation Based on Cylindrical Projection System</b> J. Wang, Y.A. Zheng and Z.K. Shi	915
<b>Milling Force Modeling of Formed Milling Cutter for Turnout Processing and Experiment Validation</b> L.G. Cai, F.Y. Pu and Y.S. Zhao	921
<b>Numerical Simulation on Precision Forging Process for Spur-Gear with Large Module</b> G.H. Liu, Z.P. Zhong, Y. Bian and Q. Li	927
<b>Stress-on-a-Surface Method and its Application in Stress Classification of Nozzle-Cylinder Intersection</b> J.H. Dong, H.Y. Tang and B.J. Gao	932
<b>Application of Fuzzy Comprehensive Evaluation Method in Long-Span Arch Bridge Damaged in Wartime</b> L. He and Y.J. Qian	940
<b>High Temperature Deformation Behavior of Ti-7333 Titanium Alloy and its Flow Stress Model</b> J.K. Fan, H.C. Kou, M.J. Lai, B. Tang, H. Chang and J.S. Li	945
<b>Boolean Operations for the Simulation of Machining Processes Based on the CSG Modeling Technique</b> B.C. Li, X.W. Zhang, L. Geng, T.B. Yu and W.S. Wang	951
<b>Computational Analysis of Substitution Effects on the Electronic Properties of the Carbazole Derivatives</b> F. Yang and B.W. Chen	955
<b>A Contrastive Analysis of the Crashworthiness between 22MnB5 and DP590 Front Bumper Inner Plates</b> Y.M. Zhao, H. Xie and J.P. Lin	959
<b>Study on the Difference between Multipotential Surface Model and Duncan-Chang Model Based on the Triaxial Test of Heda Highway Turfy Soil</b> S. Tang, L. Nie, D.Y. Qiao, Y. Lv and X.R. Yang	965
<b>Kinematic Simulation Analysis for the Precision Press Working Mechanism</b> H.J. Ke, Y.Q. Zheng and M.Y. Chen	971
<b>Simulation Research of Three-Phase Magnetic Controllable Reactor</b> G.S. Zhao, Z.X. Cheng, X.P. Wang, D.X. Li, K. Yao and K.Q. Sun	975
<b>A New Method to Generate Regular Grids for FDM Simulation</b> R. Li, J.Q. Zhang, F.T. Shen and F. Li	982
<b>Numerical Simulation of Temperature Profile in a Compartment Fire with a Roof Opening</b> J.M. Li, Q. Li, Y.L. Dong and C.H. Li	989
<b>The Study on Tail-Water Treatment Model in Shandong Province</b> J.G. Ren and Q.Q. Wu	993

<b>The Analysis of No Recirculation of Closed Planetary Bevel-Type CVT</b> Y.J. Wu and K.C. Liu	997
<b>Study on Dynamics Model of Macro/Micro Mechanical Arm of the New Workover</b> Y. Wang, Y.L. Chang, S. Gao and J. Wang	1002
<b>Rigid Finite Element Modeling of Ball Screw System</b> Y.H. Li and W. Jiang	1006
<b>Study on Estimate Model of Linear Objects' Fractal Dimension</b> B. Li, Y.L. Xu, M.X. Xu and S.H. Li	1011
<b>Analysis of Hottest-Spot Temperature Distribution in Cast-Resin Dry-Type Transformer Design</b> X.T. Sun and Z. Mu	1015
<b>The PC Main Board Static Stress Analysis Using ABAQUS</b> X.Q. Chen and Y.Q. Zheng	1020
<b>A New Numerical Simulation System for a Flexible Beam with Imbedded Fluid</b> N. Ma, H. Xu and J.W. Wang	1024

## Chapter 4: Materials Forming

<b>Algorithm and Application of Springback Modification for Complex Bending Parts</b> E.M. He, H.W. Zhang and Z.B. Zhao	1031
<b>A Rapid Inverse Method of Material Performance Parameters in Sheet Metal Forming</b> H. Liu, K.Y. Jiang, B. Liu and P. Lu	1035
<b>Influence of Cooling Rate on the Microstructure in HCCI/Steel Bimetal Composite Hammer</b> N. Wei, K. Wang, X.K. Zhou, Q. Wang, Q. Liu and J.C. He	1041
<b>Optimization of Initial Blank Shape to Minimize Defects in an A Pillar Inner Panel Using Finite Element Method</b> L.M. Li	1045
<b>Effect of the Multi-Electromagnetic Fields on the Solidification Process of the Continuous Casting Hollow Billet</b> Q. Zhang, J. Wang and Z. Chu	1049
<b>Effect of Partitioning of Quenching-Partitioning-Tempering Process on Microstructures and Hardness in High Carbon Steels</b> Y.Z. Zeng, K.M. Wu, F. Hu and H. Zheng	1053
<b>Research on Fuzzy-PID Compound Control in Inverter-Driven Energy-Saving Technology for Injection Molding Machine</b> G. Feng, J.B. Qi, C.G. Zhang and Y. Zhang	1057
<b>Mechanical Analysis of Warm Extrusion Precision Forming on 42CrMo Steel Cutting Pick</b> C.J. Su, Q.L. Li, L.J. Xiao and S.M. Guo	1061
<b>Influence of the Blooming Processes of Heavy Forgings on the Forgings Quality</b> G.H. Liu, Z. Zhuang, P. Liu, L.Y. Ni, S.Y. Zhu, J.J. Chen, H.C. Lin and L.H. Liu	1067
<b>Mold Flow-Based Mold Flow Analysis of Copier Parts and its Solution Optimization</b> J.K. Yang and Y.J. Xu	1072
<b>Three-Dimensional Numerical Simulation of Molten Steel Flow Behavior in Soft-Contact Electromagnetic Continuous Casting Mold</b> X.J. Wang, L.G. Zhu, R. Liu, Z.H. Li and P. Tian	1076
<b>Numerical Simulation and Mechanical Analysis of Special-Channel Steel Sheet on Cold Roll Forming Process</b> Q.B. Huang, Q.B. Yang and X.A. Ji	1080
<b>Quiescent Pouring Process of Vacuum Sealed Molding Casting</b> G.H. Li, H.Q. Lin and Y. Yang	1084
<b>Warm Compacting Behaviors and Sintering Performance of 316L Stainless Steel Powder</b> M.Y. Ke	1088
<b>On STL Subdivision Algorithm of Parametric Cross Wedge Die</b> W.S. Yuan, Z.L. Wang, Z.D. Li and G. Cheng	1092
<b>Research of Technological Factors on Producing Oxygen-Free Copper Strip in Horizontal Continuous Casting</b> Z.L. Sun, M.E. Guo and Y.C. Guo	1097

<b>The Effect of Al<sub>2</sub>O<sub>3</sub> as a Sintering Aid on the Densification of B<sub>4</sub>C by Spark Plasma Sintering</b>	
Q.Z. Jiang, Y.K. Li, C. Sun, Y.F. Wang, M.M. Wan and L.B. Zhu	1101
<b>Forming Margin Diagram for Tube Hydroforming with Radial Crushing under Linear Loading Path</b>	
Z.H. Tao and L.F. Yang	1106
<b>Effect of Temperature in Superplastic Forming in Al6063/SiC<sub>p</sub> Composites</b>	
S.V. Ananth, M. Kumerasan and K. Kalaichelvan	1111
<b>An Experimental Study for the Effect of Contact Stress of Blank Holder and Punch Velocity on Crack Ratio of Fine-Blanked Surface</b>	
R.X. Ding, C. Guo and H.H. Zhang	1115
<b>Application of Fuzzy Controller with Self-Tuning Scaling Factors for the Filling System of Counter-Gravity Casting</b>	
Q. Li, Q.T. Hao and W.Q. Jie	1122
<b>CAE-Based Injection Molding Analysis of Mobile Phone Battery Cover</b>	
J.K. Yang and Y.J. Xu	1130
<b>Influence of Casting Process for Technological Yield of Thin Wall Steel Castings by Last Solidifying Feeding Mechanism</b>	
D.C. Yang	1134
<b>Effect of Vanadium-Nitrogen Concentration and Cooling Rate on Grain Refinement in V-N Steel</b>	
X.F. Shi, L.Z. Chang, C.F. Jiang and L.B. Liang	1138
<b>Theory Study and Numerical Analysis of Ultra-Thin Wall Injection Molding</b>	
S.F. Yin, F. Ruan and J.Y. Wang	1145
<b>Development Status and Applications Prospect of Squeeze Casting Technology</b>	
H.B. Yang, X.S. Zhao, W.Z. Fan, X.W. Chen and D.Y. Xu	1154
<b>A Study on the Cost Estimation of Mould Manufacturing Processes for Cosmetic Cap</b>	
S.B. Park	1158
<b>Theoretical Analysis of the Displacement on the End-Section of the Rolled Parts for Multi-Wedge Cross Wedge Rolling</b>	
W.S. Yuan, Z.L. Wang, B.J. Shi and G. Cheng	1162
<b>Optimization of Process Parameters for Injection Molding Based on Taguchi Technique</b>	
S.J. Fu	1170
<b>Experimental Study on the Influence of Single-Pass Deformation on Recrystallization Behavior and Microstructure</b>	
Y.Y. Liu, S. Hu and L. Chen	1175
<b>Experimental Investigations on Electromagnetically Assisted Corner-Fill Performance of AA5052 Sheets</b>	
D.H. Liu, J.C. Li and C. Chang	1179
<b>Study on the Microstructure and Properties of ZL205A Alloy under Partial Remelting Treatment</b>	
M. Li, L.R. Cai and P.X. Liu	1183
<b>Deformation Behaviors of Non-Metallic Inclusion in FGH96 Superalloy during Different Plastic Processes</b>	
M.C. Zhang, C.Y. Liu and S.Y. Wang	1187
<b>Warpage Analysis of Injection Molding Based on Mold Flow</b>	
J.K. Yang and Y.J. Xu	1192
<b>The Casting Process of the High Chromium Cast Iron Grinding Ball in Mill</b>	
Z.B. Zhou, Q.H. Zhou, H.Z. Liang, J.L. Zhang and N.N. Zhu	1197
<b>Micro Pattern Forming of Spiral Grooves in a Fluid Dynamic Bearing Using Desktop Forming System</b>	
J.H. Song, J. Park, J.S. Lee, S.G. Choi, H.J. Lee and J.H. Hwang	1203
<b>Study of Microstructure and Texture of Nb-IF High Strength Steel after Cold Rolling and Annealing</b>	
Z.Y. Hou, Y.B. Xu, D. Wu and G.D. Wang	1208
<b>Design of Drawing Straightening Machine for Roll-Forming of U-Shaped Steel</b>	
H.F. Wang, J.T. Han, J. Liu and Y.J. Zhang	1213

<b>The Influence of Injection Processing on the Shrinkage Variation and Dimensional Stability of Wax Pattern in Investment Casting</b> D.H. Wang, B. He, F. Li and B.D. Sun	1217
<b>Industrial Application of the Packaged Soft-Reduction Technology for Slab Continuous Casting</b> K. Feng, Z.W. Han, J.F. Cao, Y.W. Kong and S.G. Wang	1222
<b>The Development on 600MPa Grade Hot Rolled Sheet for Engineering Mechanism in Pangang</b> K.H. Zhang, X.Y. Ye and J. Zuo	1228

## Chapter 5: Materials Machining

<b>The Analysis of Grinding and Polishing for the Tile Planetary Disc Grinding Machine</b> Z.M. Dai and D.S. Li	1235
<b>Constitutive Relationship and Critical Condition for Dynamic Recrystallization of Inconel 625 during Hot Deformation</b> S.L. Guo, D.F. Li and Z.G. Wu	1240
<b>Study on Tool Life of Surface Textured Tool in Dry Cutting of Ti-6Al-4V Alloys</b> Z. Wu, J.X. Deng and J. Zhao	1245
<b>Design and Manufacturing of Punching Die of Thickening Steel Plate</b> X.P. Liu and X.J. Zheng	1250
<b>Flow Behavior and Workability of a Zn-8Cu-0.2Cr Alloy during Hot Deformation</b> S.L. Guo, P. Du, X.P. Wu and D.F. Li	1257
<b>Research and Application of the Enviromental Automatic Sandblast Derusting Machine</b> B. Long, D.Y. Tang, K.K. Wang, M.Z. Liu and B.J. Zhao	1262
<b>Grain Refinement of LC9 Alloy by Low-Power Ultrasonic Vibration Melt Treatment</b> L.P. Chen, Y.Y. Han and Q. Zhou	1267
<b>Primary Study of Dieless Drawing Process for Bimetal Tube</b> H.F. Wang, J.T. Han, J. Liu and Y.J. Zhang	1272
<b>Research and Development of Special Machine for Drilling and Milling Compressor Piston</b> W.Q. Xu, B.Q. Zhou and Y.D. Sun	1277
<b>Pitch Carbon Fiber Melt Spinning Diameter Stabilization Method Based on Radial Basis Function Neural Network</b> J.M. Yuan, Y.X. Shen, B. Liu, M. Zhou and J.Q. Liu	1281
<b>Processing Method of Leaves Used in Thermal Insulation Building Materials</b> D.M. Jiang and S.P. Cui	1286
<b>Design and Testing of the Precise Cutting Test Bed for Micron Paring Machining</b> H. Guo and Y. Ma	1290
<b>Research on the Process Parameters for High-Speed Cutting</b> D.Q. Gao, H. Lin, Z.Y. Li and J.M. Yi	1294
<b>An Experimental Study on the Tribological Performance of Tool Materials in Micro-Cutting 1Cr18Ni9Ti</b> Z.P. Fang, X.B. Wang and Z.B. Liu	1299
<b>Influence of Bar-Cutting Material on the Formation of MEFP</b> J.P. Yin, H.C. Zhang, Z.J. Wang and L. Fu	1304
<b>Research of Spiral Tool Path Generation Based on Point Cloud</b> L.X. Tang, C.Q. Qi and X.Q. Zhou	1308
<b>Study Influence of Plastic Deformation a New Extra Low Carbon Stainless Steels XCr17Ni7MoTiN under the Surface Finish when Drilling</b> J. Jurko, M. Džupon, A. Panda and J. Zajac	1312
<b>Design of Five-axix CNC System for Electric Discharge Grinding (EDG) Polycrystalline Diamond (PCD) Tools</b> S.H. Shi, P.Q. Ye and C.X. Fang	1316
<b>Study of NC Electrochemical-Mechanical Composed Cutting on GH710</b> W.P. Jia, B. Miao and M.H. Wu	1322
<b>Cutting Efficiency by Drilling with Tools from Different Materials</b> I. Mrkvica, M. Janoš and P. Sysel	1327

<b>Monitoring and Prediction of Surface Roughness in Ball End Milling with Air Blow Application</b>	
S. Tangjitsitcharoen and S. Ratanakuakangwan	1332
<b>Integrated Monitoring of Surface Roughness and Chip Formation by Utilizing Cutting Force and Cutting Temperature</b>	
S. Tangjitsitcharoen and S. Ratanakuakangwan	1338
<b>Analysis of Machinability of Inconel 718 in High Speed End Milling with Ceramic Inserts under Room Temperature Conditions</b>	
A.K.M.N. Amin, S. Mokhtar and M.D. Arif	1351
<b>Effect of Liquid-Die-Forging Pressure on Microstructure and Mechanical Properties of A390 Sloping Swash-Plate</b>	
G.A. Zhang, F. Jiang, Q. Zhou and F.F. Wu	1356
<b>Optimization of Sanding Parameters for Wood Surface of Plantation-<i>Mytilaria laosensis</i></b>	
C.W. Su, J.D. Huang, J.J. Luo, L. Lai and Y.Y. Wuang	1360
<b>The Design of Pneumatic Control System for CHT Hydrolysis Device</b>	
K.G. Mao, X.H. Xiong and S.F. Yan	1365
<b>Cutting Force Prediction of Stainless Steel in High-Speed Milling</b>	
X.Z. Xie, Y.P. Yao, R.Z. Zhao and W.Y. Jin	1369
<b>Study on Surface Roughness Simulation to Lathe Machining</b>	
D. Xie and M. Wang	1373
<b>Research on Curved Surface Forming of Nomex Honeycomb Material Based on Ultrasonic NC Cutting</b>	
X.P. Hu, S.Y. Chen and Z.C. Zhang	1377
<b>Effect of Grit Size and Wall Thickness of Core Drill on Machining Quality at Hole Exit in Drilling Carbon Fiber Reinforced Plastics Laminate</b>	
W.F. Wang, Y. Chen, J.H. Xu and J. Mu	1382
<b>The Application of Ultrasonic Technology in the Hard, Brittle Materials Processing Research</b>	
L.Z. Zhang and J.M. Li	1387
<b>Influence Principle of Ultrasonic Vibration on the Rheological Behavior of Materials</b>	
X.H. Li, Z. Wang and X.H. He	1393
<b>Research and Evaluation on the Machining Properties of <i>Picea spp.</i></b>	
C.W. Su, Z.K. Wang, L.W. Hu, J.D. Huang and Q.J. Li	1403
<b>Drilling Wear Recognition Based on Fuzzy C-Means Clustering Algorithm</b>	
M.X. Yan	1408
<b>A Study on how Grinding Technology Parameters Affect the Surface Texture Formation of Marine Diesel Engine Crankshafts</b>	
T. Torims, J. Vilcans, M. Zarins, V. Brutans and A. Ratkus	1413
<b>Influence of Cutting Parameters and Interactions on the Depth of Cut in Continuous Mining Operation</b>	
Y. Sun, X.S. Li and W. Shao	1422
<b>A Dynamic Thrust Force Prediction Model for Drilling of CFRP</b>	
H. Cheng, Y. Li, K.F. Zhang and J. Zhang	1429

## **Chapter 6: Welding & Joining**

<b>An Automatic Welding System for Mini-Van Dashboard Trestle</b>	
J.J. Wei and P.C. Fan	1435
<b>Numerical Simulation of Welding Deformation under Different Conditions</b>	
Q. Yang, S.J. Xie and H.T. Gao	1439
<b>Numerical Simulation of Temperature Field of Linear Friction Welding of 45# Carbon Steel</b>	
Z.M. Liu, Z.H. Guo and S. Zhang	1443
<b>The Impact of Adscititious Longitudinal Magnetic Field on CO<sub>2</sub> Welding Process</b>	
S.Y. Jiang, X.W. Wang, H.M. Chen and P. Liu	1447
<b>The Research of the Auxiliary Power of Q235 Steel Friction Stir Welding Technology and Joint Microstructure's Observation</b>	
X.J. Wang, Y.X. Lu, J.L. Liang and S. Ping	1451

<b>Control-Oriented Modeling and Simulation of a Low Carbon Steel A.C. Resistance Spot Welding Process</b>	
Y. Xi, L. Gong and C.L. Liu	1456
<b>Molecular Dynamics Study on Formation of Carbon Nanotube X-Shaped Junction by Heat Welding</b>	
X.M. Yang and D.C. Chen	1460
<b>Plasma Arc Welding between AISI 304 and AISI 201 Stainless Steels Using a Technique of Mixing Nitrogen in Shielding Gas</b>	
S. Chandra-Ambhorn, W. Chauiphan, N.C. Sukwattana, N. Pudkhunthod and S. Komkham	1464
<b>Study of Titanium Foil Welding Using Micro-Plasma Arc Welding</b>	
F.X. Wang, J.P. He, J.Q. Fang, F. Xiang and L.L. Ren	1469
<b>The Effect of Nb+Ti on the Martensite Fraction in Ferritic Stainless Steel Sheet during Welding Process</b>	
J.N. Deng, D.C. Xu, L. Su, G. Dong and Y.D. Liu	1473
<b>Investigation on the Weldability of a Zr-Ti Microalloyed Pipeline Steel X120</b>	
Y.Q. Yin, H.H. Wang, Y.K. Yao, L. Li, X.W. Lei, J.B. Zhao and K.M. Wu	1478
<b>Research of Laser Welding for Hot Rolling Si-Steel Strip</b>	
R.T. Zhong, Z.J. Huang and L. Wang	1484
<b>Experimental Study on Ultra-High Cycle Fatigue Property of Q345 Welded Joint</b>	
X. Zhao and J.J. Zhao	1488
<b>Study on Fatigue Strength of Welding Joint in Wuhan Iron and Steel</b>	
Z.P. Fan, X. Wu and Q. Li	1492
<b>Visual Sensing System for Thin Plate Welding Based on Rotund Facular Laser</b>	
W.P. Gu, Z.Y. Xiong and P. Liu	1498
<b>TEM and DSC Analysis of LT-3 Aluminum Alloy Vacuum Brazing</b>	
J.N. Xu, X.L. Cao, T. Feng and Y.A. Zhang	1502
<b>An Weld Line Optimization System of Tailor Welded Blanks Based on Compensation Principle</b>	
Y.S. Liu, A.P. Xu, D.B. Zhu and X.T. Guan	1507
<b>Numerical Simulation of Double-Sided Double Arc Welding without Back Chipping Based on MSC.MARC</b>	
L. Gao, Y.F. Tan, B. Cai, L. He, G.Y. Dong and Z.S. Yang	1512
<b>Numerical Simulation of Influences of Preheating and Postweld Heat Treatment in Welding</b>	
Q. Yang, S.J. Xie and T.B. Yu	1518
<b>Study on a Kind of White Massive Microstructure in P91 Steel Weld Joint</b>	
X.X. Xu, Y.T. Feng, W.P. Li, P. Sun, J. Ouyang and X.G. Niu	1522
<b>Effect of Welding Method on the Hardness of Joint of 600MPa Grade New Generation Steel</b>	
Z.J. Huang, L.J. Hu, T. Pen, Y.T. Wang and J. He	1526
<b>Welding Technology of SAF2507 for Offshore Platform</b>	
B. Sun, H.L. Niu, D.Y. Tang, Z.T. Fang and Y.H. Hu	1532
<b>The Study on 1Cr18Ni9Ti and 2Cr13 Steel Welding Joints Corrosion Resistance Properties</b>	
Y.T. Zhao, J.H. Dong, Z.C. Liu and J.W. Zhou	1537
<b>Joining Refractory Metals for High-Temperature Applications</b>	
C.C. Lin, R.K. Shiue and H.J. Shy	1541

## **Chapter 7: Mechanical Behavior & Fracture**

<b>On Construction and Verification of a Safety Model</b>	
C.H. Wang and Y.J. Liu	1547
<b>Experimental Research on the Bond Strength Influenced by Mortar Corrosion</b>	
H. Xu and G.H. Yao	1558
<b>Research on the Interlayer Stress and Warpage Deformation in FDM</b>	
A.H. Peng	1564
<b>Mechanical Performance and Durability of Fly Ash Recycled Aggregate Concretes</b>	
V. Corinaldesi	1568
<b>The Stress Concentration Effect around the Hole in Flat Plate</b>	
J.B. Xie, J. Fan, Z.L. Wang and T.C. He	1573

<b>Study on Fracture Test of Rocket Shear Pin</b> M.M. Zhang and W.Y. Xu	1579
<b>Study of Relationship between Inorganic Polymer Concrete Cracks and Deflection Based on Fractal Theory</b> Z.A. Lu, Y. Yan, X.C. Fan, D.G. Cao, J.J. Li and Y.P. Wang	1583
<b>Characterization of Fatigue Damage of Crankshaft Remanufacturing Core by Two-Dimensional Magnetic Memory Signal</b> N. Xue, L.H. Dong, B.S. Xu, C. Chen and S.Y. Dong	1588
<b>The Impact Toughness and Fracture Behavior of Ni-Containing Powder Metal Steels</b> M.W. Wu, G.J. Shu and S.H. Chang	1594
<b>Effect of Ce on the High Temperature Mechanical Properties of Martensitic Stainless Steel</b> X. Liu and J.S. Li	1601
<b>Flow Stress Behavior of 2205 Duplex Stainless Steel during Warm Tensile</b> J.X. Zhang, Z.J. Li, G.Y. An and Z.X. Wang	1605
<b>Microstructures and Tensile Properties of Electrodeposited Cu Sheets with Grain Sizes from Nanocrystalline to Ultrafine Scale</b> H.Z. Zhang, H. Zhang and L. Liu	1611
<b>Influence of Tempering Temperature on the Mechanical Properties of CrMnNiMo Steel</b> J. Li, W.M. Wang, J.X. Gao and W. Shao	1615
<b>Study on Mechanical Properties of Activated Carbon Fiber Reinforced Medium Density Fiberboard</b> Y. Yang, C. Liu and C. Han	1619
<b>Delamination Analysis of Carbon Fiber-Reinforced PEEK Using Coarse Mesh</b> J.S. Ahn, K.S. Woo and D.W. Lee	1624
<b>High Cycle Fatigue Tests at High Temperature under Superheated Steam Conditions</b> J. Džugan and T. Misek	1630
<b>Structural Health Monitoring of Cracked Beam by the Dual Reciprocity Boundary Element Method</b> A. Alaimo, A. Milazzo and C. Orlando	1634
<b>Singular Behavior of Laminated Skew Composite Materials with Cross-Ply Stacking</b> J.S. Ahn, K.I. Son, K.S. Woo and Y.S. Shin	1640
<b>Investigation on Forging Process of S20S Connecting Rod and its Defects Analysis</b> L. Zhou, K.K. Wang, S.L. Song, L. Lu and C.W. Li	1646
<b>The Analysis of the Stress and Strain in Skew Rolling</b> H.B. Yang, L.J. Zhang and Z.H. Hu	1650

## Chapter 7: Mechanical Behavior & Fracture

<b>Study of Design Procedures for Partially Prestressed Concrete Pier Cap Beam</b> Q.Y. You	1657
<b>The Study of Metal Diffusion Law in Multidirectional Active Loading</b> M. Cheng, Z.M. Zhang and J.M. Yu	1660
<b>Finite Element Analysis of Aluminum Alloy Pitting Stress Concentration</b> L. Hui, Y.Y. Zhang, L. Xu, S. Zhou and Y. Wang	1664
<b>Effect of Martensite on the Dynamic Torsional Properties of a Dual-Phase Carbon Steel</b> T.Y. Cao	1670
<b>Influence of Microstructure and Precipitates on the Mechanical Properties of High Strength Hot Strip</b> J.Y. Ma, W. Liang, Y. Guan and Z.J. Deng	1678
<b>LEFM-Based Fatigue Life Assessment of Anthropogenic CO<sub>2</sub> Pipeline under Inner Pressure Fluctuation</b> Q. Jin, B. Li and Q. Wen	1683
<b>The Flow Stress Feature and Constitutive Equation of 6016 Aluminum Alloy during Hot Compression</b> J.X. Zhang, W. Feng, H. Wen and G.Y. An	1687
<b>Fatigue Behavior of A5052 Aluminum Alloy with DLC/Thermally Sprayed WC-12Co Hybrid Coatings</b> Y. Uematsu, T. Kakiuchi, Y. Kobayashi and Y. Harada	1693

<b>Fracture Mechanism of Aluminum Joint Brazed by Zn-Al Alloy</b> M. Zhang, H.L. Jiang, H.B. Xu and Y.B. Lin	1697
<b>Shear Lag Effect of Continuous Curved Box Girder with Initial Curvature</b> Y.M. Wu, Y.J. Lu and H. Shi	1701
<b>Influence of Blank-Holder Force on Springback of Cap-Shape Parts Bending</b> C.J. Su, S.S. Miao, L.J. Xiao, S.M. Guo and L. Gao	1705
<b>An Advanced Damage Propagation Model of Brittle Fracture</b> C.Z. Du and W.Y. Qiu	1711
<b>Estimation Model for Fatigue Life of Pipeline Steel with Mechanical Damage</b> Y.R. Jiang and M.B. Chen	1716
<b>The Effective Measures of Preventing Collapse Angle Problem in Polishing Plastic Mould</b> Y.L. Ren and H.Q. Lin	1720
<b>Mathematical Model of Hot Deformation Resistance of X120 Pipeline Steel</b> H.W. Zheng, D. Tang, H.B. Wu and L. Yang	1724
<b>A Solution for the Prediction of Springback in Age-Forming Strip</b> W. Xiong and Z. Gan	1732
<b>Grey Clustering Analysis of the Bending Creasing and Draping Properties of Bamboo Pulp/Cotton Interwoven Fabric</b> S.B. Ma	1737
<b>Research on the Cold Rolling Mechanical Character of Low Carbon Base Plate Produced by CSP</b> S.F. Wang, Y. Peng, Z.J. Li and Y.F. Liu	1742
<b>Influence of Cryogenic Treatment on Grinding Residual Stress of WC-Co Cemented Carbides</b> Y.G. Yuan and C.H. Xu	1746
<b>Study on the Crack Extension Properties under Ultrasonic Vibration Uniaxial Tensile Load</b> X.L. Cheng and C.L. Tian	1751
<b>Mechanics Analysis of Reinforcing Rib Structure in Aluminum Heating-Plate Automatic Casting System</b> M.F. Gong, Z. Li and J. Dong	1755
<b>Structural Behavior of a New GSZ Panel under Lateral Loads</b> Q.Y. Huang, F. Xiong, Q. Ge, Y. Yin and N. Zhou	1762
<b>A Study of Hydraulic Jet Fracturing in Shallow Reservoir</b> C.P. Nie, X.C. Dai and C. Ning	1769
<b>Study on Delamination Propagation Behavior and Measurement Method for One Kind of New Fiber Metal Laminates</b> X. Huang and J.Z. Liu	1773
<b>Investigation on Wall Thinning and Creep Damage in Boiler Tube due to Scale Formation</b> S. Begum, A.N.M. Karim and M.A. Shafii	1781
<b>Inspection and Evaluation of Load-Bearing Capacity of Single Tower Composite Girder Cable-Stayed Bridge</b> X.D. Zhang, J.Z. Wang and J.F. Guo	1785
<b>Orthogonal Test Research on Compressive Strength Size Effect of ECC</b> M.K. Deng, Y.T. Chang and X.W. Liang	1789
<b>Mechanical Property Test Study on Composite Board Box</b> H.N. Xing, X.P. Zhang, Z.L. Liu and L.Q. Jin	1796
<b>Calculation on Modal Damping Ratio of Stay Cable Using Nonlinear Friction Damper</b> H.P. Wang	1800
<b>Dynamic Load Effecting on Asphalt Pavement Life by Multi-Intelligence Agents</b> J.C. Zhang and H. Zhang	1804
<b>Bridge Piers and Abutments Surface Degradation Reduction Possibility</b> Z. Šnirch	1808

## **Chapter 8: Material Design of Computer Aided**

<b>Damage Detection of Wood Beams Using the Modal Flexibility Curvatures</b> C.S. Hu, W. Wen and H. Yun	1815
--	------



## Chapter 9: Laser Processing Technology

<b>Study on the Experiment Laser Cladding and Shock Processing TC4 Titanium Alloy</b> C. Wang, L. Zhou, Z.L. Lai, Z.B. An and L.C. Zhou	1823
<b>The Influence of Input Variability on the Compressive Residual Stresses in 30CrMnSiNi2A via Laser Shock Processing</b> Y.H. Wu	1828
<b>Simulation of Laser-Induced Cavitation with Lattice Boltzmann Method</b> Y. Deng, Z.N. Guo and Z.G. Huang	1833
<b>Numerical Simulation of Three-Dimensional Molten Pool Temperature Field and Flow Field for Laser Melt Injection Based on Fluent</b> L.Z. Zhao, Z. Wang, X.Y. Jiang, J. Zhang and M.J. Zhao	1837
<b>Laser Cladding of Iron-Based Self-Fluxing Alloy and its Application in Remanufacturing of Die-Casting Plunger</b> X. Tong, M.J. Dai and M. Liu	1843
<b>Study on Interface Structure and <i>In Situ</i> Formation Mechanism in Laser Surface Ceramic Process</b> W. Li	1847
<b>GaAs-Based High Power Diode Laser</b> Y.Y. Gu, G.X. Wu, H. Lu and Y. Cui	1852
<b>Three Dimensional Simulation and Repair of Skull Maxilla and Dentition Based on CT Scanning and Laser Sintering Technologies</b> G.X. Yan and X.R. Wang	1857
<b>Study on Numerical Simulation of Laser Quenching Based on ANSYS</b> J.L. Wang, J. Cao, Q.K. Lin, H. Feng and H.H. Shen	1862
<b>Mechanism of Healing Fatigue Damage by Pulsed Laser Surface Irradiation for Polycrystalline Copper Film</b> C.G. Ren, D.G. Shang, C.G. Nai, L. Wang and T. Chen	1866
<b>The Development of the Scaling 1:5 Friction Material Dynamometer Based on the Similarity Principle</b> Z.Y. Wang, T.S. Wang and B. Yang	1870
<b>Transient Temperature Field Analysis in Laser Cladding Processing</b> S. Zhang, Y.L. Tian and F.J. Wang	1874
<b>Finite Element Simulation Modelling for Laser Irradiated Bending Process of DP980 Steel</b> J.H. Song, J.S. Lee, G.A. Lee and S.J. Park	1878
<b>The Microstructure and Mechanical Properties of the Laser Microwelding Joint for SUS 321 Sheet</b> G.P. Liu, Y.H. Chen, S.L. Wang and J.W. Ge	1883
<b>Effect of Laser Repetition Rate on Silver Nanoparticles Colloid</b> B. Xu, R.G. Song, C. Wang and W.Z. He	1888
<b>Analysis of Thermal Elasto-Plastic Stress during Pulsed Laser Heating a K418 Alloy Plate</b> C.L. Lu, F.Y. Hu, X.R. Huang, D.X. Yi, A.Y. Cui and B. Hu	1892
<b>Numerical Simulation of Residual Stress Field in Laser Transformation Hardening for GCr15 Steel Components and Experimental Study</b> S. Lei, Y. Yan, H. Li, L. Niu, Z.X. Gui and Y.B. Wu	1897
<b>Study on Cellular Structures as the Core Architectures of Parts Based on Selective Laser Melting</b> D.M. Xiao, Y.Q. Yang, X.B. Su, M.H. Zhang and D. Wang	1904
<b>The Image Generating Algorithms of Micro-Pits with Direction-Uniformity Distribution of YAG Laser Texturing Roll Based on Square Partial Scrambling</b> H.C. Wang and Y. Wang	1908

## Chapter 10: Theory and Application of Friction and Wear

<b>Erosion Wear Resistance of CWS Laminated Ceramic Nozzles</b> J.X. Deng, Y.Y. Chen and Y.Q. Xing	1915
---	------

<b>Effect of Ultrasonic Vibration on the Friction and Wear Properties of GCr15/45<sup>#</sup> Steel Frictional Pairs Lubricated by n-Al<sub>2</sub>O<sub>3</sub> Additives</b>	1920
Y.L. Qiao, S.L. Yang, Y. Zang, X.Y. Dong and Q.S. Cui	
<b>Sliding Wear of Cu-Ag Alloy in Cu Cladding Al Contact Wire</b>	1924
Y.H. Zhang, B. Yang, J. Qin and H.B. Sui	
<b>Tribological and Mechanical Properties of Materials for Friction Pairs Used to Space Docking</b>	1929
P.P. Yao, Y.L. Xiao, H.B. Zhou and Z.X. Jin	
<b>Finite Element Analysis of Multi-Ropes Friction Hoister Main Shaft</b>	1935
M.X. Yan	
<b>Influence of Different Viscosity Lubricant to Finite Line Contacts on Elastohydrodynamic Lubrication (EHL) under Oscillating</b>	1939
Y.F. Wang, T.S. Hua and H.Y. Sun	
<b>Experimental Investigation for Finite Line Contact Edge Effect of Elastohydrodynamic Lubrication</b>	1945
Y. Xue, T.S. Hua and H.Y. Sun	
<b>Research on a Novel Process of Subway Synthetic Brake Shoe</b>	1952
C.M. Yang	
<b>Fault Diagnosis Method for the Rolling Bearing Based on Information Fusion and BP Neural Network</b>	1956
J.M. Zhang, Y.H. Huang and S.M. Wang	
<b>The Analysis of the Deformation and Contact Lubrication Problem of HPD Diesel Engine Piston Pin Bearing Based on the FFT Method</b>	1962
J.Y. Zhang and S.K. Han	
<b>Reliability Sensitivity Analyses for Oil Whip in Rotor-Bearing System</b>	1967
C.Q. Su, Y.Y. Sun and L.X. Li	
<b>Design of Main Pump Motor's Water Lubricated Bearing and Research on its Lubrication Performances</b>	1971
X.R. Wang, X.H. Li, Y.C. Cui and L.H. Yang	

## **Chapter 11: Dynamic Mechanical Analysis, Optimization and Control**

<b>Producing Mechanism on Flow Regeneration Noise from Muffler Element with Inserted Tube</b>	1977
H.J. Zhao, J.D. Chang, H.X. Wang and Q. Li	

## **Chapter 12: Thermal Engineering Theory and Applications**

<b>Optimization of the Heat Sink for the Power Component by Taguchi Method</b>	1983
N. Li, G.C. Fu, C. Pei and D. Zhang	
<b>The Feasibility Study on Utilization of the Industrial Gas Waste Heat and Low-Temperature Floor Radiant Heating System in Resident Sub-District Based on the Heat Exchangers</b>	1987
Q.S. Guo, X. Li, J. Zhang and L. Liu	
<b>Failure Analysis on Tee Joint Crack of Subcritical Power Station Boiler Platen Superheater Header</b>	1992
Y.T. Feng, X.F. Zheng and X.X. Xu	
<b>Performance Analysis of Transcritical CO<sub>2</sub> Two Stage Compression Cycle with an Intercooler (TSCC+IC) and the Cycle with an Expander (TSCE+IC)</b>	1998
J.R. Tian, H.L. Wang and H.Q. Liu	
<b>Effect of Heat Input on Toughness of Coarse-Grained Heat-Affected Zone of an Ultra Low Carbon Acicular Ferrite Steel</b>	2003
Z.H. Xia, X.L. Wan, X.L. Tao and K.M. Wu	
<b>Finite Element Analysis of Technology of Spontaneous Heating to Deice and Melt Snow</b>	2009
H.L. Li, G.P. Cen and Q.K. Gu	
<b>Investigation of Parameter Effect to Performance of Battery's Cooling System</b>	2015
Z.Z. Li, X.M. Pan, M. Ren, M.Q. Li and G.Y. Shen	

<b>Numerical Simulation of Cooling System of Battery Using Parameter Study</b> R. Jiang, Z.Z. Li, G.Y. Shen, M. Ren and M.Q. Li	2020
<b>Effect of Heat Input on Impact Toughness of Coarse-Grained Heat-Affected Zone of a Nb-Ti Microalloyed Pipeline Steel</b> Z. Gao, R. Wei and K.M. Wu	2026
<b>The Study on Numerical Simulation of Heat Transfer and Solidification on Secondary Cooling of Wide Slab Caster</b> X.X. Qi and J. Qi	2032
<b>Parameter Study on Cooling System of Battery for HEV</b> Z.Z. Li, Y.D. Shen, G.Y. Shen, M.Q. Li and M. Ren	2038
<b>Thermal Design and Thermal Analysis of an Enclosure in Harsh Environment Conditions</b> K. Li, L.F. Yang, W.Z. Pan, G.H. Fu and L.F. Yang	2043
<b>Effect of Heat Treatment on Thermal Conductivity of Aluminum Die Casting Alloys</b> C. Cingi, V. Rauta, E. Suikkanen and J. Orkas	2047
<b>Thermo-Mechanical Analysis of a Cooling System for Hot Stamping Tools</b> F. Mace, J.P. Lin and J.Y. Min	2053
<b>Numerical Simulation Study on Thermal-Hydraulic Performances of Vehicular Radiator Heat Transfer Units</b> Y. Zheng, B.L. Xiao, W.M. Wu, X.L. Yu and G.D. Lu	2061
<b>Austenite Continuous Cooling Transformation Curve of LF2 Steel</b> C.L. Mo, Z. Li and X.M. Guo	2067
<b>Development of the Simulation Software for Secondary Cooling Heat Transfer in Beam Blank Continuous Casting Process Based on FLUENT</b> Q. Liu, W.F. Xue, J.W. Yan, D.F. Chen and J.F. Ma	2071
<b>Thermal Analysis of Coal-Bearing Strata Kaolinite/potassium Acetate Intercalation Complex</b> X. Yao, S. Zhang and B. Sun	2077
<b>Thermodynamic Evaluation for the Synthesis of T2 Phase from Elemental Powders via <i>In Situ</i> Reactively Hot-Pressing</b> L.Q. Zhang, L. Huang, Y.M. Hou and J. Lin	2082
<b>The Influence of Oil on the Evaporation Heat Transfer of R-600a Refrigerant inside a Micro-Fin Tube within Inserts</b> M.Y. Wen and K.J. Jang	2086
<b>Control Basis for Cooling Rate of Plates during Roller Quenching in High-Pressure Zone</b> Z.M. Zhang, W. Yu and Q.W. Cai	2090

## Chapter 13: Precision Manufacturing Technology and Measurements

<b>Restoration of Medical Image Distortion Based on Improved Genetic Algorithm in Matlab Environment</b> M.Z. Lu, S.X. Zhang, P. Hu and H.Y. Sun	2097
<b>Wave Front Analysis of a Supersonically Moving Edge Dislocation</b> S.R. Huang and J.P. Deng	2102
<b>Study on Parameters Measurement System of Ball-End Cutter Based on Optical Vision Detection</b> L.Z. Liu	2109
<b>Optimization of Measuring Points for High-Speed Motorized Spindle Thermal Error</b> W.D. Gou, X.W. Ye, C.L. Lei and Z.Y. Rui	2113
<b>Debonding Detection of Solid Rocket Motor Based on EMI Technology</b> Y.X. Zhang, Y. Zhou, F.H. Xu and S.Y. Chen	2117
<b>Cigarette Filter Rod Measure Based on Morphological Image Processing</b> Y.F. Huang, D.F. Zhang, D.W. Guo and S.B. Yang	2121
<b>The Determination of Reliability Test Times for Dynamic Mechanism</b> W. Guo, W.M. Cui, H.S. Li and T.X. Yu	2125
<b>Applying Image Processing Methods to Positional Error Evaluation for a Microhole Array</b> D.Y. Chang, Y.X. Lai and R.B. Fu	2131

<b>Study on Corrosion Resisting Properties of High Precision 2Cr13 Narrow Steel Strip under Large Ratio of Width to Thickness</b> S.F. Liu, Q. Xiao, B.J. Wang and C. Zhu	2135
<b>Study on the Supporting Mechanism of Precision Turning Process of Big-Diameter Length Rate Shaft by the Central Frame</b> G.Z. Zhang	2139
<b>Study on CCD Measurement System Based on Image Processing</b> W.H. Zhao, Z.Y. Duan, P. Zhao and W.Z. Zhao	2143
<b>Research on the Sampling Frequency's Range to Improve the Precision of All-Phase FFT Phase Measurement</b> H.H. Qin	2147
<b>Application of Stress GM (1,1) Residual Error Model with New Equal Dimension Information on Bridge Construction Control</b> T.Z. Hao, X.L. Xie and J. Xie	2153

## Chapter 14: Material Physics & Chemistry

<b>Monocyclic Aromatic Compounds Detection with High Field Asymmetry Waveform Ion Mobility Spectrometry</b> C. Zhao, C.L. Chen, D.L. Wang, R. Chen, Y.J. Liu, D.Y. Kong, H.Q. Wang, H. You and J. Brugger	2159
<b>Design Method about Spherical Diaphragm Sealing of Tube Channel in High Pressure Heat Exchanger</b> S.Y. Chen	2164
<b>Hawking Radiation of Charged Particles as Tunneling from Kim Black Hole</b> Q.Q. Jiang	2169
<b>Research of Porous Solid - Fluid Interface Scholte Wave</b> Z.F. Xie, Q.B. Han and C.P. Zhu	2175
<b>Fast Detection of Nitrite with a Test Paper Tape</b> B.S. He, F. Wei, N. Gao and Q.Y. Lu	2181
<b>Effects of Normal Pressure on the Clogging Behavior of Geotextile and Gap-Graded Soil Filtration Systems</b> Z.X. Tong, L. Chen and S.P. Zhou	2184
<b>Study on the Effect Factors of the Removal Rate of Permanganate Index in the Filtration Process</b> X.B. Jia, Y.H. Pan, L.M. Han and D.M. Liu	2190
<b>The Influence of Ethanol Extraction in the High Temperature Steaming Induced Discoloration Process of Locust (<i>Robinia pseudoacacia</i>) Wood</b> P. Zhang, Y.M. Fan and J.M. Gao	2194
<b>Study of PP/nano-TiO<sub>2</sub> Composites on Plastic Mechanism after Microwave Irradiation</b> S. Wu, Y.J. Wu and S.L. Long	2199
<b>Effect of B<sub>2</sub>O<sub>3</sub> Substituted for CaF<sub>2</sub> as Fluxing Agent on Melting Temperature of Converter Slag</b> T.W. Zhang, H.M. Wang, G.R. Li and X.Y. Zhang	2203
<b>A Comparative Optimization of Electrical Properties and Surface Morphology of Ti/Al/Ta/Au Ohmic Contacts in AlGaIn/GaN HEMTs on Si(111), Sapphire, 4H-SiC Substrates</b> S.J. Cho, C. Wang and N.Y. Kim	2207
<b>Calculated Optimal Cuts for SAW Applications of LGS Crystal</b> H. Yang and W.Q. Huang	2211
<b>Mechanism of Modified Sponge Iron Deoxygenization and its Application for High Pressure Boiler Feed Water</b> B. Xu, M.C. Jia and J.F. Men	2215
<b>Fabrication and Sound Absorption Properties of Porous Fe<sub>0.2</sub>(Co<sub>20</sub>Ni<sub>80</sub>)<sub>0.8</sub> Alloy Microfibers</b> X.Q. Shen, H.B. Liu, Q.R. Liang and X.C. Yang	2220
<b>Aligned MWCNT-Reinforced Bulk Epoxy-Matrix Composites by Dielectrophoretic Force</b> M.W. Wang, N.I. Yu and W.H. Liao	2224

<b>Study on Physicochemical Properties of Tilapia Skin Collagen Scaffold Cross-Linked by EDC</b>	
Z.W. Duan, X.R. Shen, P. Li, G.H. Xia and Z. Liu	2232
<b>Effects of Reaction Temperature and Time on the Aluminothermic Reduction of Magnesia</b>	
P. Deng, Y.Q. Liu, D.J. Ma and H.W. Ma	2236
<b>Capture of Carbon Dioxide by Adsorption- A Review</b>	
J.W. Wei and S.S. Zhao	2240
<b>Effect of Modification of Coal Powder Using Silane Coupling Agent on Mechanical Properties of SBS</b>	
G.J. Cheng, X.H. Yu and Z.F. Tang	2246
<b>Nano-Silica Based Sol-Gel Coating of Direct Dyed Cotton Fabric to Improve the Colorfastness Properties</b>	
S. Saleemi and N.A. Rind	2251
<b>Optimal Process Conditions for Levulinic Acid Synthesis from Glucose Using ZSM-5 Supported <math>\text{SO}_4^{2-}/\text{ZrO}_2</math> Catalysts</b>	
J.P. Zhuang, X.P. Li and Y. Liu	2256
<b>Grain Refinement by Intragranular Nucleation in Si-Mn Steel Modified by the Fe-V-Nb-RE(Ce) Inoculants</b>	
T.B. Wang, C.X. Cui and K. Jia	2260
<b>The Role of Fe on the Grain Refinement of High Purity Aluminium</b>	
Y.J. Zhang, N.H. Ma, B.J. McKay, X.F. Li and H.W. Wang	2264
<b>Using PVP-SDS Complex as a Probe to Study the Effect of n-Butanol on Micellization Behavior of SDS</b>	
X.M. Chen, L. Ren, A.G. Wang, M.D. Yang and Y. Ding	2269
<b>Impact of Temperature on Thick Photoresist Lithography Process of Glass Microfluidic Chip</b>	
Q.C. Li, G.L. Wang, J.L. Lu, F.Q. Gao and S.S. Zhang	2273
<b>Influence of Additives on Performance of Silicon Carbide Refractory</b>	
Y.F. Guo, M.Y. Zheng, J.L. Bu, Y.J. Chen, L.X. Yu and Z.F. Wang	2277
<b>Feasibility Study on Technology Named Liquid Explosive Applied in Volume Fracturing Transformation of Shale Gas Reservoir</b>	
J.J. Wu and L.C. Liu	2281
<b>Preparation of Manganese Oxide Supported on Activated Carbon and its Application in Catalytic Ozonation of 4-Chlorophenol</b>	
B. Liu, A.M. Li, M.F. Xia and Z.L. Zhu	2285
<b>Structure and Catalytic Soot Combustion of Perovskite La-Mn-O Hollow Microfibers via Gel-Precursor Transformation Process</b>	
X.X. Meng, F.L. He, J.Y. Shen and X.Q. Shen	2289
<b>Study on Filter of Particle Concentration Signal in Silicon Powder Fluidized Bed</b>	
X.Y. Liu, H. Yang, Y.C. Wang and Z.X. Deng	2293
<b>Preparation and Vibration Damping Characteristics of Wide Frequency Domain PVMQ/IIR Foam Materials</b>	
S.K. Luo, G.F. Ding, J.L. Li, Y.S. Sha, Q.M. Cheng and M. Xu	2298
<b>The Influence of the Constructive Solution of Fine Bubble Generators on the Concentration of Oxygen Dissolved in Water</b>	
I.M. Călușaru, N. Băran and A. Pătulea	2304
<b><i>In Situ</i> Determination of Nitrate in Deep Sea by UV Spectrometry</b>	
L.L. Qiu, S.M. Ye and H. Chen	2311
<b>Phase Equilibrium Study at 180°C in Synthetic Hecotire</b>	
J. Ma, Y. Jing, Y. Yao, Y.Z. Jia and D.Y. Yue	2318
<b>Study on Influence Factors of Fly Ash and Metakaolin Based Geopolymer</b>	
J.Z. Kuang, X.C. Zhao, F. Shi and H.Y. Cao	2322
<b>Electrochemical Studies of some New Mannich Bases Compounds as Corrosion Inhibitors for Mild Steel in Acidic Media</b>	
H.X. Feng, J. Li and X.H. Gao	2329
<b>An Innovative Method on the Polyphosphate Determination in Aquatic Product with Interdiction of Polyphosphate Hydrolysis by Using Ion Chromatography</b>	
R.C. Gao, L. Yuan and G. Yu	2334

<b>Study on Purification Mechanism of Liquid Metal Flowing through Filter</b> C.X. Zhu, H.Y. You, W.X. Li and M.L. Li	2338
<b>Effect of Chloric Ions and Temperature on the Pitting Corrosion Behavior of Supermartensitic Stainless Steel in CO<sub>2</sub>-Saturated Chloride Solution</b> J. Li, D. Ye, Y.M. Chen, J. Su and K.Y. Zhao	2342
<b>Low Temperature Synthesis of Mullite Whisker by Nonhydrolytic Sol-Gel Process Combined with Molten Salt Method</b> W.H. Jiang, Q. Wu, J.M. Liu, Q.X. Zhu and L.F. Miao	2346
<b>The Change of D-Electron Occupancy in TiNi and Ni<sub>3</sub>Ti Compounds Measured from the White-Line Intensity of Electron Energy Loss Spectroscopy</b> W.G. Yang	2350
<b>Effects of Non-Ionic Surfactant on the Deep Temperature Flotation Agents of Hematite</b> X.J. Jiang, Y.J. Wang, H.B. Xu and J. Wang	2354
<b>Kinetic Spectrophotometric Determination of Selenium (IV) by its Catalytic Effect on the Oxidation of Acid Chrome Blue K by Hydrogen Peroxide</b> Z.R. Zhou and L.Z. Zhang	2358
<b>Study on Corrosion Resistance of Al, Ni Brass with Processing State</b> Y. Liu, Y. Jiang, Z.G. Huang and Z.Z. Wan	2364
<b>Sintering Mechanism of MgAl<sub>2</sub>O<sub>4</sub>-SiC Composites in Reduction Atmosphere</b> J.C. Wei, C.H. Gao, X.J. Yang, L. Huo, B.Z. Zhao and J.B. Tu	2368
<b>Supercritical CO<sub>2</sub> Extraction of Tea Seed Oil from Camellia Seeds and Composition Analysis of Tea Seed Oil Extracts</b> Y.S. Zhou, C.M. Gu and H. Gu	2372
<b>Structure and Performance of YSZ Thermal Barrier Coatings Irradiated by High Intensity Pulsed Ion Beam</b> X.X. Mei, Y. Liu, X. Ma and Y.N. Wang	2377
<b>Synthesis, Characterization and Catalytic Application of Mesoporous PW/SBA-15 for Epoxidation of <math>\alpha</math>-Pinene</b> D.D. Zhu, C.H. Wu, C.F. Zhuang, G.B. Du and J.Y. Zhang	2382
<b>Thermodynamics and Dynamics of Nitrogen Increasing in LF Refining Process</b> Z.D. Ren, S.Q. Zhang, Z.B. Gao and Q.Y. Zhang	2387
<b>Study of Sintering Temperature for Nano-Hydroxyapatite with Addition of Titanium</b> A.Z.O. Arawi, R. Rosmamuhamadani and M. Talari	2392
<b>Energy Transfer and Green/Red Phosphorescence in <math>\gamma</math>-Zn<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>:Mn<sup>2+</sup>, Ga<sup>3+</sup></b> R.X. Zhong, Z.R. Liu, X.P. Meng, M.Y. Li and X.Y. Zhang	2396
<b>Hydrolysis of Lignocellulosics into Fermentable Sugars for Cellulosic Ethanol Production: An Overview</b> J.P. Zhuang, X.P. Li and Y. Liu	2401
<b>Electrochemical Performance of Cu<sub>2</sub>SO<sub>3</sub>•CuSO<sub>3</sub>•2H<sub>2</sub>O Synthesized by Hydrothermal Method</b> D. Wang and A.D. Tang	2405
<b>Effect of Microwave Drying on Structure and Properties of Natural Rubber</b> M. Chen, F.Q. Zhang, Y.Z. Wang and M.F. Huang	2409
<b>Effect of Combined Microwave Heating and Impinging Hot-Air on Rubberwood Drying</b> N. Promtong, T. Ratanawilai and C. Nuntadusit	2413
<b>Mechanistic Difference of Methanol-to-Olefins (MTO) and Ethanol-to-Olefins (ETO) Reactions over H-ZSM-5 Catalysts</b> Q. Wu, W. Xia, A. Takahashi and T. Fujitani	2417
<b>The Method of Determination for Pore-Size Distribution of Porous Morphology Material</b> M.Y. Li, D.L. Guo and K. Guo	2421
<b>Effects of Different Graphite Particle Sizes on the Properties of Rigid Polyurethane Foam</b> L.G. Xiao, G.J. Li and C.Y. Yan	2425
<b>Dissolution of Cellulose in Ionic Liquids Assisted with Ethanol Pretreatment</b> A.P. Zhang, C.F. Liu and R.C. Sun	2429
<b>Study on Determination of Glucose in Amylofermentation Liquid Using Ultraviolet Spectrophotometry</b> B.S. He, N. Gao, F. Wei and Q.Y. Lu	2434

<b>A Theoretical Investigation of the Thermal Decomposition of Zinc Acetate and Zn-Oxo Complex Based on the Pyrolysis Characteristics of the Zinc-Containing Spent Catalyst</b> W.W. Qu, W. Jin, J.Y. Xu, S. Yang and J.H. Peng	2438
<b>Melting Characteristics of Equiaxed NH<sub>4</sub>Cl Crystals Settling in Superheated NH<sub>4</sub>Cl-H<sub>2</sub>O Melts</b> P. Zhou, M. Wang, L. Chen, F. Qiu, W.D. Huang and J.L. Zhang	2444
<b>Improving in Oxidization Kinetics of Manganese Sulfate Hydrolyzates in Alkaline Solution Media</b> X. Zou	2448
<b>Dynamic Experimental Study on Liquefaction Behavior of Saturated Silts</b> H.Q. Chen, H.G. Wu and Y.P. Xie	2453
<b>Review of Stratified Charge Research in Oxygen-Enriched and Nitrogen-Enriched Combustion</b> D.Y. Su, Y.A. Jin, Q. Gao, X.D. Che and Y.L. Xing	2457
<b>New Groove Structures for Miniature Quartz Crystal Microbalance with Low Crystal Impedance</b> Z.H. Liu and C.H. Shen	2461
<b>Introduction and Analysis of the Techniques for the Removal of Phenol from Water</b> D.M. Liu, Y. Wang, X.B. Jia, D.J. Zhang, Y. Zou, D.D. Ma, L.Q. Liu, D.Z. Wang, Y.C. Zou, J.M. Zhang, D. Yin, Q. Shan and Y.G. Wang	2466
<b>Study on Adsorption Reaction Dynamics of Fine Hematite</b> F.J. Li, L.M. Zhang, Z.X. Yue and B. Xu	2470

## Chapter 15: Dynamic Analysis of Processing

<b>Dynamic Performance for the Spindle System of the Composite Grinder Based on Transfer Matrix Method</b> M.D. Duan, B.Y. Li, G.L. Liang, W.G. Zhang and X.F. Wang	2477
<b>Efficient Sampling Approaches for Stochastic Response Surface Method</b> G.R. Sun and F.F. Xiong	2481
<b>Flexural Toughness of Micro-Fiber Reinforced Mortar</b> K.J. Shin, Y.Y. Kim, H.W. Lee and S. Oh	2488
<b>Research on Constant Torque Control System Design for Hydraulic Retarder of Heavy Vehicle</b> M. Xu and H.Y. Li	2493
<b>Existence and Uniqueness of Periodic Solutions for (2k)th-Order Delay Differential Equations</b> X. Liang, F.Z. Cong, M.J. Ma and Y. Zhang	2500
<b>Frequency Conversion Control for Vibration Mill with High Vibration Intensity Based on Multi-Wave Variable Sinusoid</b> X.L. Yang, M.P. Jia, J.C. Zou, J.F. Liu and F.M. Xu	2504
<b>Residual Vibration of a Tapered Hollow Metal Beam</b> B.W. Huang, Z.H. Weng and J.H. Kuang	2508
<b>A Fuzzy Nonlinear Variable Structure Control Method for SVC</b> F. Cui, Y.K. Gao and C.Y. Wang	2512
<b>Based on Mechanical Vibration Test Machine V-Belt Transmission Design</b> B. Zhong and R. Chen	2518
<b>Mathematical and Dynamic Analysis of a Gompertz Ecosystem with Impulsive Control Strategy and Stage Structure for Predator</b> W.C. Zhao, T.Q. Zhang and Z.B. Chang	2522
<b>A Gradient-Less Shape Optimization for Elastic Contact Problems</b> S.A. Tian, Y.Z. Xu and Z.X. Wu	2526
<b>Dynamic Buffeting Response Analysis of High Pier and Long Span Continuous Rigid Frame Bridge with Stochastic Wind Field</b> T.Z. Hao, X.L. Xie and T.J. Hao	2531
<b>Optimization of Torsional Dynamic Properties of Hydraulic Excavator Slewing Transmission Mechanism</b> Z.J. Li, Y.L. Zhang, T. Mao and X.J. Yang	2536

<b>G M (1,1) Optimization Model Re-Optimization</b> Y. Chen	2543
<b>Identification Method for Structural Parameters</b> L.B. Yang and J.L. Wang	2548
<b>Investigation and Application of the BOUAD Characteristics in Multidimensional Vibration's Parametric Space of Drilling Pump</b> M.R. Lv, J.F. Pei, M. Li, S.G. Shen and B.J. Wei	2552
<b>Traction Performance Testing of Dongfeng 8B Locomotive and Failure Analysis for Operation on Southern Xinjiang Railway</b> Y.H. Wang and D.K. Ye	2561
<b>Effect of Time-Delay in a Time-Delayed Mono-Stable System Subject to White Noise and Dichotomous Noise</b> F.C. Zhu and F.B. Li	2567
<b>Blind Separation of Non-Stationary Convolved Mixtures Based on Time-Frequency Analysis</b> P. Wang, J.H. Cao and X.C. Ni	2571
<b>Free Vibration of Piezoelectric Laminated Cylindrical Shell with Delamination</b> J.H. Yang, D.L. Chen and C. Jiang	2576
<b>Stochastic Resonance in a Second-Order Linear System Subject to Signal-Modulated Noise</b> F.B. Li, X.Y. Lei and F.C. Zhu	2582
<b>Parallel Topology Optimization of Bi-Material Layout for Vibration Control in Plate Structures</b> X.G. Xue, G.X. Li, J.Z. Gong and B.Z. Wu	2586
<b>A Novel Global Artificial Fish Swarm Algorithm with Improved Chaotic Search</b> Y. Xu and H.G. Chen	2594
<b>Stochastic Resonance Enhanced by Colored Multiplicative and Additive Noises in a Time-Delayed Bistable System</b> F.B. Li, X.Y. Lei and F.C. Zhu	2598
<b>Gain Adjustable Intelligent Tracking Algorithm</b> D.S. Si, X.X. Wang and C. Chen	2602
<b>An Adaptive Tracking Algorithm Based on Mean Shift</b> Z.H. Deng, T.T. Li and T.T. Zhang	2607
<b>A Fast Algorithm for Workspace of a Robotic Manipulator</b> L. Shi, M.H. Xu and B. Liu	2614
<b>Force Analysis of Luffing Mechanism of Lemniscate Type Crane with Boom Driving</b> K.Q. Li and J.N. Li	2618
<b>Redundant Lifting Wavelet Packet Analysis Based on Variable Parameter and Bearing Fault Feature Extraction</b> Z.J. Yang, L.G. Cai, G.Y. Chi, G.M. Yu and L.X. Gao	2622
<b>Longitudinal Dynamics Response of M-Wing Morphing Aircraft</b> L.B. Xu	2627
<b>The Dynamics Analysis of a Multi-Stage Hybrid Planetary Gearing</b> X. Tan, Y. Li and J.J. Yang	2631
<b>Research on NN-PID Motion Control Technology for a Wheeled Mobile Robot</b> S.Z. Feng and M. Xu	2636
<b>Expert System of Chinese Medicine on the Moving Robotic Platform</b> C.K. Wang	2641
<b>Application of Bipectrum in Mechanical Fault Diagnosis</b> W.B. Wu, S.Q. Yang and Y.J. Huang	2645
<b>Optimal Pole Assignment of Self-Balancing Robot System</b> Y.H. Zhao, G. Zhang and C.X. Duan	2649
<b>Heteroclinic Bifurcation Analysis of Duffing-Van Der Pol System by the Hyperbolic Lindstedt-Poincaré Method</b> Y.Y. Chen and L.W. Yan	2654
<b>An Improved Particle Swarm Optimization Algorithm</b> R.S. Na, Q. Li and L.J. Wu	2658
<b>Study on Dynamic Properties of Solid-Liquid Separator Entrance</b> Z.B. Liu, T. Zeng and G.Z. Hu	2662



<b>A New Grid Multi-Scroll Chaotic System and the Simulation Based on Labview</b> Y. Huang	2666
<b>Study on the Modal Analysis of the Cleaning Mechanical Drive Axle Housing</b> X.Z. Xie, W.G. Wang, X. Wei, W. Hu, Q.L. Ren and X.R. Yuan	2670
<b>The New Method of Cutting about Different Diameter Right-Angle Tee Pipe</b> X.H. Xiong, B.Y. Sui and S.F. Yan	2675

## **Chapter 16: Advanced Design Technology**

<b>CAD/CAE on the Mould Plates of Vertical Type High-Pressure Grouting Machine</b> Z.C. Huang	2681
<b>Kinematic Analysis and Optimization Design of Elliptical Geared Double-Rocker Mechanism</b> Z.D. Huang, Y.P. Du, J. Cong, L. Zhao, Y. Wang and G. Yang	2685
<b>Multidisciplinary Design Optimization Framework for Aeroengine Turbine Based on Life and Reliability</b> L.B. Ao, Y.S. Li, Z.X. Wen, L. Li and Z.F. Yue	2690
<b>Design and Evaluation of a Constant Flow Air Sampler</b> Q. Yi, J.M. Liu, Q.D. Yuan, Z.W. Ning and M.S. Shu	2694
<b>Optimization Design of Wind Turbine Blades Based on BLADED</b> J.H. Zheng and H.R. Ma	2700
<b>Optimization of CFRP Pultrusion Process with NSGA-II and ANN</b> X.K. Chen, B.Y. Jiang and Z. Zhou	2705
<b>Fuzzy Multi-Objective Optimization for Die Structures Design in Sheet Metal Forming</b> Q.X. Sun, P.Y. Xi and R.J. Zhang	2712
<b>Design and Application of the FROMO<sup>®</sup> Preload Nut</b> Y. Liu and J.C. Shen	2718
<b>Chaos Optimization Algorithm for Vehicle Routing Problem</b> Z.B. Wen, Y.X. Yue and Q.X. Yue	2722
<b>Optimization Design of Drawbead Based on CAE and Neural Network</b> Y.Q. Zhang and Z.H. Deng	2727
<b>Competitive Adsorption Study on Natural Gas Purification of Small-Scale LNG Project</b> W.S. Cao	2731
<b>Driving Rapid Prototyping Machine Directly within CAD System</b> H.X. Gu	2735
<b>Normal Vector Based Tooth Surface Generation of Helical Noncircular Gear</b> J. Lin	2739
<b>Disassembly Material Analysis through Time Estimation</b> Y.C. Ouyang	2745
<b>Using a Hybrid Neural Network to Predict the Torsional Strength of Reinforced Concrete Beams</b> H.C. Huang	2749
<b>Size Optimization of the Pillars in the Flexible Gripping Tooling Stent</b> C.Q. Su, J. Li and B.R. Du	2754
<b>Optimization Design of Cold Upsetting Process in Bearings Steel Ball Based on DEFROM</b> C.A. Fu, M. Tong and X. Wang	2759
<b>Research on Optimization Design of Complex Frame Structure Based on the Power Flow Transmission Target</b> R. Huo, Q. Wang, L. Zhang and Y.Q. Zhou	2767
<b>Research on Aerospace Equipment Machining Process Optimization Based on MBD Procedure Model</b> D.D. Xiong, H.C. Yang and N. Wan	2772
<b>Design of the Amplitude Transformer in Ultrasonic Vibration System</b> S. Wang and C. Meng	2776
<b>Kinetics Analysis and Optimal Design Method Explore on Rotating Cone Reactor Based on Dynamics Theory and Modern Simulation Technology</b> M.H. Zheng, C.L. Zhu and J.B. Jiang	2781

<b>Availability of Double-Tube Flood Mark Stream Gauge</b> A. Cheng, C.C. Cheng, Q. Qiu, J.R. Chang, H.M. Hsu and T.C. Liao	2784
<b>Establishment of Exhaust Muffler Comprehensive Evaluation System and Muffler Performance Optimization</b> H. Shen, H. Huang and Z.B. Chen	2789
<b>Model Development and Robust Optimal Design of Occupant Restraint System</b> J. Wu, L.B. Cao, R.F. Zhang and J.W. Hu	2794
<b>Research on Interventional Variant Design</b> L.X. Tang, C.Q. Qi and X.Q. Zhou	2798
<b>The Human Engineering Analysis of the Racing Wheelchair</b> T.M. Guan, L. Lei and J.B. Li	2802
<b>Fatigue Life Analysis of the Basketball Wheelchair Based on Virtual Prototype Technology</b> L. Lei, X.C. Shi and T.M. Guan	2807
<b>Research of Synergy Product Maturity Based on Maturity Cycle</b> G. Du, Q. Huang and L. Sun	2813
<b>Research of Technology and Application of MDO Development</b> Y.P. Zhao and N. Li	2822
<b>The Optimization of Grasping Ability for Three-Fingered Flexible Fixture</b> B. Li, S.R. Yin, T.H. Luo and D.S. Li	2829
<b>Research on Green Design of Infant Clothing</b> S.C. Chen	2834
<b>Design of the Control System for SBR Sewage Treatment Based on PLC and MCGS</b> J. Zhang	2838
<b>Automatic Registration Based on Covariance Matrix Eigenvector Direction of Feature Point</b> L.H. Fan, Q. Chen, B.L. Xie and B. Liu	2842
<b>Force Implementation of Luffing Mechanism of Jib Type Crane with Back-Rocker Driving</b> K.Q. Li and J.N. Li	2846
<b>The Optimization Design of Overhead Traveling Crane's Box Girder</b> G.F. Tian, S.Z. Zhang and S.H. Sun	2850
<b>Ecological Design Technology of WU Sha-River Regulation in Nanchang City</b> J. Chen and L.Y. Xiao	2856
<b>Global Strength Assessment of Trimaran Structure</b> K. Shehzad, H.L. Ren, C.B. Zhen and A. Khurram	2860
<b>Research on Energy Consumption for Improving Light Vehicle Manufacturing Technology of Automotive Industry in China</b> F. Ma, L.H. Chen and Y.P. Luo	2864
<b>Virtual 3D Ink-Jet Printing System for Heterogeneous Object</b> T. Zang, Y.X. Qu, L.D. Jia and A.P. Xu	2868
<b>Parallel Control for Structural Dynamic Topological Optimization Problems Based on MMA</b> X.G. Xue, G.X. Li, J.Z. Gong and B.Z. Wu	2872
<b>Steering Analysis of Multi-Axle Vehicle Based on ADAMS/VIEW</b> Y.Q. Zhu and P.X. Zhang	2878
<b>Statistical Design of Control Charts with Two Pairs of Control Limits</b> B.C. Guo	2882
<b>Design and Simulation of Guidance Law for a Kind of Flight Test Missile</b> Y. Qian, X.J. Xiang and J.L. Yang	2887
<b>Study on Reliability of Mechanical Systems Based on Petri Nets and Failure Dependence</b> Q.G. Hu	2892
<b>Optimization of Hood Structure Design</b> Z. Li	2897
<b>Innovative Design Process for Intelligent Patient Bed by Using Synergy of TRIZ and QFDs Methods</b> C.M. Hu, C.H. Yeh and J.C.Y. Huang	2901
<b>Design and Research on New Type Treadmill</b> X.W. Jiang and Q.L. Du	2923
<b>The Design of the Engine for Saving Energy</b> Y.H. Zhong and X.S. Chen	2927

<b>Design for Refrigerator Assembly</b> W.Z. Gao, Y.S. Gu and Y.L. Zhu	2932
<b>The Structural Design and Check up Strength on Underwater Propulsion Manipulator</b> H.F. Lai and W.Z. Xiao	2937
<b>Effects of Continuous Rolling Speed Change Rates on Geometric Dimension between Two Racks when Rolling Rail by Universal Pass</b> Y.Y. Liu, Y. Wang, H. Zhu and L. Chen	2941
<b>Design of an Automatic Feeding Device for Melting Tin-Ingot</b> Y.D. Sun, B.Q. Zhou and W.Q. Xu	2945
<b>Comprehensive Evaluation on Weapon System of Main Battle Tank Based on Topsis Method</b> R.B. Ma, S.M. Xu, Y.C. Dong and G.H. Fan	2949
<b>The Finite Element Analysis and Optimization of Subway Steel Structure Work Platform Based on Workbench and Pro/E in a Subway</b> Y. Li and G.S. Ren	2953
<b>Model Reconstruction from CMM and Optical Scanning Data for Reverse Engineering</b> P.X. Liu, X. Liu, S.C. Ma and L.J. Wang	2957
<b>Research and Implementation of Product Lifecycle Management Platform Based on Teamcenter</b> Y. Zhang and H. Cai	2961
<b>Functional Structure Design of English Learning Machine Based on Innovative Cognition</b> K. Chen	2967
<b>Investigation and Realization of Integration Method for PDM and ERP Based on XML Data Sharing in Procreation of Electric Motor</b> S.W. Wan	2972
<b>A Disquisition on the Idea and Approaches to Green Design Based on Sustainable Development</b> Q. Wang	2978
<b>Design Scheme for New Workover Mechanical System</b> Y. Wang, Y.L. Chang, S. Gao and J. Wang	2982
<b>Study on Reliability Appraisal and Strengthening and Repairing of Modern Architecture</b> Y.M. Yang and X.J. Xie	2986
<b>Study on the Organization Model for the Design Process Modular of Complex Mechanical Product</b> J. Zheng	2990
<b>Effect of Vehicle Seat on Neck Injury in Rear Impact</b> T.L. Teng, C.C. Liang, H.Y. Huang and Y.L. Chen	2995
<b>Design of Locomotive Wiper Fuzzy Control System</b> X.F. Huang, Y.H. Long, L. He and Y.F. Ou	2999
<b>Performance of LiFePO<sub>4</sub> Cathode Material Synthesized by a Low-Cost and Safe Method</b> Z.H. Li, S. Chen and B.B. Xu	3003
<b>Life Prediction of the Oil-Free Piston Rings in the Air-Powered Swashplate Engine</b> Y.Q. Lian, Q.C. Xu and D.K. Ren	3008
<b>An Efficient Computational Procedure of Fatigue Crack Growth under Variable Amplitude Loading via XFEM</b> J.T. Liu and T. Du	3012
<b>Design and Implementation of Service Robot Lightweight Dual-Arm Based on CAN Bus</b> X.H. Li and S. Guo	3021
<b>Optical Design of Strong Interference of Light System for Airborne Photoelectric</b> Y. Fan and X.F. Wu	3025
<b>Research on Expert System for Ball Mill Type Selection Based on Knowledge</b> J.S. Xia	3029
<b>Structural Design and Research of the Bionic Snake-Like Robot</b> T.L. Song, Y.P. Lu and Z.Y. Li	3034
<b>Application of Error Separation Technique on the Virtual Detector of Gear Error</b> M. Cui and W.Y. Deng	3038

<b>The Analysis of Garment Surface Accessory on Uniform Elements in the Modern Women's Clothing Design</b> Y.W. Wu and S.C. Chen	3043
<b>Research on Mechanical System Design Based on Service-Oriented Architecture</b> N.G. Li, N.J. Zhang and M.G. Zhu	3047
<b>Robustness Analysis &amp; Design for the Driver of the DC Motor</b> G.L. Liu and J.F. Li	3051
<b>Optimization Design of Loop Structure Assembler for Testing Based on Complexity Analysis</b> W. Zhang, D.B. Du, J.X. Zhang and Y.Y. Xie	3055
<b>Image Analysis on the Originality of Product Designing</b> L.L. Liu	3062
<b>Intelligent Optimization Design of Rare Earth Lifting Permanent Magnet</b> N. Ding and D.T. Zhang	3066
<b>Research and Design on Long-Distance Large-Capacity and High-Speed Belt Conveyor</b> J.P. Liu, B.H. Wang and S. Lu	3070
<b>Adaptive Particle Swarm Optimization with Dynamic Population and its Application to Constrained Engineering Design Optimization</b> Y. Liu, C.H. Mu, W.D. Kou and J. Liu	3074
<b>About ARM9 Car-Inserted GPRS Terminal Design</b> S. Li and S. Wang	3079
<b>Bayesian Reliability-Based Optimization Design of Torsion Bar</b> X.D. He, J.Y. Huang and S.T. Liu	3085
<b>Study on New Escape Chute Device of High-Rise Building</b> Y.S. Yao	3089
<b>Optimization of the Scavenging System Based on Specific Time-Area Value of a Compact Two-Stroke Gasoline Engine</b> S.C. Xing, C.H. Guo, P.K. Xie and F. Dong	3094
<b>A Framework for New Product Selection Decision Using Analytic Network Process and Knowledge Management</b> R. Wudhikarn, N. Chakpitak and G. Neubert	3098
<b>Parametric Design of Cycloid Gear Based on SolidWorks</b> L. Lei, Y. Tao and T.M. Guan	3106
<b>The Multi-Scale Modeling Technique for Modular Variant Design</b> Y. Liu, H. Zhao and Q.X. Zhang	3110
<b>Rubber Conveyor Belt Vulcanizing Equipment Development Status</b> Y. Tang and G. Liu	3115
<b>RMS-Oriented Method of LRU Design</b> D. Zhou, X. Jia and Y.X. Li	3119
<b>Research on Strategy of Grid-Side PWM Converter Based on Doubly-Fed Induction Generator</b> W. Zhang and Y. Ruan	3125
<b>Research on Morphological Language Applied in Visual Design</b> R.S. Yan	3129
<b>The Research on Designing a New Artificial Ecological Sewage Treatment Technology</b> S.T. Liang, J.X. Lu, J.H. Ji, L. Gao, H.W. Li and H.Q. Liu	3133
<b>Electric Bus Body Lightweight Design Based on Multiple Constrains</b> W.W. Wang, C.J. Zhou, C. Lin and J.Y. Chen	3137
<b>A Strips Dispersion Measuring Device Developed</b> F. Liu	3145
<b>Adaptive Temperature Control Systems Design</b> Y.N. Kong	3149
<b>Reliability Analysis of a Mechanism with Grey System Parameters</b> J.G. Zhang, J.J. Chen and J.L. Du	3154
<b>The Application and Construction of Light Steel Roof Truss in the Hydropower Station Tunnel</b> X.P. Wang, Q.T. Zhan and J. Xu	3160

<b>Research on Structural Strength of Catamaran Superstructure Constructed with Aluminum Alloy</b> Y.Z. Zheng, Y.L. Huang and K.Z. Peng	3165
<b>Research on Development of Assembly Sequence Planning System Based on Knowledge</b> J.S. Xia and W.W. Li	3170
<b>Structural Design of Prostate Biopsy Robot Based on TRIZ Theory</b> Y.D. Zhang, F. Liu and Y. Yu	3176
<b>A Study on Optimization Design and Performance Test of an Aerostatic Bearing</b> J.S. Shie and M.C. Shih	3182
<b>Multi-Criterion Decision Making for Build Direction in Layered Manufacturing</b> R. Yue and A.H. Peng	3187
<b>The Manufacture of a Newfashioned Portable Pneumatic Cutting Sampling Machine</b> Y.K. Wang	3191
<b>Devising Adaptive Environment Agent for Reliability Analysis of Materiel System</b> Y. Shen, J.H. Cao, W. Wu and M.F. Ni	3196
<b>Engineering Design Method and Fabrication of the Fully Featured Accelerating Structure for the CLIC Study</b> D. Gudkov, A. Solodko, A. Samoshkin and G. Riddone	3200
<b>Design of Reverse System Based on Bluetooth Technology</b> X.Y. Du and X.G. Sun	3207
<b>Rush Repair Method and Suggestion of Long-Span Arch Bridge in Wartime</b> L. He and Y.J. Qian	3211
<b>Optimal Design of Lower Extremity for Portable Human Exoskeletons Using Improved Particle Swarm Optimization</b> F. Liu, W.M. Cheng and N. Zhao	3215
<b>The Optimized Method Research of Spare Parts Based on the Supportability Possibility</b> L.Y. Peng, Q.L. Xiong and Z.Y. Zhu	3222
<b>Topology Optimization and Analysis of Sub-Frame of 2500HP Fracturing Truck</b> X. Wang	3226
<b>A Hybrid Metaheuristic for the Multiple Depot Vehicle Routing Problems with Mix Pickups and Deliveries</b> J. Li, D. Lu and M. Dai	3230
<b>The Application of Virtual Prototyping Technology in the Kinematic Analysis of Hydraulic Excavator Working Device</b> H.H. Chen and J.P. Zi	3235
<b>A Comparative Study on Statistics Based on Binary Data and Fuzzy Data in Office Chair Design</b> W.G. Zhao, C. Yang and L. Wang	3240
<b>Probabilistic Approach for Cost Optimization of Structural Materials Using Plastic Hinge Mechanism</b> K.I. Son, B.S. Kong, W.S. Jang, H.J. Kim and H.S. Lee	3244
<b>Analysis and Optimal Design on Electrical Dust Precipitator Steel Structures</b> Y. Gao, L.Y. Huang and H. Zhang	3249
<b>Stress Analysis and Structure Optimization for the Opening Flat Cover of Pressure Vessels</b> J.J. Xiao	3253
<b>Research and Design on Aesthetics of Wood Grain</b> L. Xu, D.G. Li, C.Y. Xu and Z.Y. Xu	3259
<b>Application Study on Reverse Design Method in Tobacco Heights Department of Tractor Panel</b> Y.Z. Men, Y.X. Guo and J. Shuai	3265
<b>Arts and Sciences - Talk about Self-Apparent of the Materials in the Design</b> Y.N. Guo	3269
<b>The Reform Design of Product Based on the Principle of Economy</b> W.G. Han	3273
<b>Design of Suspension Control System for Bearingless Motor</b> C.X. Duan, Y. Han and Y.H. Zhao	3277
<b>A Bio-Mechanical Designed Under-Actuated Hand and Force Control Schemes</b> H. Huang, S.Q. Jiang, Y.J. Pang and J. Li	3281

<b>Research on Process Optimization of 560MPa Grade Sheet for Automobile Crossbeam</b> X.Y. Ye, K.H. Zhang and W.P. Li	3286
<b>Research on Domain-Driven Modular Design of the Seeker in 3D Environment</b> S.X. Li, B.Z. Wu, Y.H. Yan, G.X. Li, J.Z. Gong and M. Zhang	3291
<b>Research on the Automatic Walking-Type Launching System Applied in Jiubao Bridge Construction</b> H. Zhang, Y.T. Zhang and R.Z. Zhou	3299