

Table of Contents

Preface and Committees

Chapter 1: Materials Properties

Study of the Sealing Characteristic of Polytetrafluoroethylene-Coated O-Ring Applied in Gas-Tight Deep-Sea Water Sampler H.C. Huang, Y.Y. Ye, C.J. Yang, J.X. Leng and Y. Chen	3
Self-Assemble Behavior of Amphiphilic Diblock Copolymer of Methoxy Poly (Ethylene Glycol)/Polyester H. Zhou, Q.H. Liang, X.K. Shi, L.H. Lu, L.Q. Zhang and D.M. Yue	11
Preparation of Controlled Microporous High Speed Steel and its Composite Self-Lubrication Materials Y.J. Wang, L.Y. Yang, B. Wang and S.R. Wang	16
Research on <i>In Situ</i> Anionic Polymerization of PA6/PI Alloy H.K. Zhao, L.G. Xiao and H.J. Wang	21
Simplified Method for Considering Dynamic Second-Order Effects of Elastic SDOF System under Earthquakes F.X. Han, Z.J. Wang and Z.M. Huang	26
Volatilization of MgO from Ludwigite in Carbothermal Reduction-Nitridation Process R. Liu, Y.L. Gao, X.J. Wang, Q. Lu and X.X. Xue	31
Study on Thermal and Mechanical Properties of Natural Rubber Latex Modified by Trichlorobromomethane X.X. Liao, S.Q. Liao, B. Tang, M.C. Luo, Y.F. Zhao and H.S. Tan	36
Study of Fibre Tourmaline/PVA Nanofibre Prepared by Electrospinning W. Hong, Q.S. Li, J. Liu, L.P. Wang and G.Z. Xing	41
The Application of Multi-Axial Warp Knitted Fabrics in Wind Turbine Blade Z.Y. Wu and L. Tie	46
Research on Diamond Wheel's Specialties during ELID Ulterprecision Grinding of Silicon Nitride W.D. Jin	51
Present Situation and Development Perspective of Soft-Contact Electromagnetic Continuous Casting Technology X.J. Wang, L.G. Zhu and R. Liu	56
Studies on Multihollow PUA-EMA-St Crosslinked Copolymer Beads: Synthesis and Hollow Structure W.H. Sun and X. Yan	60
Synthesis and Characterization of Novel Functional Polymers from Hemicelluloses X.W. Peng, J.L. Ren, L.X. Zhong, F. Peng and R.C. Sun	64
Production of Size-Selected $\text{Cu}_x\text{Sn}_{1-x}$ Nanoclusters A.I. Ayesh, N. Qamhie, S.T. Mahmoud and H. Alawadhi	70
Synthesis and Properties of a New Diarylethene Bearing n-Hexyl for Holographic Optical Recording S.Q. Cui, S.Z. Pu and W.J. Liu	74
Test Research on the Surface Residual Stress of Dimensional Ultrasonic Vibration Grinding for $\text{Al}_2\text{O}_3/\text{ZrO}_{2(n)}$ Y. Wu, E.G. Zhang and W.Z. Nie	78
Study of Latex Migration Mechanism during Coating Consolidation Y.F. Du and Y.H. Zang	83
Study on Volatile Substances of Different Provenances Teak(<i>Tectona Grandis</i> L.f) Wood by TGA C.P. Xie, K.F. Li, Y. Li, J.L. Lin and K.M. Xu	88
Preparation of Magnetic Expanded Graphite by Sol-Gel Method and its Electromagnetic Properties Q. Zhang, J. Yan, T.P. Li and J. Wang	93

Preparation and Performance of TiC Whisker Toughening Alumina Ceramic Cutting Tool Composite	
J.S. Jiang, C.C. Wang, B.Q. Liu and C.Z. Huang	98
The Effect of Plasma Treatment on the Performance of Poly(<i>lactide-Co-Glycolide</i>) Fiber	
Z. Guo and J.J. Chen	103
Study on the Relationship between Tensile Sample Lamination and Inner Quality of Q345 Slabs	
T.Y. Cao, Z.Z. Yang, F.C. Yuan, G.Y. Shuai and X.Q. Yang	107
Study on Efficiency-Reinforcement Design Methods for Elastomeric Hydraulic Reciprocating Sealing	
F.Y. Zhang, H.C. Zhang and H. Zheng	113
Researches on the Properties of Stearate-Carboxymethyl Konjac Glucomannan Ester Prepared by Microwave Method	
X.M. Zeng, B.Y. Liu, J. Wang, G. Zhong and Y.H. Xia	117
Preparation and Ferroelectromagnetic Characteristics of $\text{Bi}_2\text{SrNdNb}_2\text{FeO}_{12}$ Ceramic	
X.L. Sun, J. Shi, G. Ma and J. Li	126
The Study on Gelatinization Pressure of Starch by Ultra-High Pressure Processing	
Y.Q. Liu, Y.N. Liu, H. Li, R.L. Shen, X.H. Li and L.Z. Yang	131
Study on Spheroidization of Tungsten Powders by RF Plasma Processing	
Y.W. Sheng, J.J. Hao and Z.M. Guo	135
The Effect of Carbon Nanotubes on the Tribological Behaviors of PEEK Composites	
W.Z. Nie	140
Structure and Magnetostrictive Properties of $\text{Tb}_{0.2}\text{Pr}_{0.8}(\text{Fe}_{0.4}\text{Co}_{0.6})_{1.9}\text{B}_x$ Alloys	
J.J. Liu, H.Y. Yin, X.C. Liu and P.Z. Si	144
Structure Characterization of Mg-Al Spinel Synthesized from Industrial Waste	
X.D. Luo, D.L. Qu, G.D. Zhang and H.X. Liu	148
Synthesis of Silver Nanowires and Investigation of their Optical Limiting Properties	
Y.P. Han, M.H. Luo, Q.W. Wang, J.X. Wang and X.L. Gao	152
α-Pinene Isomerization Catalyzed by a Nanometer Solid Superacid	
C.H. Wu, Q.R. Zhao, J.Y. Zhang, D.D. Zhu and G.B. Du	156
Thermo-Mechanical Properties and Microstructure of Al_2O_3-SiC-SiAlON Composites	
X.H. Liu, E.X. Xu and C.J. Zhou	161
Study on the Durability of Concrete with Mineral Admixtures to Sulfate Attack by Wet-Dry Cycle Method	
G.G. Liu, J. Ming, X.W. Zhang and A. Ma	165
Sol-Gel Combustion Synthesis of Nanocrystalline Cerium (IV) Oxide Powders	
L.Z. Du, Q. Feng and H.J. Zheng	170
Study on Microstructure of Quenched Martensite in W6Mo5Cr4V2 Steel	
Y.P. Ji, Z.C. Liu and H.P. Ren	175
Silica Nanowires Decorated with Cryptophane-A for Sensing Methane	
C. Tao, X. Li and J. Yang	179
Study on Fire Resistance Design Parameters of RC Structure	
X.D. Wang, X.D. Zhang and J.Z. Wang	183
Study on Fast-Releasing Calcium Phosphate Cement for Accelerating the Release of Antibiotic	
M.H. Li, S.X. Qu, N. Yao, Y.S. Wang, J.M. Zhao and G.Q. Li	189
Research on Surface Cracks of Thin Slab	
S.M. Wang, D.D. Ji, L.G. Zhu, C.J. Zhang and Q.G. Liu	193
Study on Seismic Performance of Single Pylon Cable-Stayed Bridge at High Intensity Seismic Region	
D.L. Hu, Y.W. Zhang, F. Chen and L.G. Chen	197
Study on Technique of Induction Cladding Alloy Layer in Steel Tube Outer Wall and Property of Alloy Layer	
F. Yu, J.W. Liu, L.D. Ren and D.Q. Wang	203
Synthesis, Optoelectronic Properties of a New Photochromic Diarylethene Bearing Benzothienyl and Malononitrile Group	
C.B. Fan, S.Z. Pu, W.J. Liu and S.Q. Cui	208

Synthesis, Optoelectronic Property and Application in Optical Memory of a Novel Type Diarylethene Based on a Six Unit	212
W.J. Liu, S.Z. Pu, C.B. Fan and S.Q. Cui	
Synthesis of a Novel Unsymmetrical Photochromic Diarylethene Compound Bearing a Six-Membered Aryl Unit	216
D.H. Jiang, G. Liu, W.J. Liu and S.Q. Cui	
Photochromism and Optical Storage of a Novel Unsymmetrical Diarylethene Based on Pyrazole and Benzofuran	220
T.F. Wang, G. Liu and S.Q. Cui	
Synthesis, Properties and Application in Optical Memory of a Photochromic Diarylethene Based on Benzene Ring	224
M. Liu, R.J. Wang and G. Liu	
Photochromism of a New Unsymmetrical Diarylethene Bearing both Thiazole and a Methoxyl Group	228
H. Li, S.Z. Pu and S.Q. Cui	
Synthesis Properties and Application in Optical Memory of a Novel Photochromic Diarylethene Bearing a Six-Membered Aryl Unit	232
Z.P. Tong, G. Liu, S.Q. Cui and W.J. Liu	
The Influence of Seismic Motion Input Direction and Damping on the Dynamic Analysis of Mega Steel-Frame Structure	236
G.L. Xu, Y.S. Bai and W.G. Chen	
Study on Laser Welding Technology of Diamond Core Drill Bit	240
z.q. SUN, Z.A. Jiang, L.W. Wang and T. Yu	
Study on Earthquake Response Analysis of Reinforced Concrete Masonry Structure	244
H.X. Yang, T. Shen and J.G. Yao	
Preparation and Electromagnetic Properties of Poly(<i>o</i>-Toluidine)-BaAl₂Fe₁₀O₁₉ Composites	249
K.Y. Chen, M.X. Sun, L.C. Li, F. Xu and Q.S. Xiao	
Wear and Mechanical Properties of Fe-28Al and Fe-28Al-10Ti Alloys	256
J. Li and J.S. Zhao	
Synthesis and Characterization of Polymethylsiloxane with Pendant Fluorocarbon Side Chains	260
H. Liu, B.S. Fu, Q.Q. Shang and G.M. Xiao	
Research on Defect Detection Technology of C/C Composite	264
W.G. Zhao, J.H. Dong, W. Li, H.P. Wang and Q.F. Guo	
Robust Adaptive Control for Gun Control System of Tank	270
J.P. Cai and J.E. Ma	
Synthesis and Light-Emitting Diodes Properties of Two New Fluorene Based Copolymers	274
J.H. Huang, X.H. Ye, C.L. Zhan, G. Yu, Y.Q. Liu and J.N. Yao	
Water-Based UV-Curable Polyurethane Based on Wheat Straw Lignin Obtained by Ethanol Extraction	278
F.Q. Chu and X.J. Wu	
Production of Nanosilica from Iron Tailing and Characterization	282
F.F. Li, M.X. Zhang, Y. Shen, D. Jiao, G.Q. Hou and H.S. Li	
Preparation and Characterization of Hydrophilic PVDF Membrane via Graft Modification by Maleic Anhydride	286
L.G. Wang, X.G. Zhang, S.F. Hou, X.J. Wang, A.M. Wang and S.Q. Liu	
Study on the Compression Performance of CFRP Confined GFRP Short Column	292
L. Chen, Q.L. Zhao, J.G. Song and Y. Ding	
The Configuration and Evolution of Ti-Si-N Island on TiN(001) Surface: <i>Ab Initio</i> Study	301
X.J. Liu, L.L. Zhao, Y. Ren, E. Westkaemper, X. Tan and H.L. Jia	
The Influence of Si Content on the Microstructure of Rapidly Solidified AlMnSi Foil	307
Y. Li, C.X. Zhai and C.H. Xu	
Sintering Process of Mullite- Corundum Insulation Material with Nano Crystals	311
D.Y. Yang, J. Wu, G.H. Wei, K. Zhu, H.Y. Yuan, J.W. Liu and B. Chong	
Synergistic Effect between Montmorillonite Intercalated by Melamine and Intumescent Flame Retardant (IFR) on Polypropylene	315
H.F. Zhu, J. Li, L. Xu, K. Tao, L.X. Xue and X.Y. Fan	
The Oxidation of Co-5Al Alloys in 1 Atm of Pure O₂ at 700 and 800 °C	319
H.H. Zhang, J.H. Xiang, W. Wang and Y.J. Shi	

Study on Microorganisms' Immobilization by Different Support Materials in the UASB System	
J.Q. Lin, H.D. Fang, J.J. Wu, L.T. Lin, J.M. Lin and L.J. Cheng	323
Preparation of TiO₂ -Pillared Montmorillonite as Application to the Control of Blue Green Algae Growth in Eutrophic Water	
H.Q. Wang, C.J. Yan, G.J. Shu, D. Wang, H.L. Zhang and J.Y. Chen	330
The Enhanced H₂S Sensing Behavior of Ag-Doped Porous SnO₂ Nanopowders Prepared by Template Method	
C. Li, H.Y. Xue, Y.Q. Zhu and Y.T. Wang	337
Solvothermal Synthesis of the SnO₂ Nanomaterial for Highly Reversible Lithium Storage	
C. Li, Y.Q. Zhu, T.C. Xia and Y.L. Wei	341
Optimum Gate Design of the Injection Mold on Plastic Air Intake Manifold of Engine Based on CAE Technique	
X.H. Zhang, S.Q. Zhang and Z.Y. Han	345
The Non-Combustibility of PTFE Fabric	
L.J. Qu, X.Q. Guo, D.L. Chi and Y.N. Sun	349
Studies on Diamond Brazing Process (Part one)	
C. Song, L. Hua, F.C. Wei and J. Liu	353
Research and Development of a New Grouting Material for Blast Furnace	
X.J. Pei and R.S. Wang	359
Self Adaptive Modeling and Deposited Metal Property of Rapid GMAW Forming	
S. Zhu, Y.Y. Liang and Q.W. Wang	364
Synthesis of VO₂(A) Nanostructures by a Hydrothermal Method and their Transition to VO₂(M)	
Y.L. Zhong, Y.F. Zhang, X. Liu, X.H. Liu, C. Huang and H.B. Li	368
Synthesis, Characterization and Optical Properties Based on a Novel Re(I) Emitter with Bulky Building Block	
T.N. Zang, X. Li, L.S. Yu, J.P. Ru, H.J. Chi, G.Y. Xiao and Z.Z. Hu	373
The Rockburst Experiment Usage of Similar Material and the Mechanism of the Energy Releasing	
J. Li, Y.H. Qian and D.P. Li	378
Pultrusion Technology Optimization for Hybrid Fiber Composites Based on DSC and Mechanical Property Testing	
L. Chen, Q.L. Zhao, K.B. Jiang and Y. Ding	383
Synthesis and Characterization of Chitosan Based Ultraviolet Absorber with Groups of Benzophenone	
S.J. Yu and C.Q. Liang	388
Study on Formation and Exfoliation Mechanism of Alloy TP347H's Oxide Scale in Supercritical Boiler	
J.X. Zheng, Z.H. Ai and D.P. Liu	392
The Thermo-Mechanics Coupled Model of Polycrystalline Aggregates Based on Plastic Slip System in Crystals and their Interfaces	
Y. Chen, J.Z. Cui, Y.F. Nie and X.F. Guan	397
Structure and Properties of Calcium-Magnesium-Silicate Ceramic Fiber with Nd₂O₃	
H. Liu, X.T. Wang, Z.F. Wang and B.G. Zhang	406
Study of Construction Management Maturity Model	
C. Xu and Y.H. An	410
The Finite Element Analysis of Effect Factor about the Shear Behavior of Cold-Formed Steel Composite Wall	
C. Xu, Y.H. An and A.H. Bai	415
Ultrafine α-Fe₂O₃ Nanoparticles: Facile Synthesis, Characterization and their Catalytic Activity on Ammonium Perchlorate	
Y.F. Zhang, M.J. Fan, Y.L. Zhong, J.R. Nie, C. Huang and X.H. Liu	419
Ce(3,4-pydc)₂]•H₂O(3,4-pydc = pyridine-3,4-dicarboxylate)	
F.H. Bai, L.P. Zhang, H.Q. Su, L. Zhang and S.H. Zeng	423
Shearer Shaft Roundness Error of Signal Processing	
S.Y. Liu and C.X. Luo	427

Sintering Kinetics of Self-Lubricating Ti-48%Al-2%Nb-2%Cr Alloys with Fluoride Lubricants	
L.Y. Yang, S.R. Wang, B. Zhu and L. Hou	432
Proportion Design of Concrete with Gravel-Crushed Proto-Machine-Made Sand	
C.Y. Li, Q.Y. Sun and F.L. Li	436
The Effects of Hydrothermal Time on the Microstructure of Hollow Sphere Boehmite	
J. Wang, S. Jun and B. Xu	440
The Influence of Humidity on Burning Perfectibility of Molded Combustible Cartridge Case	
H.N. Jia, G.E. Lu, J.Y. Jiang and H.A. Cao	446
Study Situation and Key Technology of Mobile Humanoid Robot	
T.J. Zhao	450
Study on the Shear Strength Parameters for Municipal Solid Waste with Higher Content of Organic Matter	
Z.Y. Zhang and D.Z. Wu	454
Study on Properties of Collagen/Chitosan Composite at Different Mass Ratios	
W.C. Zhou, Y. Liu and W.H. Dan	460
Thermodynamic Calculation of Al-Cu Eutectic Alloy with Microstructure Simulation Using Phase Field Method	
J.J. Tang, J.Z. Jiang, C.H. Tang, D.H. Chen and L.Q. Hou	468
Research on Combined Lifting Conceptual Design for Large-Scale Ship	
J.P. Zhang and L.H. Tu	473
Research on the Synthesis of Titanium Nitride by Carbothermal Reduction Nitriding with Anatase and Flake Graphite	
F. Wu, D.L. Qu, Z.J. Li, X.W. Li and N. Xu	477
Replacement of Cement with Rice Husk Ash in Concrete	
P.C. Kumar, M.R. Palli and I. Patnaikuni	481
Preparation of Glass Ceramic Made from Fly Ash	
F. Li and X.D. Liu	487
Preparation and Features of Nano-ZrO₂ / HA Coating on Surface of Titanium Materials in Dental-Implant	
X.F. Pang, Y. Huang and X.Y. Cao	491
Relationship between Microstructures and Mechanical Properties of Ti-6Al-4V Alloy in Centrifugal Casting	
Y.W. Sui, A.H. Liu, B.S. Li, J.J. Guo and W.B. Ju	496
The Study of Green Evaluation Support System in Manufacturing Process Based on Multi Agent	
H. Zhang, X.G. Zhang and Y.H. Wang	500
Study of Anode Modification and Bias Voltage Treatment on Organic Solar Cells with Rubrene/ C₆₀ Heterojunctions	
B. Wu, P.Y. Liu, Z.G. Chen and J. Cao	506
The Addition of a Nano-SiO₂ on the Tribological Properties of PTFE Composite	
Z.H. Li and W.Z. Nie	511
Quick Spheroidizing in GCr15 Steel by Mechanism of Divorced Eutectoid	
Q.W. Chen, G.H. Zhu, S.M. Cao and A.M. Zhao	515
Process Characterization of 40Cr Steel Roller by Laser Surface Alloying with Rare Earths Oxide Y₂O₃	
A.Q. Wu, Q.B. Liu and S.J. Qin	520
Preparation of Pt Colloids via a Wet-Chemical Method for Methanol Sensor	
H.C. Pan, J.T. Liu, J.M. Liang, D.N. Li, J.P. Li, W.Y. Zhu and C.J. Mao	527
Synthesis and Characterization of Nanosized Phosphor SrS:Eu²⁺, Sm³⁺ by a Hydrothermal Process	
J.Y. Sun, R.D. Sun and H.Y. Du	531
Test Research on Preparation of New Wall Material with Iron Tailings in Tangshan Area	
D.Q. Gan, C. Chen and J.X. Zhang	535
Thermally Stable Blue NaBaPO₄: Eu²⁺ Phosphor Synthesized by Combustion Method	
J.Y. Sun, X.Y. Zhang and H.Y. Du	539
The Research on Preparation and Application of a Silicon-Based Efficient Coagulant	
J.J. Wang, C.Y. Han and L.D. Zhang	543

Synthesis and Luminescence Properties of Red Emitting Phosphors $\text{Na}_3\text{CaB}_5\text{O}_{10}:\text{Eu}^{3+}$ J.Y. Sun, J.L. Lai and H.Y. Du	547
Yellow-Orange Upconversion Luminescence in $\text{NaYF}_4:\text{Er}^{3+}, \text{Yb}^{3+}$ Phosphor Synthesized by Microwave Combustion Method J.Y. Sun, C. Cao and H.Y. Du	551
Study on Surface Cermets Reinforced by VC Particles Produced <i>in Situ</i> Y.C. Ding, H. Yin and J. Wang	555
Recycling of Pultrusion Production Waste into Innovative Concrete-Polymer Composite Solutions M.C.S. Ribeiro, A. Fiúza, A.C. Castro, F.G. Silva, J.P. Meixedo, M.L. Dinis, C. Costa, F. Ferreira and M.R. Alvim	561
Study on the Microstructure and Property of Manganese Steel Composites Strengthened by Ceramic J.P. Xie, C.T. Zhang, W.Y. WANG and A.Q. Wang	566
Structural Stability and Mechanical Properties of Ni Nanowires under Different Orientation and Size L. Wang, J.H. Gong and J. Gao	569
The Relationship between the Biodiversity Conservation and the Traditional Beliefs of the Native People in Dalai Lake Biosphere Reserve W. Wu and D.L. Fan	574
Study on Mechanical Property of Al_2O_3-Based Composite Ceramics Liner of Heavy-Medium Cyclone L.Q. Zhang, P. Huo, Y. Huang, P. Li and R. Yang	581
The Comparison on Morphology and Histology of the <i>Carassius auratus</i>, <i>Pelophylax nigromaculata</i> and <i>Oryctolagus cuniculus</i> Lens Q.S. She, Z.H. Xie, X.J. Zhang, G.J. Yang and L.N. Shan	585
Progress of Research on Chitosan Q.S. She, Z.H. Xie, G.J. Yang, X. Tian and Y.L. Xue	589
Study on Reducing ASR Expansion in Concrete Prepared with Iron Ore Tailings Sand R.Y. Bai, J.W. Cai and X.X. Feng	594
Research on Fatigue Life of the Casting Crane's Girder Z.C. Huang	598
Study of Ship Propeller Cut and Effecting on Main Engine Running Parameters W.Q. Wu, H.C. Zhang and X. Feng	603
Synthesis Aligned ZnS Nanocone and its Photoluminescence J.F. Gong, W.H. Zhu, K.X. Zhang, M.Y. Liu and H.Y. Xie	610
Surface Photovoltage: an Efficient Tool of Evaluation of Photocatalytical Activity of Materials B.H. Wang, Z.Q. Wan, H.J. Wu, S.Z. Liu, Y. Chen, X. Sui and D.D. Yuan	614
Simplified Calculation Method for Reinforcement of Rectangular Sectional Flexural Members Considering Crack Width J. Yuan and M. Chen	618
Research of Plasma Clad Al_2O_3 Coating Z.S. Zheng, B. Zhou, L.Q. Zhang, Y. Huang and R.J. Li	622
The Analysis on Causes of Rupture for a Sucker Rod Made of 20CrMo Alloy Y.J. Bian, W. Shi, J.Y. Lao, J. Chen and S.L. Sun	626
Study on the Application of the New Rock Drifting Technology in Zhangcun Colliery L. Ma, Z.W. Ding, X.X. Wen and M.L. Dong	631
Study on Control Technology of Transverse Corner Cracks on CC Slab for Automobile Frame Steel Plate H. Pan, G.R. Wu, Y. Chen, J.H. Zeng and Z.Q. Li	636
The Tensile Properties of Glass Fiber Reinforced ABS Composites Filled with SiO_2 J. Bao	641
The Mechanical and Tribological Properties of a Polyurethane Composite Filled with CNT Z.H. Li	644
The Staged Construction Plan of Free Way Asphalt Pavement K.F. Zhou, Y.Z. Li and H. Wang	648
Preparation of Microcrystalline Cellulose from Cotton Linter Ethanol Pulp S.S. Liu, G.G. Fang, Y.J. Deng and Q. Wang	653

Study on Rutting Resistance of Polyacrylonitrile Fiber Asphalt Mixture L.Y. Yao, L.L. Ding and Q. Ma	659
Research on the Load to Ground on Missile Erection and Launching H.J. Cheng, Y. Zhao, Z.B. Qian and J.C. Zhan	663
Study on Cu-Based Catalysts for Synthesis of Indole J.D. Xing and X.F. Jia	668
Synthesis and Characterization of Ultrafine Nanocrystalline Ti-Al Nanoparticles S.J. Chen, S.L. Jiang, X.B. Li, Y.J. Tang and W.G. Sun	672
The Experiment Study on Making Ultrafine Superfine Nickel Powder by N₂H₄-KHB Reduction and H₂ Reduction S.J. Dai and Y. Liu	677
The Die Design and Implementation of the Path Trail about Step-by-Step Forming Section L. Chen, Y. Wang, J.G. Wang and S. Ding	681
Solidification Simulation of Huge Rectangular Ingot by Different Intensive Cooling X.G. Ai, S.L. Li, N. Lv, D.W. Zhang and J. Tao	685
Study on the Method of Adjustment Skateboard by Dial Indicator to Turning Cone Y.R. Huang	689
Oxidation Behavior of 2Cr12NiMoWV Steel in High-Temperature and High- Pressure Water Vapor Z.W. Wang, Y. Lei and W. Wang	693
Synthesis and Characterization of LiNi_{0.4}Co_{0.2}Mn_{0.4}O₂ Cathode Material via Urea Co-Precipitation Method S.K. Zhong, Y.B. Xu, Y.W. Li, C.J. Liu and Y.H. Li	700
Study on Practical Calculation Equation of Concrete Strength Criterion under Tension Condition X.J. Wang, S.S. Hao, X. Xi, X.M. Hou and S.Y. Qu	704
The Random Calculation Model of Chloride Ion Concentration in Concrete H.B. Zou, X.Y. Luo and A.J. Chen	708
The Effect on Heterogeneous Nucleation of Solute Segregation A.M. Yang	712
Water Modelling on the Effect of Trapezoidal Nozzle on Vortex during Teeming in Ladle R. Lin, Z.G. Yan, T. Liu and J.K. Yu	716
Thermo-Mechanical Behavior of Fiber Reinforced MMC S.W. Gao, Y.L. Kang and H.B. Zhao	720
Permeability Test Method of Concrete Member under Uniaxial Tension Stress Y. Yuan and Y. Chi	726
Static Recrystallization of Magnesium Alloy during TRC-HC Deformation Followed by Annealing Y. Wang, S.R. Wang, R. Ma and L.Y. Yang	730
Preparation of Cationic Cellulose Obtained from Wood Pulp Using the Microwave H. He, J. Chen, S.F. Wang, F. Wen, Y.H. Li, H.X. Zhu and Y.H. Wang	734
The Design of Automatic Test System of High Speed PCM Signals S.J. Su, J.Y. Ren, S.H. Liu and H.G. Yang	738
Study on the Preparation of TiN Nano-Particles in a Solidified Low Alloy Steel G.B. Lin, Z.D. Wang, H. Zhang, R. Gong and L. Yang	742
Properties and Morphology of Damping Composite Consisting of Polyester-Type Polyurethane/Epoxy Resin C. Ma, E.F. Chen, T. Sun, J. Xu, W. He and N. Li	747
Research Advance in Harmful Effects and Removal of Impurity Fe from Al and Al Alloys H. Shen, W.D. Yang, H. Liang and G.C. Yao	751
The Study on Pulping and Papermaking Performance of Banana Stem and Leaf C.R. Qin, L. Jiang, X.Y. Fu, Q. Wang and H.G. Yi	760
The Study on the Bond Strength between Gunning Formed Lining and Surface of Stave with Anchors F. Cao, G.X. Pan, H.F. Chen and P.S. Tang	765
Research of Mechanical Properties of Ni-Ti-Nb Alloys on Low Temperature and Restriction Behavior L.X. Zheng and Y.L. Ma	769

Control of Nitrogen Loss during Co-Composting of Banana Stems with Chicken Manure C.Y. Wu, Q.F. Li and Y.B. Zhang	773
Study of Substrate Induced Deep Level Defects in Bulk GaN Layers Grown by Molecular Beam Epitaxy Using Deep Level Transient Spectroscopy M. Ajaz Un Nabi, M.I. Arshad, A. Ali, M. Asghar and M.A. Hasan	777
Research on Deformation Error of Links of Parallel Robot C.X. Zhu, J.M. Luo and B. Li	781
Studies on Cutting Forces of High Volume Fraction SiCp/Al Composites with Ultrasonic Vibration High Speed Milling D.H. Xiang, G.X. Yue, X.T. Zhi, H.T. Liu and B. Zhao	785
Preparation of Novel Series of UV Dual Curable Polyurethane-Modified Epoxy Monoacrylates and their Films Properties H.B. Liu, F. Lin, W.Y. Zhang and L. Xu	789
Research on the Extraction of Collagen from Scales of Tilapia R.Q. Huang, S.W. Chen, G.Z. Ma, B.W. Yang, R.J. Guo, Q.X. Li and J.Y. Zhong	796
Research on New Varying Gear Ratio System D. Xiang, Y.B. Chi, K.Q. Huang and W. Xu	800
The Thermal and Di-Electric Properties of a Silicone-Based Thermal Pad W.S. Jou, C.F. Hsu and Y.K. Yeh	804
The Controlled Synthesis of Single-Crystalline Cd(OH)₂ Nanoparticles with Different Morphologies Z.Y. Jia	808
Study on the Use of Rhodamine Doped Nanocomposite for Latent Fingerprint Detection L. Liu	813
The Error Model Analysis in Wireless Network Base on the Network Simulator Tool Y.X. Wang	817
The Study on the Early Age Cracking due to the Addition of Silica Fume into Concrete and the Trouble-Shooting Strategy C.L. Hwang, C.T. Chen, L.A.T. Bui and F.R. Kurniawan	824
Study on Cost Modeling Based on Feature Mapping Technology L.M. Cao, X.W. Wang and Q.L. Zeng	830
Precise-Micro PECM System and its Applications Combining Synchronizing Ultrasonical Vibration Y.W. Zhu, X.L. Miao and C.F. Zhang	834
Study on the Preparation of Cu/n-SiO₂ Composite Particles by Mechanical Milling J.H. Du, Y.Y. Li and X.H. Zheng	840
Preparation of Graphene/CdS-Nanobelt Nanocomposites P. Han, T.H. Ji and L. Li	844
Synthesis and Photocatalytic Properties of Fe-Doped TiO₂ Nanobelts N. Liu, G.Z. Xu, L. Li and T.H. Ji	849
Modelling of Cyclic Plasticity and Viscoplasticity of Directionally Solidified DZ125 Superalloy: Part I: Estimating the Parameters of Chaboche Constitutive Equations J.Q. Li and L.J. Wang	854

Chapter 1: Materials Properties

Combustion Synthesis and Luminescence Properties of NaY_{1-x}Tb_x(WO₄)₂ Novel Green Phosphors X.H. Qian, D.F. Zhang and X.P. Pu	861
Optimization of the Synthesis of Er-Y-Ba-Na Quaternary Fluoride up-Conversion Phosphor and Luminescence Properties L.P. Lu, X.Y. Zhang, C.C. Yu and P. Sun	865
Composition and Microstructure of a Natural Nano-Structure Mineral: Six-Ring Rock Q.S. Li, X. Wang, J. Liu and G.Z. Xing	869
Evaluation of Permeability of Porous Concrete C.Q. Lian, Z.G. Yan and S. Beecham	873

Interfacial Behaviors in SiC Fiber Reinforced Titanium Matrix Composites during Thermal Exposure	880
H.T. Qu, X.P. Ren, H.L. Hou, B. Zhao and S.X. Li	
Enhanced Infrared Normal Spectral Emissivity of Microstructured Silicon at 100 to 200°C	886
G.J. Feng, Y. Wang, Y. Li and T.T. Guo	
Aluminate Green Phosphor with Small Particle Size Used for PDP via Co-Precipitation Method	890
Y. Dong, Y. Zhou, X.L. Han and W.J. Gu	
Investigation of the Corrosion Resistance of Bainitic Steel	896
Z.F. Wang, Y.Q. Sun, R.D. Han and L.X. Wu	
Effects of Metallic Ions on Photoluminescence Properties of CdSe/PAMAM Nanocomposites and their Application in Fingerprint Detection	900
Y.J. Jin, Y.J. Luo, G.Z. Xu and B. Yang	
Energy Conservation Study on Integrated Thermal Insulation Buildings Made of Glazed Hollow Beads Mortar	907
X.H. Guo, Z. Li and Z.Q. Yang	
Electrochemical Characterization of Metal Oxynitride Thin Film as New Lithium Storage Materials	912
Y.N. Zhou and Z.W. Fu	
Cases Analysis of Nonconformity in Ultrasonic Flaw Detection for Steel Plates	917
Y.Q. Sun, L.X. Wu, P. Zhang and Z.F. Wang	
Fabrication of Superhydrophobic Surfaces on Copper Foil with Stearic Acid	921
L.B. Wang, Y. Lu and X.X. Cao	
Microstructures and Mechanical Properties of Mg-6Al-1Zn-xSn ($x=0.5, 1, 2$ and 3.5 Wt%) Alloys during Solution Treatment at 420°C	925
X.D. Wang, W.B. Du, K. Liu and Z.H. Wang	
Differential Scanning Calorimetry (DSC) Analysis of Abaca Fibre (<i>Musa Textile Nee</i>) Reinforced High Impact Polystyrene (HIPS) Composites	929
E.H. Agung, S.M. Sapuan, M.M.H. Megat Ahmad, H.M.D.K. Zaman and U. Mustofa	
Analysis on the Cause of Longitudinal Crack on the Hot-Rolled Ribbed Bar Surface	934
J.X. Zhao, J. Fan, Y.P. Chen and P.F. Wang	
Influence of Temperature on the Absorption Behaviour between Cement and Asphalt Emulsion in CA Mortar	939
Y.P. Liu and F.Z. Wang	
Hydration Kinetics of Aluminate Cement Containing Magnesium Aluminate Spinel	945
B.Y. Cai, J.H. Li, H.W. Ma and X.Q. Jiang	
In Situ Synthesis Process for TiC Whisker Toughening Al₂O₃-Based Ceramic Cutting Tool Composite	949
B.Q. Liu, C.C. Wang, A.L. Sun and C.Z. Huang	
Finite Element Analysis of Interfacial Stress of Mg-Based Composites Reinforced with Short Fiber	954
W.X. Li, S.G. Du, J.F. Dai and Q. Wang	
Experimental Study on the Fundamental Characteristics of Recycled Concrete	958
A.J. Chen, J. Wang and Z.F. Ge	
Microstructure and Properties of High Carbon Equivalent Gray Cast Iron Modified by Rare Earth	962
F.M. Chu, X.H. Zu, Z.K. Zhao and X.Y. Jiang	
Influence of MgO on Properties and Microstructure of Mullite Ceramics Synthesized from Coal Fly Ash	969
J.H. Li, L.X. Tong, L. Hou and J. Shen	
Effects of Mixed RE on Die-Casting Microstructures and Properties of Commercial Mg Alloy	974
Y. Li, J.J. Yang, W.X. Yu, P. Xue, Z.J. Zuo and L.R. Fu	
Magnetostriction of Epoxy-Bonded Tb_{0.22}Dy_{0.48}Pr_{0.3}(Fe_{0.9}B_{0.1})_{1.93} Composites	978
J.J. Liu, X. Liu, H.Y. Yin, X.C. Liu and P.Z. Si	
A Study of Preference Relation for the Mould Bidding Strategy Based on Rough Set	982
G.M. Li, Z.K. Liu and L.X. Zheng	

Enhancing Electrochromic Property of 1,4--Di(thiophen--3--Yl)benzene by Copolymerization with Pyrene	
M. Ou Yang, G.H. Wang, Z.W. Yu, C. Zhang and C.A. Ma	987
Microstructure Refinement in Non-Quenched and Tempered Vanadium-Nitrogen Steel	
H.B. Li, H.Y. Liu and Y. Huang	991
Influence of Temperature Rise during Finishing Rolling on the Mechanical Properties of T8 Cord Steel	
M. Wang, L.P. Wang, L.F. Wang and L.F. Li	997
Influence of Hydrogen on the Plasmas Nitriding Process of 35CrMo Steel	
L. Zhong and X. Han	1004
Effect of Yttrium and Magnesium Segregation on Microstructure and Mechanical Properties of Heavy Section Ductile Iron Castings	
W.P. Chen, Z. Liu, Y. Deng, J. Luo and Y.C. Chen	1010
Numerical Simulation of Flowage and Bath Surface Behavior in Continuous Casting Mold with Electromagnetic Brake	
C.J. Xu, L. Hu, S. Zhang, A.H. Hou and Q. Wang	1017
Novel Optical Fiber Gas Sensing System Based on FBG Filtering	
S.T. Wang, P.W. Zhang, L. Gong and X.Q. Shao	1021
A Method for Lamping Atoms into Particles in Particle Dynamic Method	
J. Wei, Y.F. Nie and L. Cai	1029
Efficient Synthesis, Photochromism and Application of a Photochromic Diarylethene Bearing a Benzene Unit	
R.J. Wang, G. Liu, H.Y. Xia and S.Q. Cui	1038
Efficient Synthesis, Photochromism and Holographic Optical Recording of a Photochromic Diarylethene with a Isoxazole Unit	
L.Q. Wang, S.Z. Pu, L.S. Yan and S.Q. Cui	1042
Effects of Rare Earth Dopants on Crystal Structures of Bismuth Molybdate Catalysts	
Y.Z. Cheng, L. Xue, X.Y. Sun and Z.B. Hu	1046
A Novel Electron Paramagnetic Resonance Phenomenon in a Barium Strontium Titanate Ceramic	
D.Y. Lu and X.Y. Sun	1050
Control of Nitrogen in Al-Killed Steel by Converter Flow	
S.M. Wang, J.H. Zhang and H.M. Liu	1055
Annealing on the Electrical and Dielectric Properties of Barium Strontium Titanate	
G.X. Dong and W. Liu	1059
New Digital Method of Reverse Engineering about Free from Surface	
X.M. He, Y. Xue, C.G. Li, C.L. Hua and Y. Lu	1065
Efficient Synthesis and Properties of a Photochromic Diarylethene Bearing Thiophene and Isoxazole Moieties	
H.L. Liu, G. Liu, S.Q. Cui and W.J. Liu	1070
Electro-Generation of 2, 3, 5, 6-TCP in Zn, Ni,P-mSA/mCS Bipolar Membrane Equipped Electrolysis Cell	
H.F. Xie, Y.C. Xiao, S.B. Li and C. Zhen	1074
Deflection Test on CFST Arch Bridge with CFRP Slings	
G.H. Cao, Z.Y. Xie, M.C. Wen and R. He	1079
Model Study about the Influence of Superheat on Macrosegregation Formation in Continuously Cast Bloom of Special Steel	
Z.B. Hou and G.G. Cheng	1088
Air-Water Interfacial Film of Zirconia and its Heat-Treatment	
C. Kan	1095
Effects of Milling Time and Annealing Schedule on Mechanical Activation Synthesis of Brownmillerite Structural $\text{Ca}_2\text{Fe}_2\text{O}_5$	
F. Wang, C. Zhao and J.F. Zhu	1099
Microstructures of <i>In Situ</i> Synthesized ZrB_2/AZ91 Magnesium Matrix Composite Synthesized by a New Method of Direct Melt Reaction	
J.J. Wu, Y.T. Zhao, S.L. Zhang, G. Chen and X.L. Xu	1103
OH-related Infrared Absorption Spectra in Silicate Glasses	
X.Q. Liu and J.L. Xie	1108

Effect of Hole Distance and Hole Number on Bubble Behavior during Gas Injection with Multi-Hole Orifices F. Jiang and G.G. Cheng	1113
Experiment on Treating the Dying Wastewater with Blast-Furnace Ash and Fenton Reagent Y.Q. He	1120
Characterization of Electrochemically Synthesized Pani on Graphite Electrode Use EIS Q. Zhou, X.M. Su, H. Zhang and Y.J. Weng	1124
A Novel CuO-TiO₂ Composite Photocatalyst and its Degradation of Methyl Orange under UV Irradiation S.D. Wu, Y.Q. Zhu, C. Li and Y.L. Wei	1129
A New Photochromic Diarylethene for Optical Storage P.J. Yan, S.Z. Pu and S.Q. Cui	1133
Effects of Polypropylene Fiber on Shrinkage of Masonry Cement Mortar N. Liang, X.Y. Zhang, L. Sun and F.L. Li	1138
Analysis of CTOD Test for Proving Rings of Large-Scale Fully-Welded Ball Valves C.L. Mo, X.W. Tang and X.M. Guo	1142
Numerical Simulation of Interaction between Coal Derrick and Foundation in Freeze - Thaw Process D.W. Li, J.H. Fan and R.H. Wang	1146
Methods and Equipment of Vacuum and Electromagnetism Suspending Distillation for Fine of Non-Ferrous Metals M.B. Chen, X.M. Wang, R.P. Liu, Q.X. Yang, W.C. Liu, Y.S. Tao, J. Yan, X.Y. Ma, J. Li and P.P. Zhai	1150
A Simple Method of Cyclization of the 2'-Hydroxychalcone with Polystyrene-Pyridine Resine under Mild Conditions X.X. Zheng, J.J. Xie, Z.Y. Yin and J.J. Jing	1156
Morphology and Electrical Properties of Nano-Sized LiFePO₄ Cathode Materials H. Yan, Y.H. Xu, J. Wang and C.Y. Shao	1160
Development and Application of Cold-Formed Steel Structure Dwelling System C. Xu, Y.H. An and Y.M. Zhao	1164
Influence of La and Ce on Microstructure and Properties of Cu-Cr-Zr Alloy J.Y. Dai, S.G. Mu, Y.R. Wang, X.P. Yang and J. Li	1168
Optimization Design of Signal Source Based on FPGA H.X. Zhang, Y.R. Chen, Y.L. Zheng and J.Y. Ren	1175
High Overload Penetration Test and Analysis of the Multi-Layer Steel Target L.S. Liu	1178
Effects of Gadolinium on Aging Behavior and Mechanical Properties of Mg-5Y-3Nd-Zr Alloy L.D. Wang, C.Y. Xing, X.L. Hou, Y.M. Wu, J.F. Sun, Z.Y. Cao and L.M. Wang	1183
Long-Term Performance Research on Reinforced Concreted Beams with Pre-Stressed CFRP Plate K.F. Zhou, Y.Z. Li and B.J. Zhang	1188
Effects of Synthesis-Solvent on Characteristics of Poly(<i>N</i>-Isopropylacrylamide) Hydrogels Synthesized by Frontal Polymerization Q. Feng, L.Z. Du, Q.Z. Yan and C.C. Ge	1193
Development and Design of Coal Gangue Concrete Filling Material Y.X. Sun and X.D. Li	1198
Effects of Various Plasticizers on the Moisture Sorption and Mechanical Properties of Gelatin-Chitosan Composite Films H.J. Song and K.Y. Tang	1202
Influence of Temperature and Relative Humidity on Perm-Selectivity of PET Packaging Film Y.F. Guo, X.P. Ma, Y. Yan and Y.G. Fu	1206
APCVD Deposition of Si Film on SiO₂ Patterned Si (111) Substrates for Solar Cells C.Y. Duan, B. Ai, J.J. Lai, C. Liu, Y.J. Deng and H. Shen	1211
Bending Properties of Three-Layer Biaxial Weft Knitted Fabric Reinforced Composite Materials Y.X. Qi, J.L. Li and L.S. Liu	1217

Development and Evaluation of a High-Strength and Anti-High Temperature Pre-Crosslinking Gel	1221
K.H. Lv, T. Shi, D.Z. Zhu, Y. Liu and W.G. Qiao	
DSC and TEM Study of Al-Cu-Mg-Ag Alloy Ageing at Low and Elevated Temperature	1225
H.W. Liu, Y.A. Zhang, J.B. Zhang, B.H. Zhu, F. Wang, Z.H. Li, X.W. Li and B.Q. Xiong	
Measuring Methods of Cable Tension in Cable-Stayed Bridges	1230
J.B. Sun, Z.Z. Zhao and H.H. Zhao	
Kinetics of Reductive Dechlorination of DDT in Soil with Zero-Valent Iron	1236
Y.H. Lang, M.J. Wang and N.N. Wang	
Evaluation of Optical Path Designing on 4x4 Cm² Er³⁺/Yb³⁺ Doped Phosphate Glass Waveguide Substrate	1240
M. Tian, X. Zhao, Z.Y. Zhou and H. Lin	
Load-Carrying Capacity Analysis for Sinusoidal Surfaces Hydrodynamic Bearing	1244
J.X. Yang, F.Y. Zhang, J.T. Liu and J.F. Zhou	
Control of Cold Welding Cracks in 30CrMnSi Steel by Welding with Trailing Impacting and Rolling	1251
J.G. Yang, L.Y. Huang, H.B. Pan, X.S. Liu and H.Y. Fang	
Crystallization Kinetics of ZrCuAlSiY Bulk Metallic Glass	1259
B.Q. Zhang, Z. Zhang, G.H. Cao, Y. Yue, B.Z. Liu, G.F. Mi and W.K. Wang	
Influence of Limestone Powder on Immobilization of Chlorine Ion of Portland Cement	1263
Y.L. Wang, W.D. Wang, Y.J. Zhao and S.X. Liu	
Based on CSP Technics, the Experimental Research of Rare Earth Steel Hot-Rolled Deformation Behaviors	1267
Y.Y. Liu, X.Q. Li and Z.L. Jin	
New Method of Spherical Surface Defect Detection Based on Machine Vision	1274
J.X. Yang, F.Y. Zhang, X.X. Song and H.Z. Xu	
<i>In Situ</i> Template Synthesis Titania Nanotube Array Films on Aluminum Plate	1279
W.F. Jiang, S.J. Hao, Y.H. Ling and J.S. Liao	
Development of Electromagnetic Swirling Flow in Immersion Nozzle in Continuous Casting Process of Steel	1284
D.W. Li, Z.J. Su, L.W. Sun, K. Marukawa and J.C. He	
High Polarized Transmission Effects for Double-Layer Metallic Grating Films on GaN Substrate	1289
B. Cao, G.J. Zhang, Q. Han, C.H. Wang, J.F. Wang and K. Xu	
Effect of Thermomechanical Parameters on the Microstructure and Retained Austenite Characteristics in a Hot-Rolled TRIP Steel	1294
Y.Y. Yin, F. Fang, W. Chen and Y.T. Fu	
Fabrication and Luminescent Properties of Translucent Ce³⁺:Lu₂SiO₅ Ceramics by Spark Plasma Sintering	1300
T. Lin, L.C. Fan, Z.B. Xu, Y. Shi, J.J. Xie, L.Y. Deng and Y.Y. Ren	
<i>Ab Initio</i> Calculation of (001) TiAl₃/Al Interface	1305
L. Wang, J.H. Gong and J. Gao	
Investigation of Very High Cycle Fatigue Behavior of TC17 Alloy	1311
L. Cheng, C. Gao, J.S. Shen, N. Li, W. Chen and Q.T. Li	
Microstructures and Properties of Laser Cladding Composite Coating of Nano-Y₂O₃/Co-Based Alloys	1315
S.L. Yang, F.G. Hu and Q.L. Lin	
First-Principles Calculations for Electronic Structures of Fluorine-Doped ZnO	1319
Q.X. Wan, L.L. Chen, Z.H. Xiong and D.M. Li	
Influence of the Concentration of La High Doping on Conduction of ZnO	1322
Z.H. Xiong, L.L. Chen and Q.X. Wan	
A New Approach to Solving Reliability Optimization Design of Gear Box	1326
W.H. Mo	
Materials and Fabrication Issues of Micro V-Groove for Optoelectronics Packaging	1330
Y. Zheng and J. Duan	
Analysis of the Dry Mortar Produced with Iron Tailings	1335
W.Y. Liu, P. Yang, Y. Zhang and Y.Y. An	

Numerical Simulation of Canned Hot-Extrusion Process of Mo Powder J. Li and J. Zhang	1341
Fabrication of Al/SiC Nanocomposite Powders via <i>In Situ</i> Powder Metallurgy Method M. Moazami Goudarzi and F. Akhlaghi	1347
Dynamic Analysis of Piezoelectric Smart Structures J. Li, L.L. Hu, L. Qin, J. Liu, R.P. Tao and X.N. Yu	1353
Optimization of Steel A20402'Parameters under Pulse Electric Field L.S. Song, S.B. Wang, P.T. Lu and H.Q. Wang	1357
Microstructure, Mechanical and Shielding Properties of Fe67.5Ni23.5B9 Coating / 321 Stainless Steel Laminated Composite by the Air-Plasma Spraying Procedure W.F. Yang	1361
Effects of Ultrasonic on Ability of Learning and Memory in Kunming Mice B.Q. Wang and L.L. Yang	1369
A Study on Dynamics of 2-PRR Parallel Machine Tool Based on the Lagrange Equation S.X. Yuan and D.D. Shen	1373
Effects of Microstructure and Mechanics Performance of Laser Clad with Different Base R.S. Peng, D.W. Tang and R.Q. Li	1380
An Efficient Synthesis of 5-Arylidene Barbiuric and Thiobarbituric Acids Catalyzed by Mg(NTf₂)₂ in Water Z.H. Yang	1384
Application and Research of Superfine Wood Powder Disintegrator with Multi-Granularity Based on AR Technology L.Y. Yang and X.F. Bao	1389
Natural Convection Heat Transfer of the PCM Microcapsule Slurry for a Solid Phase State in a Horizontal Rectangular Enclosure Y.L. Zhang, Z.H. Rao, S.F. Wang, H. Zhang, L.J. Li and M.L. Zhang	1393
Microwave Assisted Synthesis of ZnO Calthrop-Like Nanostructures in Ionic-Liquid J.G. Zheng and T. Yang	1397
Microstructure and Corrosion Resistant Property Research of Super 304H and TP347H Heat-Resistant Steel Welding Joint G.F. Wu, X.B. Zhang and W. Wu	1402
Dielectric Properties of Carbon-Materials-Filled Composites Characterized by Terahertz Time-Domain Spectroscopy X.L. Chen, X. Chen, D.S. Li and Z.Y. Zhu	1408
Controlled Fabrication and Properties of Ce_{0.5}Zr_{0.5}O₂ Solid Solutions Z.F. Zhang, F.Y. Du and X.R. Ma	1414
Effect of Rare Earth Nano-Oxides on Sintering and Crystallization of Fused Quartz Ceramic Materials Y.J. Chen, Z.F. Wang, J.L. Bu, L.X. Yu, R.L. Wang and R.S. Wang	1418
Effect of Substrates on the Characteristics of Silicon Carbide Deposited from Methyltrichlorosilane C.Y. Lu, X.W. Yin and X.M. Li	1422
Finite Element Analysis on Temperature Field of Laser Brazing Z.B. Yang, L.M. Zhang, P.F. Luo and J.H. Xu	1428
Enhanced Photocatalytic Activity of TiO₂ by (Tetracarboxyphthalocyaninato) Cobalt (II) Y.L. Ma, G.Z. Fang and C. Liu	1433
Alloying Element Nickel Influence on Microstructure and Properties of Weathering Steels Z.Y. Liu, X.L. He, J.Q. Chen, S.W. Yang, B.W. Chen, M. Hu and W. Liang	1436
Analysis on Structural Property and Seismic Performance of the P'ai-Lou Gateways in Xi'an Great Mosque D.F. Gao, W. Li, X.J. Ding and P.N. Cao	1441
Decolorization of Methylene Blue Dye Wastewater by Fenton's Reagent J.T. Liu, H. Gao and S.J. Liu	1447
Electron Transport of Right-Angle Graphene Nanoribbons H.D. Li and J.Z. Niu	1451
Coherent Phonon in Single-Walled Carbon Nanotubes by Using a few-Cycle Pulse Laser Z.G. Nie, X.Z. Li and T. Kobayashi	1456

G12V190 Type Diesel Engine Exhaust Muffler Design Based on Transfer Matrix Method J.S. Ma, L. Zhou, Z.Q. Dang, Z.F. Liu, D.M. Zhuang, B. Yang, N.N. Dai and Z. Xia	1460
Influence of Ultrasonic Vibration on Preparation for Semi-Solid A356 Alloy J.X. Wang, C. Li, L.H. Jiang and M. Fang	1465
Martensitic Transformation in a Low-Alloy Ultra-High-Strength Steel Z.X. Qiao, D.T. Zhang, Y.C. Liu and Z.S. Yan	1470
Critical Cooling Rate and Design of Mould Cooling System for Hot Forming of High-Strength Sheet Y.D. Guo	1474
Alloy Design and Practice of High Carbon Alloy Steels with Ultra-Fine Carbide Y.Q. Ma, Y. Zhang and Y.M. Dai	1479
Microwave Hydrothermal Synthesis of ZrSiO₄ Nano-Powders F. Wang, D.W. Liu, J.F. Zhu and D. Li	1485
Experimental Study on the Seismic Performance of Composite Shear Wall Structure with Thermal-Insulation Wall Form M.W. Zhu and Y.Z. Liu	1489
Chemically-Induced Graft Copolymerization of Diethylenetriamine onto Bagasse Celluloses N.N. Xia, H.X. Zhu, S.F. Wang, Y.X. Mu, C.B. Deng and Y. Huang	1494
Experimental Study and Finite Element Analysis of the Seismic Behaviors for Steel Fiber Reinforced High-Strength Concrete Frame Exterior Joints H.T. Liu and T.Y. Wang	1499
Effects of Occupation of the Cages on Thermodynamic Stability of SI CO₂ Clathrate Hydrate Y.X. Qi, H. Zhang and S.X. Zhao	1505
Influence of Heat Treatment on the Structure and Performance of ATP and its Catalyzer Y.B. Lin, C.B. Li, Y.F. Zhu and A.H. Liu	1510
Mechanical Properties and Applications of Carbon Nanotubes L.B. An, L.J. Feng and C.G. Lu	1516
Effect on Electroless Nickel Coating on Magnesium Alloy by Nickel Electroless Plating Parameters X.M. Wang and J. Duo	1522
CuInS₂ Thin Films Obtained by Spray Pyrolysis Deposition Using Sodium Dodecyl Sulfate Additive in Precursors Solution D. Perniu, I. Popovici, C. Toader, M. Duta and M. Gosman	1526
Effect of Die-Swell Ratio on Polyacrylonitrile As-Spun Fiber Formation B.H. Ji	1532
A Theoretic Study on Cam-Clamping Device Y.C. Deng	1536
Effects of Computational Parameters on Solidification Structures Simulated with Phase-Field Method for a Ni-Cu Binary Alloy J.J. Tang, J.Z. Jiang, C.H. Tang, L.Q. Hou and L.J. Fei	1540
Infrared Thermographic Diagnosis Mechanism for Fault Detection of Ball Bearing under Dynamic Loading Conditions J.J. Seo, H. Yoon, H. Ha, D.P. Hong and W. Kim	1544
From Layered Ni(OH)₂ Thin Films to Ni(so₄)_{0.3}(OH)_{1.4} Nanobelts through so₄²⁻ Inserting in Colloid-Based Route Z.Y. Jia	1548
A General Sonochemical Approach to Rapid Synthesis of 1D Single-Crystalline MSn(OH)₆ (M=Ba, Ca, Sr) Nanostructures Z.Y. Jia	1554
The Sonochemical Fabrication for the CaCO₃ Nanocrystals with Different Morphologies Z.Y. Jia	1560
Design Optimization of the Aerial Lift Boom through the Finite-Element Analysis (FEA) Y. Hong, S. Yu, J. Lee, H. Ha and D.P. Hong	1564
Determination of Ge Fraction and Carrier Concentration in Si_{1-x}Ge_x/Si by Capacitance-Voltage Method L.H. Cheng, L. Yu, F. Yu, Z.Z. Lu, X.F. Zhao, P. Han, H. Zhao, Z.L. Xie, X.Q. Xiu, R. Zhang and Y.D. Zheng	1568

Mechanical and Tribological Properties of Nylon 1212 Modified with Brown Corundum Ash and Solid Lubricants	
G.L. Zhang, Q.X. Zhao, M.Y. Liu, P. Fu, Y.B. Yu and J.W. Xu	1573

Chapter 2: Metal Casting Processes and Equipment

A Numerical Study on the Large Deformations of Polymer Foams with Spherical Pores	
Z.G. Fan, C.Q. Chen and W.J. Hu	1581
Study on the Finite Element Method for Three-Dimensional Static Property of Polyurethane Vibration Isolators	
L.H. Shu, L. He and B.F. Liu	1586
Characterization of Ni and Ni-Co Alloy Coatings Prepared by Pulse Current Electroplating	
L. Liu, H.F. Yang and R.F. Li	1590
Experimental Study of the Packaging Failure for Optical Fiber Arrays	
J.A. Duan and Y. Zheng	1594
The Morphology of SiO_x Coated PET Film by Ultrasonic Atomic Force Microscopy and Barrier Properties	
G.M. Zhang, Q. Chen, C.F. He and S.Y. Zhang	1600
Springback Simulation in Stretch Bending of Aluminum Extrusions Using Static Implicit and Dynamic Explicit FE Codes	
X.Q. Li, H. Li and D.S. Li	1606
Preparation and Characterization of Superhydrophobic Polypropylene Surface with Excellent Self-Cleaning Property	
Z.Q. Yuan, J.L. Wu, X.H. Hao, X.N. Wang, X.M. Xu and H.P. Zhang	1613
Anglicizing Modern High-Rise Building Modeling Design Technique	
Y. Wang	1617
The Effect of Alkaline Slurry on Low-K Film	
Y. Hu, Y.L. Liu, L.R. Wang, X.Y. Liu and Y.G. He	1621
Impact of Process Parameters on the Auto Claw-Pole Thixoforming Process	
V.L. Dao, S.D. Zhao, W.J. Lin and X.M. Yuan	1625
Effect of Floating Die on Tooth Filling of Spur Gear Forging	
C. Yang and S.D. Zhao	1631
Effect of Mandrel Exchange on the Precision Forging of Spur Gear	
C. Yang, S.D. Zhao and J.J. Zhang	1635
Surface Characteristic of Wheat Straw Treated with Plasma	
H.Y. Mao, D.G. Zhou, S.G. Wang and R. Yang	1639
Formation Mechanism of Linear Explosive Formed Penetrator by Midpoint Initiating Manner	
R.J. Gou and S.H. Zhang	1643
Study on Microstructure and Performance of Bead-on-Plate Weld Metal on 21CrMoV5.11 Steel Continuous Casting Roll by Submerged-Arc Overlaying	
C.G. Ding and X.X. Meng	1647
Design and Simulation of Molded Interconnect Devices with Two Shot Molding	
Y. Zhuo, J. Peng and Y.J. Wu	1651
The Analysis of Tube Spinning Process Parameters on Workpiece Defects	
H.D. Zhao, H. Zhang and C.Y. Zhao	1656
Effect of Acid Treatment on Surface Morphology and Strength of Float Glass under Ultrasonic Wave	
Y.C. Diao, Y.Y. Jiang, S.K. Wang and C.Y. Wang	1660
Microstructure and Properties of Laser Cladding Co-Based Alloy Coatings	
H. Cheng, Z.G. Fang, S. Dai, X.R. Zhao and J. Yi	1665
Influence of Inhibition Layer on Adhesion of a Galvanized High Al Dual Phase Steel	
Z.J. Deng, J. Liu, Z.H. Lu, H. Wang and C.J. Lin	1669
Synthesis and Character of Amphiphobic Calcium Carbonate Nanoparticles <i>In Situ</i>	
C.Y. Liu, S.L. Wang, J. Li and C.Y. Wang	1675
An Alkaline Hydrothermal Method to Synthesize Super-Hydrophobic Wood	
S.L. Wang, C.Y. Liu, H.M. Du, H. Ma, C. Xie and C.Y. Wang	1680

<i>In Situ</i> Formation of ZrO₂-Y₂O₃-Containing Ceramic Coating on Magnesium Alloy by Plasma Electrolytic Oxidation	
H.H. Luo and Q.Z. Cai	1684

Chapter 3: Forming and Shaping Processes and Equipment

Research about the Crackle-Simulated Coating Technology Applied in the Rice-Straw Board Furniture Surface Decorating	
X.Q. Xiong and Z.H. Wu	1693
Formability of AZ31B Magnesium Alloy Sheet in Hydro-Bugling by Pulsating Hydraulic Pressure	
L. Yi, L.F. Yang and C. Guo	1699
Effects of the Low Frequency Electromagnetic Field on the Centerline Macrosegregation of 7075 Aluminum Ingots	
D.D. Chen, H.T. Zhang, X.J. Wang and J.Z. Cui	1705
Effect of Different Modified Mechanism on Mechanical and Cutting Properties of WC-Co(Ni)	
Z.L. Ju, G.R. Hua and H. Zhang	1709
Design and Optimization of Technology and Structure Parameters for Sheet Metal Drawing by Orthogonal Experiment	
L.J. Yang, Y.M. Qi and X.N. Dang	1714
Microstructures and Mechanical Properties of the Mg-5Y- MM Alloys	
K. Liu, J. Meng, S.B. Li and Z.H. Wang	1718
Effects of Asymmetric Bending on Wear of Rolls in a Six-High Cold Rolling Mill	
J.L. Bai and J.S. Wang	1722
Analysis of Forward Spinning for Aluminium Alloy Tube	
Y. Mei, B. Liu, Z.B. Niu and C.A. Zhang	1726
On Formability of MoNiCr Alloy	
Z. Novy, J. Džugan, P. Motycka, P. Podany and J. Dlouhy	1731
Dynamic Instability of Spatial Structures under Typical Wind Flow	
Y.Q. Huang and J.Y. Fu	1738
Proton Transfer in Proton Exchange Membrane Based on RDF	
Z. Sun, H. Sun, Y.L. Tang, J.J. Zuo and Y.H. Wu	1742
Preparation and Processing of PZT Thin Film by Liquid Mist Microwave Plasma Enhanced Chemical Vapour Deposition	
J.J. Hao, Y.Y. Li and H.M. Ji	1747
A Feasibility Study on Increasing Surface Hardness of Austenitic Stainless Steels by Pack Co-Deposition of N and Cr	
D. Zeng, S. Yang and Z.D. Xiang	1751

Chapter 4: Material Removal Processes and Machines

Management of Bio-Engineering Equipment - Take Ventilation and Mechanical Agitation Fermenter for Example	
R.Q. Huang, N.H. Li, R. You, H.Q. Chen, G.C. Peng, L. Yin and X.W. Jiang	1757
Overload Control of Supersonic Missile System	
Y.Q. Jin and Q. Ma	1761
Modeling and Dynamic Simulation of Tracked Vehicle in Vortex	
M.X. Xie, Y.D. Wei, X.J. Zhou, Y.J. Guo, F. Tang, Z.H. Luo and P.X. Li	1764
A Steering Wheel System and Controller for the Driving Simulator	
M.X. Xie, Y.D. Wei, X.J. Zhou, C.Y. Wei, F. Tang and P.X. Li	1768
Supersonic Missile Control with PI Sliding Mode Method	
Q. Ma and Y.Q. Jin	1773
Analysis of Characteristics of Potential Mud-Rock Flow in Huyu Valley	
Y.Q. Lv, H.F. Liu and X.Q. Wen	1777

Consider the Effect of the Variation of Underground Water Level to the Superstructure with the Pile Foundation in Different Burying Depth L.M. Wu and Z.J. Wang	1782
Construction of Customer Knowledge Management Platform Based on TRIZ H. Wang and C. Xie	1788
Micro-Hole Machined by Electrochemical Discharge Machining (ECDM) with High Speed Rotating Cathode S.F. Huang, D. Zhu, Y.B. Zeng, W. Wang and Y. Liu	1794
Study on Straight Edge Cutter for Processing Circular Arc Tooth Belt Pulley J. Gao, T. Xia and Q. Zhao	1800
Confined Buckling Analysis of a Viscoelastic Ring Subjected to Constant Temperature Difference M. Yang and S.F. Xiao	1804
Experimental Research on the Screening Efficiency of Particle Impact Drilling Separation System Y. Zhang, B.B. Wang and Y.X. Wang	1811
The Study and Realization of Online Submission and Peer Review System Based on AOP J.J. Zhang, L. Wang, H. Li and G.Y. Liu	1817
An Improved Active Queue Management Algorithm Based on Nonlinear Smoothing J.J. Zhang, W.L. Xu and L.G. Wang	1823
To Simulate the Flow Field of Jet Pumps of Plane Model by Using Monte Carlo Method T.Z. Li, P.F. Bi and N. Jiang	1829
Role of Shear Strain for a General Modeling of Magnetostrictive Film-Substrate System M. Li and H.M. Zheng	1834
Different Management Goal of the Coal Enterprise Marketing Strategy H.Q. Bao, C.T. Wang and N. Zhang	1843
Decision Model Research of Production Model Based on Fuzzy Theory R.C. Lin, R.Y. Pang, Y. Yang and W. Song	1847
The Application of Low-Frequency and Low-Power Ultrasound Algae Removal Technology in Pengxi River in Three Gorges Area Z. Zhang, J.M. Han, M.K. Cai, G.D. Fan, J. Luo, X. Wan and C. Liu	1852
Research on Diamond Polishing Process Based on Rough Set Y.T. Ma and Y. Ma	1856
Optimization of <i>Chlorella pyrenoidosa</i> Removal by Low Frequency Ultrasonic Irradiation Using Response Surface Design Z. Zhang, C. Liu, G.D. Fan, J. Luo and Y.D. Wang	1860
Experimental Research on Impact Force and Erosion Effect of Different Hydraulic Pressure C.C. Gao, L. Zhao, D.F. Ma and X.Y. Liu	1866
Deformation Characteristics Research of Large Span Aqueduct under Impounding Conditions H.F. Deng, M. Zhu, J. Guo and Z. Cheng	1872

Chapter 5: Joining Processes and Equipment

Study on the Brazing Technology and Mechanical Properties Using bmp7 Filler Metal X.Z. Hua, W.T. Guo, Y.T. Xu, Z.G. Ye, A.H. Zou and X.L. Zhou	1879
Fatigue Behavior of the Low-Strength Steel Welded Joints Treated by TIG Dressing and Ultrasonic Peening Combined Method S. Li, D.P. Wang, H. Zhang and B. Tan	1885
The Impact of LPG Storage Tank Steel Specimen Fracture Analysis of Welded Joints W. Gu, G.P. Wang and X.P. Wang	1890
Research on the Effect of Ultrasonic Impact Peening on the Fatigue Property of 7075-T651 Aluminum Alloy Q.L. Yang, D.P. Wang, S.P. Wu and S. Li	1896
Welding Thermo Cycle and HAZ Softening of CT80 Butt Weld Joint X. Li, K. Shi, T. Peng, Y.M. Liu and H.D. Wang	1901

Numerical Simulation of Welding Residual Stress Considering Phase Transformation Effects	
H. Zhang, D.P. Wang and S. Li	1905
Research on Ultra-High Cycle Fatigue Property of 45 Steel	
L.L. Jin, C.Y. Deng, D.P. Wang and R.Y. Tian	1911
Study on Microstructure and Performance of Bonding-FSSW Hybrid Joints of AZ31 Magnesium Alloy	
C.G. Ding, Y.Q. Ni, C.J. Guo and G.F. Quan	1915
Effect of Ar-N₂ Mixed Gas on Morphology and Microstructure of Type 316L Stainless Steel TIG Weld Metal	
K.H. Tseng and K.C. Hsien	1919
Tensile Property for Friction Welded Aluminum Alloy 7075-T6 and 7075-T6	
M. Yu, H. Ha, T. Kim, D. Lee, K. Yonjig, C.S. Kim and D.P. Hong	1925
Mechanical Property of Friction Stir Welded Retardant Magnesium Alloy Joint	
Y.M. Tu, R.F. Qiu, H.X. Shi, X. Zhang and K.K. Zhang	1929
Study on DC Double Pulse MIG Welding of Automobile Aluminum Alloy	
Z.D. Zhang and X.Y. Kong	1933
A Study of Temper Bead Technique on A508 Steel Welds	
W.C. Chung, L.W. Tsay and C. Chen	1938

Chapter 6: Surface Technology

Leveraging Heterogeneity Make Resource Location Efficient in Peer-to-Peer Networks	
Y.D. Gong, Y.X. Wen, H.P. Deng and Z.R. Gu	1945
Microstructure and Damping Property of the Composite Discontinuous NiTi SMA Thin Films Deposited on PZT Substrate	
Q.S. Liu, Z.J. Dong and D.Q. Kong	1951
Structural and Optical Properties of Zn_{1-x}Co_xO Thin Films Fabricated by Laser Molecular Beam Epitaxy	
J.Z. Yang, L.J. Fu, X.P. Qi and H.Y. Li	1958
Recent Developments in Microextraction Related Techniques for Trace Environmental Analysis	
L. Zhao, Z.H. Ma, D. Wang, L.G. Pan and J.H. Wang	1964
Growth and Field Emission Properties of the Carbon Complex Films	
J.H. Gao, Z. Li and W.Q. Zhang	1969
Modeling and Simulation Study on the Complex Seepage Mechanism of Porous Electrode for a Proton Exchange Membrane Fuel Cell	
H. He, P.T. Sun and Y.S. Xu	1972
Fabrication and Photocatalytic Activity of ZnO-TiO₂ Nanofibers	
J.F. Ju, D.H. Wu and Y.J. Shi	1978
Researches on the Treatment of the Row Hemp	
Y. Jiang, Y.H. Wang and L. Jiang	1982
Experimental Study of Heat Pipe Exchanger for High Power LED Cooling System	
Y.J. Gou, Z.L. Liu and X.H. Zhong	1985
Study on Properties of Bast Fibers	
L.H. Bai and H.Q. Yu	1989
The Dispersion of CNT and the Conductive Property of PA6/MWNTs Nanofiber Filaments by Electrospinning	
Y. Liu, J. Li and Z.J. Pan	1993
Study on the Application of Fringe Curling in Knitwear	
X.L. Song, W. Li, J.Y. Chen and D. Kai	1998
Effects of Temperature on the Impedance of PEM Fuel Cell	
Q. Liu, H. Sun, Z.N. Jin and L.H. Luan	2002
Microstructure of CrN-Based Nano Composite Solid Lubrication Films	
P. Zhang, Y.L. Di, Z.H. Cai and Y. Zhen	2007
Growth and Application of High Quality ZnO Films Grown on Diamond Substrates	
K. Tang, L.J. Wang, J. Huang, J.J. Zhang, W.M. Shi and Y.B. Xia	2011

Preparation and Study of Strong Magnetoelectric Coupling on Multiferroic BaTiO₃/La_{0.7}Sr_{0.3}MnO₃ Bilayer Heterostructure	
T.X. Li, M. Zhang, Z. Hu, K.S. Li, D.B. Yu and H. Yan	2015
Investigations on Properties of PE/PET Bicomponent Spunbonded Nonwovens	
J.J. Chen, Z. Guo, J.L. Chen and J.Z. You	2020
Ground Movement during Concrete Pipe Piles Jacking in Silt Deposit	
J.W. Liu, Z.M. Zhang, N.W. Liu and F. Yu	2024
Establishment of Ink Penetration Model and the Calculation of Penetration Depth inside Paper	
Y.G. Yang, S.H. Hu and F.P. Liu	2028
Effects of the Velocity of Ink Distributing Roller on Ink Tack Value	
Y.G. Yang, S.H. Hu and F.P. Liu	2033
Effect of Thermal Load on Mechanical Properties of Ni/YSZ Anode Support Micro Tubular Solid Oxide Fuel Cell	
Y.Q. Xu, L.L. Wang and Q.W. Zhang	2037
Gray Cluster Analysis on Thermal-Moisture Comfort of Bamboo Fiber Socks	
W. Zhang and Z. Liu	2041
Pb(II)-Imprinted Polymer Prepared by Graft Copolymerization of Acrylic Acid onto Cellulose	
C.X. Lin, M.H. Liu and H.Y. Zhan	2045
Thickness Dependence of Electrical Properties in Poly(vinylidene Fluoride Trifluoroethylene) Copolymer Thin Films	
L. Tian, S.Z. Yuan, J.L. Sun, X.J. Meng, J.L. Wang, J. Yang, W. Bai and J.H. Chu	2049
Definition of Cohesive Zone in COREX Melter Gasifier Using Image Processing Method	
L.H. Han, Z.G. Luo, X.L. Zhou, Z.X. Di, J.J. Sun, Z.S. Zou and Y.Z. Zhang	2057
Synthesis of NiCr Nano Oxides as Anode Electrocatalysts for Direct Methanol Fuel Cell	
C.H. Ren, Y.Y. Gu, Z.W. Guo and K. Feng	2066

Chapter 7: Common Aspects of Manufacturing

Research Progress of Stress Superimposing Method for Residual Stress Determination	
H. Xue, R.F. Li, R. Ge, H.C. Zhu and W.J. Peng	2073
Strength and Finite Element Analysis of the Boom System of Truck-Mounted Concrete Pump	
X.X. Zhou, Y. Cui, N.N. Ren, Y.L. Tang, S.J. Guo and R.L. Tian	2079
Research Progress and Perspective of Reduction Removal of Phosphorus in Steel Slag	
Y.Z. Zhang, T.L. Tian, H.W. Xing, J. Li and L. Sun	2083
Study on the Separation of Waste Polyester-Cotton Fiber with Dilute Acid	
W. Kong, Y.L. Yu and L.H. Lv	2088
Cracking Mechanism of RCC Dam Surface and Prevention Method	
Z.Y. Zhu, S. Qiang, M.Z. Liu and H.B. Wang	2092
Numerical Simulation of Fracture Process of Three-Point Bending Beam of Concrete Based on Modified Mazars Model	
A.M. Deng, L.M. Gou and D.Y. Xu	2097
Effect of Ultrasonic Vibration on Friction and Wear Properties of GCr15/45# Steel Frictional Pairs under Oil Lubrication	
Y.L. Qiao, S.L. Yang, Y. Zang and D. Wang	2102
Analysis of a New Magnetic Bearing for Magnetic Levitation Stages	
Y. Zhu, Y. Liu and M. Zhang	2106
Numerical Simulation of Temperature Field of Direct Laser Metal Deposition Shaping Process of Titanium Alloys	
Y. Kong, W.J. Liu and Y.C. Wang	2112
Research on the Dynamic Performance and Mechanical Model of the Single Rod MRD without Accumulator	
J.G. Du, W.H. Li, Y.S. He and X.L. Lv	2120
ADAMS MATLAB Co-Simulation of Dynamics Parallel Manipulator	
J.X. Wu, X.D. Qi, Y. Wang and D. Wu	2125

Failure Analysis of Drill Collar Box Fracture F.P. Li, Y.G. Liu and C.H. Lu	2129
Study on the Impact of Wind Load on Large Crawler Crane Typical Truss Structure T. Jiang, G.Y. Xue and Y.P. You	2133
Reliability Analysis of Large-Span Underground Cavern Stability in Jinchuan Mine Z.H. Liu, G. Gao and F.G. Xu	2137
Effect of White Noise and Dichotomous Noise in a Bistable System F. Guo, X.F. Cheng, X.D. Yuan and S.B. He	2143
Role of Time Delay and Noise Color in Bistable System with Dichotomous Noise X.F. Cheng, F. Guo, X.D. Yuan and S.B. He	2147
A Continuous Fluxless Purification Technique for Mg Scrap Melt J.L. Zha, S.Y. Xu, G.Q. You and S.Y. Long	2151
Acoustic Property Prediction of an Automobile Air Filter with Acoustical BEM H.Q. Xu, H. Zhou and C. Jin	2155
Research on Long-Span Old Bridge's Dynamic Reliability under Vehicular Load Y.J. Meng and X.Y. Zhou	2161
Towards Simulation of Fresh Granular-Cement Paste Material Behavior H. Hoornahad and E.A.B. Koenders	2171
Consistency Assessment Method for Granular- Cement Paste Systems H. Hoornahad and E.A.B. Koenders	2178
The Research of Angle Measurement between Cone and Support Rods Located at ICF Target X.J. Xu and X.Y. Dong	2185
Study on the Flutter Model of the Imaging Quality of TDICCD Space Camera W.N. Ye, J.H. Dong and X.W. Chen	2189
Synchronization Analysis of the Double Exciting Motors in Nonlinear Vibration System Based on Reaching Law X.H. Li and J. Liu	2197
Identify for Scroll Compressor Noise Using Vibration Signal Based on Neural Network Z. Wang, D.L. Chen and H.J. Zhao	2201
Study of Flotation Deinking Efficiency of Old Newspaper and Old Magazine R.G. Li, X.F. Xie and C.S. Zhao	2205
Numerical Simulation and Analysis of Hydraulic Excitation System Based on Water Hammer by the Method of Characteristics H.X. Zhang, Z.M. Kou, J. Wu and C.Y. Lu	2210
Numerical Simulation and Experimental Analysis of an Active Hydraulic Excitation System Based on Pulsating Flow Z.M. Kou, H.X. Zhang, J. Wu and C.Y. Lu	2216
The Investigation of the Influence of Dynamics Parameters on the Friction-Induced Self-Excited Vibration X.J. Meng	2223
Effect of Pre-Strain and Roller Working on Torsional Fatigue Properties of a Structural Steel C.L. Zhou	2227
The Research of the Influence of Damping on Automonile Brake Groan X.J. Meng and J.W. Li	2231
Potential Routes for Recycling and Reuse of Silicon Kerf Y.P. Xiao and Y.X. Yang	2235
Method to Construct Elementary Dependent Function Based on Weights of Characteristics Q.X. Li and B.H. Qiang	2241
An Approach to Real Exhibition of the Yarn Texture in the Simulation of the Fabric Appearance X.S. Tong	2245
AR Bispectrum Characteristics of Block Forming Machine's Vibration Driven by Hydraulic Exciter J.S. Zhuang, Y.J. Huang and F.S. Wu	2249

Numerical Simulation of Double-Deck Metal Cylindrical Tube Crashed under Inside-Explosive Loading S. Wang, D.Y. Li and H.T. Liu	2254
Grinding Wheel Carriage Mode Analysis of Vertical Glass Edging Machine H.H. Xu and X.L. Zheng	2257
The Effects of Rolling and Annealing on the High Speed Impact Deformation Behavior of Mg-3%Li-1%Nd Alloy T. Liu, G.Y. Sha, H.N. Wang, X.L. Wang, T. Yu and Y.H. Zhu	2261
Recovery Methods of Germanium W.K. Wang, J.H. Peng and Z.B. Zhang	2267
Research on Fault Diagnosis for Rotating Machinery Vibration of Aero-Engine Based on Wavelet Transformation and Probabilistic Neural Network W.J. Wu and D.G. Huang	2272
Effect of Oxygen Partial Pressure and Temperature on Liquidus for the CaO-SiO₂-FeO_x-Al₂O₃ System N. Wang, Z.S. Zou, Z. Zhang, Y. Xiao and Y. Yang	2279
On the Tensile Stress and Damage Accumulation during Equal Channel Angular Extrusion Z.J. Zhang and J.K. Park	2283
Thermodynamic Study on Production of Fe-Si-Mn Alloy from Adjusted Converter Slag Z. Tian, Q.X. Yu and M. Chen	2290
Dynamic Performance of the Bearing-Rotor System in the Ultra-High Speed Electric Spindle with a Additional Supporting System Make up of the Permanent Magnetic Bearings S.S. Li, H.W. Mao, P. Chen, X. Huang, P. Zhou and J. Chen	2294
Improving Design of Muffler Based on Three-Dimension Numerical Calculation of Fluid and Sound Field H.J. Zhao, J.D. Chang and H.J. Zhao	2300
Study on Seismic Response Reduction of a Long-Span Cable-Stayed Bridge by Adding Viscous Dampers at the Different Positions Z.Q. Li and Y.Y. Fan	2304
The Limitation of Evaluating Thermal Shock Resistance of Al₂O₃-SiO₂ Refractory by Measuring Strength Loss Rate X. Liu, D.L. Qu and Z.J. Li	2309
Study of the Multiaxial Fatigue Life Influencing Factors Based on the Critical Plane Approach P.M. Lv and C.J. Shi	2314
Simulation of the Temperature Distribution of Gradient Ti-TiB Composites Prepared by Spark Plasma Sintering Process S. Wei, Z.H. Zhang, X.B. Shen, F.C. Wang and S.K. Li	2321
Broadband Tunable Infrared Source and its Harmonic Generation P.F. Wei	2325
Recycling of Fiber-Metal Laminates Y.X. Yang, G.L. Zhu and Y.P. Xiao	2329
A Modified Implicit Iterative Difference Algorithm for Stiff Chemical Kinetic Equations in Complex Combustion System B. He, W.S. Nie, S.J. Feng and G.Q. Li	2333
Research of Laser Welding for Hot Rolling Strip Steel R.T. Zhong, Z.J. Huang and Y.T. Wang	2341
Safety Model Comprehensive Judgement Application for Dike Construction Risk Evaluation System Research Y.J. Wang, W.H. Zhang, W.L. Jin, C.Y. Wu and D.C. Ren	2345
Dissimilar Laser Welding of Ti-6Al-4V to Ti-6Al-6V-2Sn C.Y. Chiu, M.Y. Lu and L.W. Tsay	2353
Na-Bentonite Anti-Seepage's Ecological Technology and Ecological Effects in Urban River Bio-Remediation Q.Q. Qi and W.R. Zhu	2358
Comparison of Dry-Film and Zinc-Phosphate Lubricant for Tube Cold Forming Z.Y. Cheng	2362
Parametric Study on Fatigue Life Design of Shaft with Holes X.G. Wang, R. Li, W. Sun and T.H. Hyde	2366

Microstructure and Fracture Behavior of Ceramic Particle Reinforced Composite Bond with the Assistance of Ultrasonic Waves	
Y. Zhang, H.B. Qi and H. Zhu	2370
Policy Planning for Environmentally Sustainable Transport in Beijing, China	
Z. Wang and S.X. Yu	2374
Calculation of Sound Radiation Power at Two Ends of Duct System	
T. Feng, J. Wang, B. Liu, X. Wu and N. Li	2382
Effect of Plasma Nitriding on Ultra-High Cycle Fatigue Behaviors of Ti-6Al-4V	
R.H. Tian, Q.L. Ouyang and Q.Y. Wang	2386

Chapter 8: Manufacturing in a Competitive Environment

Synthesis and Characterization of Highly Cross-Link Polysiloxane Based on 2,4,6,8-Tetramethyl-2,4,6,8- Tetravinylcyclotetrasiloxane	
Y.T. Looi, R. Ramli, M.B.H. Othman and Z. Ahmad	2393
Force Calculation of Shunqiao Trench-Buried Inverted Siphon Structure	
D.Y. Ji and W.L. Ma	2396
Research of Stress and Deformation Distributions in Central Incisors Restored with Different Glass Fiber Post Types	
Z.X. Huang, C.F. Qian, P. Liu, X.L. Deng, Q. Cai and X.P. Yang	2400
CAD/CAM of the SPROCKET and the EFFICIENCY TEST	
S.L. Chang, C.P. Jiang, F.Y. Tasi, X.B. Hong, C.C. Chi and C.W. Shao	2406
Simulative Analysis for Reinforced Concrete Face Rockfill Dam of Qianqiao Reservoir	
D.Y. Ji and W.L. Ma	2413
Blast Pressure Analysis of a Pressure Vessel	
S.R. Yu, Y.H. Yin and B. Xu	2417
Stochastic Seepage Field Studies on Main Embankment of Yangtse Rive in Southern Jingzhou Zone of China	
Y.J. Wang, W.H. Zhang, W.L. Jin, C.Y. Wu and D.C. Ren	2422
Research of FWP Process Deformation Compensation Forecasting on the Basis of TS-FNN	
Y.H. Deng, G.X. Liu, Q.F. Liao, L. Zeng and L.M. Wu	2430
Optimization Study on FRP Bolt-End Structure Parameters	
Y.M. Li	2438
Wireless Monitoring and Scheduling System of Urban Water Supply Network	
Y. Yu, L.Q. Luo and D.Y. Lv	2442
Concurrent Design of the Petroleum Drilling Machine Based on PDM Platform	
Y.P. Sun, Z.F. Bao, C.Y. Wu, X.Q. Kang and W. Sun	2446
Experiment Study on Influence of Knowledge Acquisition Ability on Product Innovation Quality	
M.Z. Liu, Y. Hu and X.D. Zhang	2451
Research of System of High-Rise Building Steel Structure Construction Based on AHP-Fuzzy Comprehensive Evaluation	
H.R. Huang, J.Y. Guo, Y.J. Zhu and J.X. Zheng	2456
Reliability Study on Physical Layer of CAN Bus in Engineering Application	
F.H. Kuang, B.G. Xu and G.Y. Liu	2460
Study on Antenna Structure Technology for Realizing Passing Zenith Tracing	
Z.B. Gong, L. Shen, L. Liu, Y. Cao, W.J. Lu and Y. Li	2466
Research on Parametric Design of Dedicated Computer	
S.J. Li, Y.R. Zhang, B.B. Shen and H.X. Bi	2474
Optimum Design Study of Hydraulic Hatch Cover on Buckling Strength	
Y.L. Zhang and H. Zhang	2479
PLC Sequence Control System of Special Drill Machine	
Y.J. Jia and Y.B. Cheng	2483
Based on Pro/E High Speed Milling of Thin-Walled Stents of Research	
J.Q. Wang	2487
The Monitoring System of the Hoister Based on Virtual Instrument	
J. Yang	2492

An Accurate Exposure Time Measurement Method of CCD Cameras H.E. Luo, J.L. Gu, P. Chen, Y. Xia and B.M. Li	2496
Finite Element Optimization Design of the Drum of Storage Winch K.A. Yu, Y.Y. Wang and K.Y. Chen	2501
Research on Virtual Design System for Spindle of High-Speed Machining Center J.J. Qin, Y. Yin and C.Y. Dong	2506
Simulation of Kinematic Movement for Invert Arch Floor of Plunge Pool with Numerical Manifold Method Y. Zhang, A.Q. Wu and Z.H. Dong	2511
An Improved Genetic Algorithm Based on $K_2(m)$ Triangulation of Continuous Self-Mapping J.J. Zhang, H. Chen and R.Z. Gao	2515
A Novel CNC Grinding Method for Relief Surface Based on a CAM System X.F. Yue, F. Tang, S.Z. Li, Z.H. You and X.H. Wang	2521
Structural Optimization Based on Stochastic Finite Element Analysis and Optimality Criteria Methods W. Zhao, J.K. Liu and Z.R. Lu	2526
Wave-Induced Load Study on a Deck Barge Y.H. Xie, W. Wang and G.Q. Li	2531
The Impact of Meshing Transmission of Arc Gear by Hobbing Method and Central Distance Error Z.Y. Ren	2534
Research on Semi Physical Test System of PCU on Satellite F.F. Sun, W.D. Ye and C.P. Liang	2540
The Virtual Prototyping Design for AKD Rolled Steel Bundling F.H. Wang, B.Y. Ma and X.Q. Gao	2544
Mechanical System Dynamics Simulation of Crank Linkage Mechanism Based on Pro/E D.G. Chang and C.S. Zhang	2548
Velocity Measurement Based on Alternate M/T Method and Incremental Optical Encoder Z. Liu, J. Li, Y. Ke, Y. Zhao and J. Liu	2552
Research on Speed Optimization of ESPCP System under Different Conditions Based on Neural Network X. Luo, S.J. Wang and X.R. Lv	2556
Design of Experiment, Approximate Model and Optimization of a Muzzle Brake K. Jiang and H. Wang	2563
Research and Creation of Printing-Like Effect Digital Jacquard Fabric J. Zhou	2568
The SINS Algorithm Simulation Based on GUI G.Z. Li, J. Li, Q. Jiang and J. Liu	2572
Research on Parametric Design of Customized Products Based on Database X.M. Li, F.Z. Yan and K. Xu	2577
Discussion on the Modeling Design of New Times Table Lamp X.W. Jiang	2581
The Design of Calibration Software of Sensor Characteristics Based on LabVIEW X.T. Pan, M.F. Zhang and J.W. Cai	2585
Design and Research on New Type Fitness Washing Machine X.C. Cheng, X.W. Jiang and S.J. Liu	2589
Research on Brushless Permanent-Magnet DC Motor of Electric Scooter Based on Ansoft Q.P. Chen, H.Y. Shu, K. Ren and L. Peng	2594
Research on Rapid Detection of Vitamin C with an Optic Sensor B.S. He, X.Q. Li, C.Y. Zuo, D. Wang and J.S. Wang	2599
Quadruple-Arc Gear Design, Digital Processing and Carrying Capacity Test Z.Y. Ren	2603
The Application of 2nd Derivative in NIR and MIR Micro-Imaging of Two Plastic Materials D. Wang, Z.H. Ma, L.G. Pan, P. Han, L. Zhao, X.T. Li and J.H. Wang	2607
Quality Control in the Process of Drying Forming of Water-Soluble Plastic Film X.H. Hao and Y.Z. Xiao	2615

Fatigue Strength Analytical Study of Truck-Mounted Concrete Pump X.X. Zhou, N.N. Ren, S.J. Guo, Y.L. Tang, Y. Cui and R.L. Tian	2620
Research on the Wireless Multi-Point Temperature Acquisition and SD Card Memory System G.Z. Zhang, D.J. Yue, F.L. Ding and Y.Q. Xie	2624

Chapter 9: Other Related Topics

Research on Point-by-point Calculation Compensation Algorithm for Scanning Contours of Rapid Prototyping H.J. Liu and H. Gao	2631
The Key Technology in Extrusion Tapping of Internal Thread Y.Y. Li and S.D. Zhao	2636
Analysis of Aromatic Volatiles Utilizing a MEMS-Based Gas Chromatography Column Y.H. Su, C.Y. Lee and R.J. Yang	2642
Effect of B_2O_3 and CaF_2 on Viscosity of Ladle Refining Slag H.M. Wang, T.W. Zhang, H. Zhu, Y.Q. Yan and Y.N. Zhao	2647
Effect of Micro Scale on Prediction of Thermal Residual Stresses in Multilayer Ceramic Capacitors (MLCCs) W.G. Jiang, G.L. Li and Y.T. Gu	2651
Application of Six Sigma Method in Improving the Quality of the Spiral Bevel Gear L.L. Meng, C.G. Lu, X.Y. Xi and H.Z. Zhao	2655
Method of Spring Weight and Residual Value for Analyzing Bending of Laminated Skew Plates under Complex Stress State P.A. Shi	2661