

Table of Contents

Preface and Conference Organization

Chapter 1: Composites

Effects of Void on Physical Properties of Hygrothermal Conditioned CFRP A.Y. Zhang and D.X. Zhang	3
Flammability and Mechanical Properties of Intumescent Flame Retarded PP/EVA Composites Z.Z. Wang and S.H. Xu	7
Preparation and Characterization of Graphene/RTV Silicone Rubber Composites J. Dong, P.H. Wang, D.B. Sun, Y.L. Xu and K.P. Li	11
Role of Multiwalled Carbon Nanotube on Mechanical Reinforcement of High-Density Polyethylene X.R. Miao, Y.J. Qi, X.Y. Li, Y.Z. Wang, X.L. Li, F. Tian, H. Li, F.G. Bian, J. Wang and X.H. Li	15
The Mechanical Property of CFRP Laminates with Voids A.Y. Zhang and D.X. Zhang	25
The Static Mechanical Properties of Carbon/Epoxy Composite Laminates with Voids A.Y. Zhang and D.X. Zhang	29
Compressive Behavior of Spark Plasma Sintered CNT Reinforced Al2124 and Al6061 Nanocomposites N. Saheb	33
Bentonite Composite and Fibre A. Chegenizadeh and H. Nikraz	38
Exploration of Al Matrix Composites Reinforced with Al-Ti Intermetallics/Ti Metal Compound Spherical Agents L. Zhang, B.L. Wu and Y.H. Zhao	43
Linear Defect States of Phononic Crystal Thin Plates – An Application of Finite Element Method Z.J. Yao, G.L. Yu, Y.S. Wang and W.J. Hu	48
Effects of Delaminations on Vibration Characteristic for HT3/5224 Carbon Fiber Reinforced Laminated Plate W. Liang, Y.F. Liu and N.B. Yang	52
Electrical Property of Carbon Nanotubes/Epoxy Resin/Polyetherimide Composites with Inverted-Phase Structure D.Y. Xi, C.G. Ma, M. Liu and R. Shi	56
Fabrication and Microstructures of WC-Based Composites by Plasma Jet Metallurgy J. Chi, H.Q. Li, S.F. Wang, M. Li and J.N. Li	60
Microstructure and Wear Properties of <i>In Situ</i> Production of (Fe,Cr)₇C₃ Particulate Bundles Reinforced Iron Matrix Composites J.L. Tian, F.X. Ye, L.S. Zhong and Y.H. Xu	64
Preparation of High-Filled Talcum Masterbatch and its Application in Polypropylene N. Song, X.J. Zhang, C.Q. Ba and P. Ding	69
Selective Distribution of Carbon Black in Epoxy Resin/Thermoplastic Multiphase Composites R. Shi, C.G. Ma and M. Liu	73
Thermal Analysis for Fiber-Reinforced Composites Containing Inhomogeneous Interphase Subjected to a Radial Constraint Z.H. Ning and X.N. Liu	77
Synthesis and Properties of Flame-Retardant Waterborne Emulsion Derived from O-Cresol Formaldehyde Epoxy Resin J.X. Wei, G.L. Xu, J. Hu and J. Yang	84
A Comparative Investigation on Foamability and Structure of Al Foams Added with Precipitator and Cenosphere Fly Ash Particles A. Prapajaraswong and S. Asavavisithchai	89

Mechanical Properties and Morphology of Long Glass Fiber Reinforced PP Composites J.B. Guo, K.Z. Zhang, D.H. Zhang, B. Wu, M. He and S.H. Qin	93
Hydriding Characterization of $\text{La}_2\text{Mg}_{17}\text{-Ni}$ Composite Materials by Mechano-Synthesis Z.C. Liu, H.P. Ren, Y.M. Li, F. Hu, Z.W. Zhao and R.C. Gu	98
Preparation of TiC Hard Metal by Pressureless Infiltration Method T. Lin, Y.L. Shi and H.P. Shao	102
Character Alteration Research on Fe_3O_4 /PVA Susceptible Composite Film J. Chen and S.H. Hu	106
Effects of PP-G-MA and Epoxy Resin on Morphology and Mechanical Properties of the PP/LGF Composites K.Z. Zhang, Q. Guo, J.B. Guo and D.H. Zhang	110
Study on Properties of Epoxy Resin /Al_2O_3 Composites Y.J. Zhao, X.M. Huang, R.R. Dai, W. Zhang, Y.C. Wu, X. Shu and P. Xu	116
Studies on Curing Kinetics of Epoxy Resin / Modified Amine System D.B. Guan, Z.Y. Cai, X.J. Zhai, W.G. Yao, S.J. Wang, H. An and X.M. Qiu	121
Epoxy Resin (EP) / Nano-SiO_2 Composite Material Preparation by Two Processes Y.N. Zhao, X.F. Zeng and W.L. Zhang	127
Preparation of Stearic/Montmorillonite Composite as Form-Stable Phase Change Material Z. Li, M.G. Chen, D.X. Tan and J. Chen	131
Simulations and Experimental Validation of Compression Properties of SiC/Fe-20Cr Co-Continuous Composites Z.J. Lu and S.K. Lu	135
Numerical Simulations of Uniaxial Compression Properties of SiC/6061 Aluminum Alloy Co-Continuous Composites S.D. Liao and S.K. Lu	139
The Isothermal Simulation of the Un-Saturated Flow in the Dual-Scale Porous Media Y.J. Lee, S.L. Yan, X. Ye and Z.J. Feng	143

Chapter 2: Micro/Nano Materials and Ceramic

Diameter-Controlled Synthesis of Single-Walled Carbon Nanotubes T.K. Zhao, X. Zhao, J. Yan, L. Du and T.H. Li	151
Direct Electrodeposition of Highly Ordered Au-Cu Alloy Nanowire Arrays W. Zhang, X.M. Huang, Y.J. Zhao, Y.C. Wu, G.Q. Xu, K. Xu, P. Li and P.J. Zhang	155
Effect of High Shear Mixing Parameters and Degassing Temperature on the Morphology of Epoxy-Clay Nanocomposites M. Al-Qadhi, N. Merah, K. Mezghani, Z. Khan, Z. Gasem and R. Sougrat	159
Effects of Processing Techniques on Morphology and Mechanical Properties of Epoxy-Clay Nanocomposites N. Merah and M. Al-Qadhi	167
Evaluation of Residual Iron in Carbon Nanotubes Purified by Air and Acid Treatments J.W. Huang, H.T. Lin, F. Jiang and X.X. Yue	175
Experimental Studies on Micro-Characteristics of Nanocrystalline MgO G.J. Zhao	178
Formation Mechanism of Polyaniline Nanostructures in PEG Solution D. Zhang	182
A Modified Monte Carlo Method for Phonon Radiative Transfer in Nanoscale Materials Y.F. Han, X.L. Xia and H.D. Liu	188
Microstructure and Optical Properties of ZnS:Mn Nanocrystals J.H. Ma, C.Z. Wang and C.Y. Sun	192
Scallion-Root-Shaped GaN Nanorods Grown by Two-Step Method and Study on their Properties Y.P. Cao and H.B. Sun	197
Synthesis and Characterization of Carbon-Encapsulated Nickel Nanoparticles from De-Oiled Asphalt J. Yu and B.S. Xu	202
A Mild and Efficient Approach for the Reduction of Graphene Oxide Y.F. Wang, C.H. Han, B. Liu, D.M. Zhao, D.Y. Zhao and L.G. Sun	206

Compression Behavior and Mechanical Modeling of Nanocrystalline Ni under High Strain Rate Loading	
R.T. Zhu, D.Y. Dou and X.X. Zhang	210
Hollow Structure of CdSe by W/O Microemulsion Method	
C.Z. Dong, L.F. Zhang, S. Chen, M.X. Zhang, L. Feng, Z.M. Cui and Q.J. Zhang	215
Preparation and Characterization of Micron Silicon Dioxide Spherical Particles	
J.F. Wei, H. Zhang and F. Zhu	219
Preparation of Nitrogen Hybrid Ordered Mesoporous Carbons from Melamine-Phenol-Formaldehyde Resoles by Soft-Template Method	
W. Zhang, Y. Zhang and Y.J. Liu	223
Study on a Preparation of PS Hollow Submicro-Fiber by Coaxial Electrospinning	
T.Q. Liu, D. Lv, X.L. Zhao, N. Gao and N. Zhao	228
Comparison between Dextran-Coated Superparamagnetic Iron Oxide Nanoparticles and Magnetoliposome on Rabbit Corneal Endothelial Cells Labeling	
M.F. Wu, L.X. Lu, X.T. Sun, F. Du and Y.L. Bi	234
Preparation and Characterization of MnO₂ Loaded CuO Nanosheets	
H.B. Li, Y.D. Song and S.G. Chen	241
Preparation of Fe (III) – Amidoximated PAN Nanofibers Complexes for Degradation of Azo Dye under Visible Light Irradiation	
X.T. Zhao, Y.C. Dong, B.W. Cheng and W.M. Kang	245
Synthesis of Chitosan-Stabilized Gold Nanorod Using Tripolyphosphate	
H.N. Guan	250
Preparation of Nanoparticles of Calcium Oxalate Dihydrate	
W.B. Liang, W.Y. Zhu, F.X. Wang and J.M. Ouyang	254
Preparation of Dandelion-Like Nano/Micro Zinc Oxide Material	
Y. Liang	258
The Research on the Photocatalytic Performance of one Kind of Nano Zinc Oxide	
Y. Liang	262
Molecular-Dynamics Simulation of Structure Change for a Molten Cu₂₉₇ Nanocluster during Rapidly Quenching	
N. He and S.N. Xu	267
Synthesis of ZnO Nanowires for Hydrogen Sensor Application Using Simple Heating Technique	
Z.A. Ali, W.A. Ismail and R. Puteh	272
Preparation and Characterization of Shellac/Polyvinylpyrrolidone Nanofiber as a Material for Medical Application	
T. Thammachat, S. Tabcharoen and S. Soradech	278
Stable Dispersed Graphenes Prepared by the Reduction of Graphene Oxides with Mercapto Acid	
Y.F. Wang, X.J. Cao, M.Q. Zheng, D.M. Zhao, D.Y. Zhao and L.G. Sun	282
A Study on Crystallization of Fused Silica/Zirconia Ceramic Composites	
Y.W. He, R.S. Wang, J.L. Bu, J.X. Chen and Z.F. Wang	286
Lamination of Green Ceramic Tapes in the Manufacturing of Multilayer Ceramic Devices	
S.H. Wang, D. Zhou, Z.X. Hou, M.H. Wang and X.D. Hu	290
Performance Study of Composite Clay Instead of a Single Plastic Clay	
L.F. Zhang, S.J. Xiao, S. Chen, X.G. Chen, C.Z. Dong and Y.B. Zhang	294
Predicting the Mechanical Properties of Electric Porcelain Using ANN and MLR	
L. Qiao, L. Chen and C. Li	298
Effects of the Content of ZrO₂ Nanoparticles on the Microstructure and Properties of Al₂O₃-TiC-ZrO₂ Micro-Nano-Composites	
W.M. Liu, J. Zhao and Y.H. Zhou	304
Research on Mullite-Corundum-Aluminium Titanate Composite	
Y. Huang, J.L. Bu, Y.J. Chen and Z.F. Wang	308
Research on Polymerization of PMN-PZT Piezoelectric Ceramic by Gelcasting Using NMAM System	
P. Zhou and J.H. Du	312
Sol-Gel Preparation and Infrared Radiation Property of Zinc-Substituted Cordierite Ceramics	
X. Wang, B.X. Jiao, X. Zhang, J.H. Luo and H. Guan	316

Size Influence on Magnetic Properties of Nickel Hollow Spheres Z.B. Li, R.R. Wang and Y.D. Deng	321
Preparation and Microwave Absorbing Performance of Co-Cu-Ni Ferrite/Multi-Walled Carbon Nanotubes Composites Q.S. Xiao, B. Hao, L.C. Li, M.Y. Mao, Y. Zhou and F. Xu	327
Characterization and Properties of UV-Cured Epoxy Acrylate/POSS Nanocomposites Y. Wang, X.X. Xue and F.G. Liu	331
Facile Preparation of Polylactic Acid/Ketoconazole Composite Microspheres by Oil/Water Solvent Evaporation Method Y.H. Zhang, Y. Wang, X.C. Kong, Q.K. Cheng, X.Y. Yang and Q.W. Wang	335
Electrical Properties of Pt Nanowires Deposited with Focused Ion Beam Y.J. Ma	339
Structural Stability and Electronic Properties of Fe-Doped B₁₃C₂: First-Principles Investigation Y.W. Qin and S.K. Lu	344
The Preparation and Study of Graphene Supported Co_xMn_{3-x}O₄ Nanocomposites as Advanced Oxygen Reduction Reaction Electrocatalyst Q.P. Zhao, J.T. Jin, C.L. Li, Z.M. Wang, J.Y. Zhang, Q. Ma and J.F. Cui	348
Shape-Controlled Synthesis and Pattern Recognition of Dendritic Co₃O₄ Superstructures M.L. Wu, L.M. Zhang, T.H. Gu, N. Qian, W.J. Ma and W.C. Lu	352
Oxidation Resistant of Silicon-Boron Pitch Carbonization Product X.H. Zuo, X.K. Li, Z.J. Dong, G.M. Yuan and Z.W. Cui	356
Study on the Influence of Porous Anodic Alumina Membrane on Separation of Hydrogen and Methane Q.P. Yang, X.B. Zhao and X.L. Wang	362
Effects of Solid Content on Properties and Structure of PMN-PZT Green Body by Gelcasting P. Zhou and J.H. Du	367
Characteristics of Alumina Films Formed by the Annealed Aluminum Films at High Temperatures in Air J. Lv	371

Chapter 3: Polymers and Biomaterials

Rheological Properties and Crystallization Behavior of Poly(trimethylene Terephthalate) Blends with PBPCS K.Y. Wang and F. Cao	377
Preparation and Properties of Copolyimides Containing Fluorine and Alicyclic Group Y.H. Lu, G.Y. Xiao, Y. Dong, Z.Z. Hu and L.N. Luan	381
Preparation of PMAM-B-PNVP and its Hydrolysate by RAFT Polymerization: Structure Characterization and its CO₂ Permeation Performance J.N. Shen, J. Li, T.T. Jiang and H.M. Ruan	386
Synthesis of Cellulose-Graft-Poly (L-Lactide) via Ring-Opening Polymerization and Degradability Research L. Dai, S. Xiao, B.C. Qinshu and J. He	398
Screening and Identification of β-Glucosidase Producing Strain of Fusarium Oxysporum J. Chen, D.F. Dai, X.L. Gu and L. Yuan	402
Study on Formula of New Type Flame Retardant Polyethylene F. Tian, Y.R. Ni and C.H. Su	406
Study on the Preparation and Properties of the Phosphorus-Containing Flame Retardant PET Copolymer X.X. Feng, M.J. Liu and J.C. Zhang	410
Branched and Responsive Antimicrobial Polymers Based on Modified PVA for Functionalizing of Cellulose Fibres Y.F. Pan, H.N. Xiao and C. Beh	414
Graft Copolymerization of Glycidyl Methacrylate/Styrene onto Polypropylene in Solid State Y.Y. Rui, S.S. Chen, W.Q. Yin, W.Y. Qi, X.R. Wu and C.B. Yu	418

Maleic Anhydride Grafted Polymers Toughening and Flame Retardant Polystyrene Study on Modification	423
C.G. Zang, X.P. Cao and J.C. Zhang	
R-ATRP of Acrylamide under the Action of Copper Complex System in Aqueous Two-Phase	430
K. Liu, Y.F. Cao, Y. Li, Z.L. Liu and F.Z. Tan	
Study on Hydrolysis Conditions of Flavourzyme in Soybean Polypeptide Alcalase Hydrolysate	435
Y.S. Ma, L.T. Wang, X.H. Sun, B.C. Ma, J.W. Zhang, F.Q. Gao and C.L. Liu	
Study on Soybean Polypeptide Refining Process	439
Y.S. Ma, L.T. Wang, X.H. Sun, L.Y. Li, J. Sun and R.Q. Song	
Comparison of Different Extraction Methods for Antioxidant Property of Flavonoids from Pomelo Peel	443
Q.M. Ru, R.F. Cai and J.Z. He	
A Novel Effective Y-Shaped Silicon Stent for Treating Canalicular Laceration	449
X.T. Sun, Q. Zhou, F. Du, M.F. Wu, S.F. Tang and Y.L. Bi	
Extraction of the Pectin from Virginica Stem Bark and Study on its Structure and Composition	454
L.S. Fan and L. Zhao	
Synthesis and Properties of Biodegradable Liquid Crystalline Poly(ester-Urethane)s Based on Poly(L-Lactic Acid)	459
Y.T. Guo, Z. Zheng, Z.Q. Hou and J. Du	
Preparation, Characterization of Substituted Aromatic Heterocyclic Phosphate Salts and the Application in Isotactic Polypropylene	463
L.J. Long, W.T. He, M.M. Zhang, K. Zhang, M. He, S.H. Qin and J. Yu	
Preparation and Research of the Multifunctional Heat Stabilizer with Rare Earth Used in PVC Products	470
Y. Guo, Y.L. Zhang, Q.L. Chen and C.B. Fu	
The Microstructure of Polyurethane (PU)/Ethylene-Vinyl Acetate (EVA) Polymer Lastomer of Analysis	475
Y.B. Li and J.T. Huang	
Zinc Hydroxystannate-Coated Mineral Grade $Mg(OH)_2$ as Flame-Retardant and Smoke Suppression for Flexible PVC	481
C.Z. Wang, W.H. Wu, X. Ye and L. Liu	
Flame Retardant Low Density Polyethylene with Aluminium Hydroxide/ Commercial Fire Retardants FR01 Synergistic System	485
N.N. Wang, D.H. Xiang, P.S. Mo and Y. Lu	
Construction of Dendritic-Linear Brushes on Silica Nanoparticles by Electrostatic Assembly	490
B. Shi, L. Liang, B. Lin and M.H. Qi	
Study on the Optimization of Copolymerization Conditions of LASP/AA/AM Polymer	495
J.L. Liu, A.L. Tan, L. Chen and Y.D. Cui	
Nonisothermal Crystallization Kinetics of Isotactic Polypropylene Filled with a Novel Nucleating Agent	501
N. Xu, L.S. Pan, S.J. Pang and Q. Lin	
Assessment of Functionality of Aged Cables at Loading by Heat Flux	508
I. Turekova, J. Harangozo, Z. Turnova and K. Balog	
Experimental Research on Co-Gasification of Crude Glycerin and Corn Cob	512

Chapter 4: Optical/Electronic/Magnetic Materials

Microstructural, Optical and Electrical Properties of ZnO:Sn Thin Films Deposited by Sol-Gel Method	519
J. Chen, Y.H. Hu, H.H. Hu and Y.C. Chen	
Optical Constants of Quartz Glass in 1.34-4.20μm Spectral Range	523
D. Li, Q. Ai and X.L. Xia	
Optical Studies of Poly (N-Carbazole) (PVK) Blending with Polyvinylpyrrolidone (PVP) Using Tauc/Davis-Mott Model	527
A.N. Alias, T.I.T. Kudin, Z.M. Zabidi, M.K. Harun, A.M.M. Ali and M.F. Yahya	

Refractive Index Dispersion and Optical Dielectric Properties of Poly(N-Carbazole)/Poly(vinylpyrrolidone) Blends	
A.N. Alias, T.I.T. Kudin, Z.M. Zabidi, M.K. Harun, A.M.M. Ali and M.F. Yahya	532
The Potential Realization of Solar-Blind Ultraviolet Detecting Using ZnO-Based Alloy Thin Film	
X.R. Deng and H. Deng	537
Two-Photon Absorption Properties of s-Triazine Derivatives With Near Octupolar Symmetry	
Y.Z. Cui, Y. Zhang, L.L. Zhou and F. Yu	542
Combustion Synthesis of $\text{CaMoO}_4\text{:Eu}^{3+}$, Li^+ Red Phosphors Using Urea-Thiourea Mixture Fuels	
X. Wang, Y.Z. Feng, G.H. Peng, Z.H. Liang and X.B. Han	546
Excitation and Emission Properties of Poly(N-Carbazole)/Poly(vinylpyrrolidone) Blends Characterized by Fluorescence Spectroscopy	
A.N. Alias, T.I.T. Kudin, Z.M. Zabidi, M.K. Harun, A.M.M. Ali and M.F. Yahya	550
First-Principle Calculation on Misfit Layered Cobaltite and La-Doped Series	
X.M. Min and X. Wang	554
Fluorescence and Energy Transfer in $\text{Er}^{3+}/\text{Nd}^{3+}$ Co-Doped Oxyfluoride Tellurite Glass	
Z.X. Hou, Z.L. Xue, S.H. Wang, M.H. Wang and X.D. Hu	559
Hollow Spherical $\text{CaMoO}_4\text{:Eu}^{3+}$, Li^+ Phosphors Prepared by Spray Pyrolysis	
X. Wang, C.C. Liu, Z.H. Liang, G.H. Peng and X.B. Han	563
Influence of Coating Content on the Magnetic Properties of Iron-MnZn Ferrite Soft Magnetic Composites	
S. Wu, A.Z. Sun and W.H. Xu	567
Preparation and Characterization of $\text{SrAl}_2\text{O}_4\text{:Eu}^{2+}$ by Microwave - Combustion Method	
H.L. Yu	572
Study of Structural and Electrical Transport Properties of Polycrystalline $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ ($x=0.33, 0.5$ and 0.9) Prepared by a Co-Precipitation Method	
M. Theingi, J. Ma, H. Zhang, X. Gao, J.H. Yi and Q.M. Chen	576
Synthesis of High Brightness Red Long Persistent Phosphor ($\text{Sr}_{1-x}\text{Ca}_x$)S: Eu, Dy by Sol-Gel Thermolysis Method	
X.B. Han, Y.Z. Feng, G.H. Peng, Z.H. Liang and X. Wang	581
An Oxide-Diluted Magnetic Semiconductor: Co-Doped ZnO	
T. Li, Q. Jie, Y. Zhang, Y.X. Wang and X.C. Ni	585
First-Principles Calculation of Electronic Structure of the Cu-Doped Pyrite FeS_2	
J.L. Fan and S.K. Lu	590
Growth of ZnO Films on Si(111) by Metalorganic Chemical Vapor Deposition with AlN and Low-Temperature ZnO Double Buffers	
C.D. Zheng, L. Wang, W.Q. Fang and F.Y. Jiang	594
Hydrothermal Synthesis and Photoluminescence Properties of $\text{Ca}(\text{MoO}_4)_x(\text{WO}_4)_{(1-x)}$ Microcrystallines	
Y. Zhao, Y.Y. Wei, D. Qin, X. Lai, Y. Wu, M.J. Liu, D.J. Gao, J. Bi and G.L. Xu	599
Measurement Error of the Coercivity H_{cj} of NdFeB Permanent Magnet Caused by Air Gap	
W.H. Xu, A.Z. Sun, S. Wu, J. Yang, C. Zou and J. Dong	607
Numerical Simulation of the High Gain and Low Breakdown Voltage InGaAs/InP Avalanche Photodiode	
D.P. Hu, D.Y. Xiong and F.M. Guo	612
Optical Properties and Defect Study of Ca^{2+} Co-Doping $\text{Lu}_2\text{Si}_2\text{O}_7\text{:Ce}^{3+}$ Single Crystal Scintillator	
H. Feng, G.H. Ren, D.Z. Ding, H.Y. Li and F. Lei	616
Preparation and Research on Luminescent Properties of Eu-Doped $\text{TiO}_2\text{-ZnO}$ Composite Powders	
B.X. Jiao, M.T. Li, X. Zhang and X. Wang	622
Preparation of CsI(Tl) Scintillation Film by RF Magnetron Sputter Method and its Structural and Optical Characterization	
H. Feng, C.L. Chen, M. Chou, G.H. Ren and J.Y. Xu	628
Study on $\text{Y}_3\text{Al}_5\text{O}_{12}\text{:Eu}^{3+}$ Phosphor Coated by Bi_2O_3	
X. Zhang, S. Wang, B.X. Jiao and X. Wang	634

Exposure Schedule for Uniform Diffraction Efficiency of Partially-Overlapping Multiple Holograms in Dual Monomers Photopolymers	
W. Song, S.Q. Tao, D.Y. Wang, Y.X. Wang and L. Marx	638
Fabrication of Silicon Nanowires by Electroless Etching for Thermoelectric Application	
H.L. Tsai	642
The Growth and Optical Properties of CdS Nanorods via Solvent-Thermal Route	
J.H. Duan, Z.Y. Xu and H. Feng	647
Characteristics of Silicon Nanowire Field Electron Emission	
H.L. Tsai	654
The Study of Au/TiO₂/Au Resistive Switching Memory with Crosspoint Structure	
A. Yan, G. Liu, C. Zhang and L. Fang	659
Novel Preparation Method and Luminescent Properties of Eu³⁺ Doped CdWO₄ Nanorod	
F. Lei, H.H. Chen, Y. Shi, J.J. Xie and H. Feng	664
Combustion Synthesis of Nanocrystalline Y₂O₃S: Eu³⁺, Mg²⁺, Ti⁴⁺ Red Long-Lasting Phosphors Using Mixture Fuel of Thiourea and Citric Acid	
X.B. Han, X.G. Li, G.H. Peng, Z.H. Liang and X. Wang	669
Study on Bilayer-Type ZTO Thin Films Prepared by MOCVD	
Y. Xu, P.H. Ma and M.N. Liu	673
A Novel Demultiplexing Photodetector with Integrated Vertical Conical Structure	
Q. Liu, Y.Q. Huang, X.F. Duan, X.Y. Fan, X.M. Ren, Q. Wang, S.W. Cai and X. Zhang	677
Preparation and Properties of ZnO@ZnS Nano-Array Core-Shell Structure with Different Concentration of TAA	
A.D. Yuan, Y.L. Zhang, W.G. Yang, J.R. Li, Y. Liao, W.M. Shi and L.J. Wang	683

Chapter 5: Chemical Materials and Technologies

Synthesis of Diaryl Pyrrolones Derivatives as Combretastatin A-4	
L. Wei and G.Y. Lu	689
Mechanochemical Assisted Synthesis of Titanium Silicalite-1	
J. Zhang and S.R. Qiao	693
Preparation of Controlled Release Urea and its Release Characteristics	
S.X. Hao, X.Y. Liu and Z.X. Yu	698
The Effect of Density on Polyesterification Kinetics of Neopentyl Glycol/Maleic Anhydride System	
X.N. Shi, B. Wu and W.L. Zhang	703
An Investigation on Properties of Sn-SBA-16 Synthesized without Mineral Acid Added	
J.F. Wu, Y.M. Zhao and P. Liang	707
Catalytic Dehydrogenation Reaction Activity of Cyclohexanol over Cu₂O/Mg(OH)₂ Catalysts	
Y.Q. Wang, D.D. Wang and M.N. Liu	711
Development Toxicity and Degradation of Diethyl Phthalate	
X.J. Hui, S.S. Li, J.L. Liu, B. Liu, X.Y. Cao and W. Yang	717
Phosphotungstic Acid, Silicotungstic Acid and Silicon Tungsten-Cobalt Heteropoly Acid with Bovine Serum Albumin Interaction	
W.Y. Shen, M.X. Song, J.Q. Chen and R.X. Guo	722
Study on Compound Corrosion Inhibitor of Aluminum in Salt System	
Y.L. Wei, Y.Q. Tian and X.H. Yang	726
The Parameters of Preparing Polyaniline Doped by Hydrochloric Acid	
R.C. Fu, H. Huang and Z.C. Guo	730
A Novel Formula of Diverting Acid System and Application	
Y.M. Li, X.P. Zhang, Q.W. Zhang, Y. Gong and J.Z. Zhao	734
Preparation of Hollow Microsphere and its Application in Paper Coating	
L.Q. Jin and Q.H. Xu	740
Preparation of Low-Sulfur Expanded Graphite with Different Size Particles	
C.Y. Wang, H.R. Li, C.L. Qin and P. Zhang	745
Comparative Study on Compositions of Oil-Water Transition Layer before and after ClO₂-Treatment Process	
D.D. Yuan, H.J. Wu, H.X. Sheng, X. Sui and B.H. Wang	749

Optimal Design for ASP of Mixed Surfactants with Rhamnolipid Y.K. Liu, A.Q. Shen and Y. Zhu	753
Thermal Degradation Study of Lithium and Potassium Iodide/Epoxidized Natural Rubber Polymer Electrolytes T.W. Leng, Y.X. Yeoh and M. Abu Bakar	757
Synthesis and Evaluation of a New Type of Cationic Gemini Surfactant Q.W. Liu, Y.H. Zhu, G.Z. Han, Z.Z. Fan, J.G. Wang and Q.Q. Du	765
Characterization and Synthesis of a Betaxolol Hydrochloride Intermediate F.Y. Xu and G.Z. Fang	770
Cu(OH)₂/N-TiO₂ Compound Heterojunction Photocatalyst: Preparation, Characterization and Photocatalytic Properties X.S. Zhou, B. Jin and B. Yang	774
Preparation of Three-Dimensionally Interconnected Meso/Mesoporous Ho³⁺ Doped TiO₂ Nanoparticles with Enhanced Photocatalytic Activity W. Yin	779
Research on the Influence of PEG to the Nuclei Population Density of Copper Electrocrystallization Q.M. Wang and F.Y. Sun	787
Preparation of La₂(WO₄)₃ by Two Step Method and Characterization Z. Hu and H.L. Yu	791
The Synthesis and Characterization of Zinc Borate Zn₂B₆O₁₁·7H₂O X. Liu, S.J. Bian, D.D. Gao, Q.F. Meng, M. Wei and W. Li	795
Synthesis and Characterization of Bridged Amine-Functionalized Mesoporous Organosilica Materials Q.H. Zhang, D. Lian, X.Q. Li and H. Tao	799
A Density Functional Study of PdC_n(n= 2-12) Clusters Y. Wei, J.X. Xu, X.M. Yuan and X.H. Zheng	815
Optimization of Membrane Electrode Assemblies Anode of a Micro Direct Methanol Fuel Cell by Mathematical Modeling C.G. Suo, W.B. Zhang, H. Wang and G.M. Wu	819

Chapter 6: Energy Materials

LiMn₂O₄ Prepared by Liquid Phase Flameless Combustion with F-Doped for Lithium-Ion Battery Cathode Materials M.W. Xiang, X.Y. Zhou, Z.F. Zhang, M.M. Chen, H.L. Bai and J.M. Guo	825
Combustion Kinetics Characteristics of Dry Distillation Coal Tar B. Liu, Z.M. Shi, J.Q. He and H.F. Xu	831

Chapter 6: Energy Materials

Experimental Research on Producing Shale Oil through Thermal Cracking of Small-Particle Oil Shale Z.Y. Yuan	839
Structures of Li_{1+x}Mn_{2-x}O₄ Synthesized by Different Methods X.H. Liang, T.J. Liu and X.M. Hua	844
Effect of Cr Doping on Electrochemical Performance of LiMn₂O₄ Z.F. Zhang, M.M. Chen, M.W. Xiang, L.L. Feng, Y.J. Zhang and J.M. Guo	848
Electrochemical Behaviors of Different Grades of Pure Aluminum in Alkaline Solution Z.X. Yu, S.X. Hao and Q.S. Fu	853
Effects of Polyethylene Glycol on Agarose-Based Magnetic Polymer Electrolyte for Dye-Sensitized Solar Cell X.Y. Guo, P.F. Yi, W.J. Wang, S. Xiao and Y. Yang	860
Structure and Electrochemical Performances of LiFePO₄/C Composite Cathode Coating with Different Carbon Sources for Lithium Ion Batteries C.L. Fan, S.C. Han, L.F. Li, Y.M. Bai, K.H. Zhang, J. Chen and X. Zhang	865

Study on Low-Temperature Oxidation Process of Low Rank Coal by <i>In Situ</i> FTIR X.X. Zhong, G.L. Dou, H.H. Xin and D.M. Wang	871
Synthesis and Performances of a Fe-Site Doped Lithium Iron Phosphate H. Xie and J.Z. Liu	877
Synthesis of (Ba,Ti)-Doped Apatite-Type Lanthanum Silicate Nano-Sized Powders via Microwave-Assisted Sol-Gel Auto-Combustion Route R. Wu, J.M. Ye, Q.Z. Li, S.Y. Wang, X.L. Chen, J.M. Yang, G. Tan, J.L. Liu and M. Zhang	882
Sheet-Shape Specimen Creep Behavior and Microstructure Analysis of Ni-Based Alloy C276 at High Temperature X.P. Mao, S.Y. Zhang, Y.Z. Ni, X. Wang and Y. Yu	886
Synthesis, Characterization and Electrochemical Properties of $\text{Li}_{1+x}\text{Mn}_2\text{O}_4$ Spinel Prepared by Solution Combustion Synthesis B. Li, M.M. Chen, H.L. Bai, X.Z. Huang and J.M. Guo	891
Research Progresses of Two Kinds of Novel Electrolyte Lithium Salts: Lithium Bis(oxalato) Borate and Lithium Oxalyldifluoroborate T. Yu, H.M. Zhang, X.L. Xu, X.L. Cui and L.P. Mao	896
Surface Passivation of Silicon Wafers by Iodine-Ethanol (I-E) for Minority Carrier Lifetime Measurements J.W. Chen, L. Zhao, H.W. Diao, B.J. Yan, S. Zhou, Y.H. Tang and W.J. Wang	901

Chapter 7: Iron and Steel

Alloy Design and Microstructure Control for the Production of Heavy Ductile Irons Used in Large-Scale Windmills Y.N. Pan, C.C. Lin and R.M. Chang	909
Corrosion Behavior of Low-Alloy Steel in COT Upper Deck $\text{O}_2\text{-CO}_2\text{-SO}_2\text{-H}_2\text{S}$ Moisture Environment J.M. Liang, D. Tang, P.C. Zhang, H.B. Wu, H.Y. Mao and X.T. Liu	916
Effect of Different Strain on Microstructure Evolution of Medium Carbon Steel P. Tian, Z.Y. Zhong, W.J. Hui, R.G. Bai and X.L. Zhang	923
Effect of Phosphorus Contents on Texture and Grain Boundary Character for the Annealing High Strength Ti-IF Steels X.L. Song, K. Peng, P.P. Zhang, J.Y. Wu, J. Zhou, J. Jia and L.X. Fan	929
Influence of Rare Earth on Microstructure of 20MnCrNi2Mo Wear-Resistant Cast Steel Y.P. Ji, H.B. Guo, X.Q. Zheng, Z.L. Jin and H.P. Ren	934
Oxidation Behavior of a TP304H Stainless Steel in the High Temperature and High Pressure Water Vapor W. Wang, Z.W. Wang, W.L. Zhong, T. Song and Y.S. Hu	938
Study on Metal Thermal Reduction of Caustic Calcined Dolomite Based Compound Desulfurizer S.J. Wang, R. Fu, X.S. Zhang, J. Li, C.C. Zhou and J. Pan	942
Continuous Cooling Transformation of Overcooling Austenite and Structure Evolution of Si Steel H. Li, Y.L. Feng, D.Q. Cang and M. Song	947
The Evolution of M/A in Ultra-Low Carbon Bainite Steel Y. Nie, C.J. Shang and X.L. He	952
Sulfides Precipitation during Transformation of a High Sulfur Alloy Steel X.Z. Lu, R. Wu, P. Liu and H.T. Wu	958
Application of Frumkin Isotherm for Carbon Steel Corrosion in Soil Media A.W.M. Sa'adan, M. Aziz and R. Sundari	963
Transformation Behavior of Austenite Continuous Cooling of Nb-Ti Micro-Alloyed Low Carbon Steel J.C. Bao, J.X. Ma, J. Zhao and B.Q. Ning	967
Effect of Ultrasonic Inoculation Treatment on Distribution of Sulphur in Fe-S Alloy J. Li, X.L. Wang, C.C. Zhou, G.L. Wang and C.L. Ge	971
The Microstructure and Elements Distribution of High-Chromium Hypereutectoid Steel by High-Temperature Homogenization J. Man, Y.T. Yang and G.J. Shao	975

Study of V₂O₅ Direct Alloying Reductants M.J. Dai, J. Liu, Z.H. Gan, Z.H. Lu, Z.X. Yuan, W.C. Yang and H. Zhou	981
Process Design Strategies for Producing Heavy Section Steel with Improved Quality J.W. Zhao, Z.Y. Jiang, D.B. Wei and C.S. Lee	988
Development of Domestic Prehardened Plastic Mould Steel Y. Luo	992
Study on Antibacterial Properties of SUSXM7 Cu- Bearing Austenitic Stainless Steel Y.M. Zhang, K. Qin, Q.P. Du, J.Q. Huang, G.G. Shuai and X.H. Jie	997
The Evolution of Deuterium Bubbles in Iron under Electron Irradiation S.N. Jiang, Y. Long and J.X. Sun	1002

Chapter 8: Metal Alloy Materials

Effect of Temperature on Structure of Outer Fe Oxide Layer of Fe-2.2Si Alloy X.J. Liu, G.M. Cao, Y.Q. He, T. Jia and Z.Y. Liu	1009
Effects of Alloy Composition and Annealing Treatment on the Performance of Aluminum Conductor W.P. Chen, Y. Su, P. Hu and Y. Jiang	1016
Effects of Ce, Mn, Cr on the Microstructure and Properties of High-Iron Eutectic Al-Si Piston Alloy P. Hu, Y. Su, W.P. Chen and Y. Jiang	1023
Effects of Si, Cu and Mg on the High-Temperature Mechanical Properties of Al-Si-Cu-Mg Alloy W.D. Zhang, J. Yang, J.Z. Dang, Y. Liu and H. Xu	1030
Effects of the Aging Time and Temperature on the Microstructures and Mechanical Properties of 6082 Aluminum Alloy Extrusions T. Wu, X.F. Ding, J. Sun, W.D. Zhang, D.B. Sun and L.C. Wang	1035
Influence and Theory Analysis of Ti, Zr, B on the Refining Effect of Aluminum Alloy S.S. Liang, S. Yang and S. Zhang	1043
Effect of Heat Treatment on Microstructure and Mechanical Properties of A390 Alloy B. Li, Z.F. Zhang, Z.G. Wang, J. Xu and Q. Zhu	1049
Effects of High Co Contents in Fe-Cr-Mo-C-B-Y Alloy on the Glass Forming and the Mechanical Properties Q.J. Chen, J.L. Liu, X.L. Zhou, J. Shen and X.Z. Hua	1054
Influence of Gd Content on the Microstructure and Mechanical Properties of Zn-Al-Mg-Si Alloy A.L. Wei, X.H. Liu, K.Y. Zhang and W. Liang	1059
Tensile Properties of a Cast TiAl Alloy with Directional Lamellar Microstructures S. Li, C.L. Zhu, R. Cao and J. Zhang	1063
The Divacancy Formation Energy for B2 FeAl Alloy Simulated with Finnis-Sinclair many-Body Interatomic Potential Y.H. Wang, Y.X. Liu and X. Wang	1067
An Investigation on Grain Refinement Mechanism of Master Alloys Al-Ti, Al-TiC and Al-Ti-C Toward Pure Aluminum W.W. Ding, J.T. Zhu, W.J. Zhao and T.D. Xia	1072
Effect of Heat Treatment on Microstructure and Properties of Ti-6.5Al-1.5Mo-2.5V-2Zr Titanium Alloy B. Zhou and S.Z. Zhang	1076
Effect of Si Content on Deformation Behavior of DC Cast Al-Si Alloys C.X. Wang, F.X. Yu, D.Z. Zhao, X. Zhao and L. Zuo	1080
Microstructure and Mechanical Property of the Directionally Solidified NiAl-Cr(Mo)-Hf/Ho Alloy P. Han, Y.H. Qi, J. Meng and J.T. Guo	1084
Research on Corrosion Rate Prediction of Aluminum Alloys in Typical Domestic Areas Based on BP Artificial Neural Network L. Li, P. Qiu, S.B. Xing and X. Su	1088

The Precipitation Behavior of γ' Phase in Superalloy FGH96 during Continuous Solution Cooling Conditions	
H.S. Liu, L. Zhang, X.B. He, X.H. Qu, Z. Li and G.Q. Zhang	1092
<i>In Situ</i> Study of Stress-Induced Martensitic Transformation in $\text{Ni}_{47}\text{Ti}_{44}\text{Nb}_9$ Shape-Memory Alloys	
H.T. Liu, G.A. Sun, Y.D. Wang, B. Chen, X.L. Wang and Q. Tian	1096
Investigation of Porous NiAl Intermetallics Prepared by Self-Propagating High-Temperature Synthesis	
J. Wu, H.Z. Cui and L.L. Zeng	1102
Microstructure and Growth Behavior of the Intermetallic Compound for Sn-1.0Ag-0.5Cu-NiB/Cu Solder Joint Interface	
J.F. Qu, J. Xu, Q. Hu and F.W. Zhang	1106
Eutectoid Transformation in Zn Alloy with High Al Content	
Y.B. Wang and J.M. Zeng	1111
High Temperature Oxidation Behaviour of AlCuTiFeNiCr High-Entropy Alloy	
J.C. Jiang and X.Y. Luo	1115
Microstructure Evolution of Al-Ti-C Alloy Wires during Remelting Process	
W.W. Ding, J.T. Zhu, W.J. Zhao and T.D. Xia	1119
The Effect of Aging on the Corrosion Property of Al-7Si-0.3Mg	
Y.B. Wang and J.M. Zeng	1124
Precipitation Kinetics and Behavior of δ Phase in Inconel 718 Alloy	
H.Y. Zhang, S.H. Zhang and M. Cheng	1128
Research on Multiple Plastic Deformations of Ultra-High Strength Aluminium Alloy	
Y. Cui, Z.M. Zhang, J.M. Yu and Q. Wang	1132
Prediction of Electrical Conductivity of Cu-15Ni-8Sn-XSi Alloys Using the Physical Model and Artificial Intelligence Model	
S.F. Fang, Y.S. Han and M.P. Wang	1138
Preparation and Corrosion Resistance of Cu-Based Bulk Glassy Alloys	
P.J. Cao, J.L. Dong, H.D. Wu and P.G. Fan	1143
The Inhibiting Effect of Monoethanolamine on 6063 Aluminum Alloy in Sodium Chloride Solution	
H.C. Yu, Y.C. Wei, X.Y. Huang and F.H. Lei	1149
Efficiency in the Extraction of Pure Silicon from Al-Si Alloy Melts by a Combined Process of Solvent Refining and Centrifugation for Solar Silicon Feedstock	
K.Y. Kim, J.Y. Cho and K.H. Seo	1153
Research on Material Erosion Mechanisms of High Si-Al Alloy by Micro-EDM	
F.Q. Hu, J.F. Sun, J.Q. Wei, Y. Zhang, Y.D. Jia, Y.R. Zhao and T.Y. Liu	1157
Manufacture, Structure and Properties of Copper Foams	
Y. Zhou, Z.C. Hong, X.P. Ai and X.Q. Zuo	1163

Chapter 9: Materials for Building and Structures

Experimental Measurements of the Selected Properties of AeroTherm	
R. Fabian, F. Čmiel, Z. Jaroň and M. Kozakova	1169
Influence Research on the Pretreatment of Recycled Coarse Aggregate to the Strength of Recycled Concrete	
L. Gao, Y. Shi, G.Q. Xu and L. Cao	1173
Research on Reinforced Concrete Column under High Speed Impact of Different Diameter Projectile	
F. Gao and J.L. Tao	1177
The Influence of Combined Admixture of Super-Fine Limestone Powder and Low-Quality Fly Ash on the Performance of Cement Mortar	
G.Q. Xu, Z.G. You, L. Gao and D.L. Han	1181
The Temperature Distribution Research of Foaming Gypsum Mold in the Fabrication and Pouring Process	
Z.Z. Fan, Y.C. Xiong and R.Z. Hong	1185
Utilizing the Waste Polystyrene to Enhance the Thermal Insulation of the Local Buildings	
K.S. AlQdah and M. AlGrafí	1191

Analytical Model of Capillary Suction Velocity of a Pipe with Multiple Sizes H.T. Nguyen and B.R. Sørensen	1201
Research on Porous Properties of Air-Entrained Lightweight Aggregate Concrete W.X. Hu and A. Abudula	1209
Study on BFRP Constrained Preloaded Concrete Square-Shaped Column S.J. Li	1213
Study on Indoor Detecting Methods and Performance of Shotcrete Y. Shi, J.Z. Li, J.J. Yan and S.S. Peng	1217
Design a Thermosetting Asphalt Mixture for Surfacing on Orthotropic Steel Deck Bridge C. Chen, Z.D. Qian and Y.Q. Wang	1221
Influence of Aspect Ratio of Macro Synthetic Fiber on Mechanical Properties of Shotcrete A.S. Su and Y.B. Cai	1226
Research on Preparation Technology of Exposed-Aggregate Cement Concrete Pavement X.J. Feng, F.Q. Liang, Y.X. Zhu and J.B. Yuan	1233
Synergistic Effects and Cracking Bending Strength for Steel-Polypropylene Hybrid Fiber Reinforced Concrete G.D. Mei, X.F. Liu, J.X. Li and W.F. Duan	1237
Use of Sugarcane Bagasse Ash as Raw Material in Production of Autoclaved Lightweight Concrete A. Apiwaranuwat, P. Kitratporn, K. Chuangcham and T. Punmatharith	1242
The Influences on Cement Clinker by Disposing Glyphosate Waste Mother-Liquor with Rotary Kiln Y. Bai, L.J. Zhang, C.H. Chen and X.C. Ye	1247
Research Status on Fatigue Behavior of Reinforced Concrete Beams Strengthened with Fiber Reinforced Polymers Y.F. Liu, Y.C. Guo and J.H. Zhang	1252
Tricalcium Silicate (C₃S) Properties in Different Physical and Chemical Environment L.G. Wang, W. Huang and J.W. Wang	1256
Vibrating Mixing and the Improvement of Concrete Performance L.Q. Zhang, Z.X. Feng and L.P. Zhao	1260
Asphalt Material Aging Mechanism and Characteristics Analysis Based on Infrared Spectrum Y. Liu, J. Li and C.H. Wu	1265
The Experiment Research of a New Cementing Material Applied in Iron Tailing Filling F.P. Li, Y. Gu, S.Q. Nan and J. Feng	1269

Chapter 10: Mechanics of Materials

Artificial and Natural Weathering of Chlorinated Polyvinyl Chloride (CPVC) N. Merah, A. Bazoune and Z. Khan	1277
Effect of Moisture Content on Thermal Physical Properties and Heat Transfer of Plywood during Hot-Pressing X. Liu, S.G. Wang, W.D. Li and L. Chen	1283
Failure Analysis of A7N01S-T5 Aluminum Alloy Buffer Beam for High-Speed Train	1290
Review on Surface Failure Mode of Metallic Materials in Very High Cycle Fatigue Regime D.M. Wang, W. Li, P. Wang and W.X. Chu	1295
The Effect of UIT on the Residual Stress of 7N01 Al-Alloy Welding Joints J.B. Liu, Y.L. Zhou, Q.Y. Wang, M.Y. Zhang, H. Chen and H.K. Li	1301
Analysis of Indentation Size Effect of Vickers Hardness Tests of Steels N. Budiarsa, A. Norbury, X.X. Su, G. Bradley and X.J. Ren	1307
Experiment Study and Numerical Simulation of CFRP Sandwich Structure on Aircraft Ditching Model S.L. Yan, F. Yan and Z.J. Feng	1311
Study on Cracking of Anchor Structure due to Reinforcement Corrosion W.T. Ding, J.H. Liu and S.C. Li	1315
Study on the Electrometric Method to Measure the Young's Modulus of Metal Materials L.F. Xiao, R. Duan and X.G. Chen	1319

Concrete Thermal Stress of Arch Dam in Construction Period of Stability against Sliding of Steep Slope Section S.P. Huang and D.K. Zhang	1335
Failure Analysis on Natural Gas Transmitting Pipe Based on the Data of Intelligent Inspection M.B. Chen, Y.R. Jiang, Z.Y. Cai and C.B. Xu	1340
Integrity Assessment on Natural Gas Transmitting Pipe Based on the Finite Element Analysis M.B. Chen, Y.R. Jiang, Y. Tian, C.B. Xu and Z.Y. Cai	1345
Testing and Evaluation of Comfort Performances of Mongolian Clothing Fabrics X.F. Guo, W.J. Liu and C.L. Wei	1349
Ultrasonic Nondestructive Evaluation of Composite Components Using Advanced Total Focusing Method N. Xu, Y. Li and Z.G. Zhou	1353
Damage Calculation and Fatigue Life Prediction for Freight Car Body F.W. Zhao, J.L. Xie, Y.Q. Yuan and X.L. Shi	1357
Reliability Analysis of Wear Casing Internal Pressure Strength X.Y. Zhang and J. Feng	1362
Research on Structural Fatigue Damage Based on the Superimposed Load Spectrum Method X.L. Shi, J.L. Xie, F.W. Zhao and R.Q. Yu	1367
Stress Analysis of Perforated Plate Based on ANSYS Y. Mei, M. Li, J. Song and X.X. Gao	1372
Influence of Point Defects on Band Gaps of Fe-Epoxy in Two-Dimensional Phononic Crystal J. He, G.H. Fan, D.X. Zhao and Y.K. Liu	1377
Transmission Properties in 2D Phononic Crystal Thin Plate with Linear Defect G.H. Fan, D.X. Zhao, J. He and Y.K. Liu	1383
Research on CSP Work Roll Defect Causes and Improvement Measure Z.Q. Dong, J.S. Li and J. Chen	1388
A Fretting Damage Analysis of Railway Axle Y.J. Zhang, J.F. Peng, Z.B. Cai and M.H. Zhu	1393
Dry Sliding Friction and Wear Behavior of Surface Hardened Ferrous PM Cam Materials for Automobile Applications Y.Y. Li, Q.C. Deng, P. Shi and Z.L. Qiao	1399
Failure Analysis on Strain Clamp on 220kV Transmission Line X.X. Xu, Y.T. Feng, H. Ke, X.G. Niu and J. Ouyang	1405
Effect of Carbon Doped in BN on Electronic Structures and Mechanical Properties J. Ao, C.M. Li, Z.Q. Chen and J. Wang	1410
Simulation and Analysis of the Wheat Stem Lodging Z.H. Yuan, J.W. Li, H. Tian and P. Ding	1416
Study on Impedance Calculation of Viscoelastic Material in Acoustic Tube Z.K. Jin, T.Q. Wang and M.S. Yang	1420
Study on Tribological Behaviors of FeS Solid Lubrication Duplex Layer under n-Fe₃O₄ Additive Lubricating C.H. Hu, F.J. Qi, H. Jiang, Q. Liu, X. Zhang and J. Cao	1427
Crevice Corrosion Behaviors of X52 Carbon Steel in Chloride Containing Solutions Q. Hu, J. Liu, J. Zhang, F. Huang and X.P. Guo	1432
A Research on the Stress Dispersion Property of the Warp Knitted Space Fabric Y. Chen	1436
The Qualitative Analysis of Far-Infrared Fiber by Near-Infrared Spectroscopy Y. Guan and Y. Zhang	1441
Determination of Boric Anhydride in Ascharite Ores by Inductively Coupled Plasma Atomic Emission Spectrometry X.D. Wen, S.H. Chen and M. Shao	1445
Surface Activity Research of Cationic Gemini Surfactants Z.Z. Fan, L.L. Li, L.F. Zhang and Q.W. Liu	1450
3D Generalized Beam (GB) Lattice Model for Analysis of the Failure of Concrete H. Wang, M.H. Zhao, J. Gao and G.Y. Wang	1455

Dynamic Stress and Deformation of Non-Homogeneous Poroelastic Moderately Thick Shells of Revolution Saturated in Viscous Fluid T. Gonda, S. Otsuka, M. Yakabe and K. Tao	1466
High-Temperature Deformation Characteristics of a SA516GR70 Vessel Steel Z.Y. Huang, F.Q. Chen and P. Wang	1471
An Optimized Design Method for Thickness of Shells with Multi-Holes Based on Finite Element Method Theory X.B. Liu and Z.H. Yin	1478
Numerical Analysis of a New Test Method for Evaluating the Mechanics Characteristics of Steel Deck Pavement X.H. Li, W.Y. Ma and R. Brown	1482
A New Stress Mathematical Model of Deformation Zone while Straightening Thin-Walled Tube Z.Q. Zhang, Y.H. Yan and H.L. Yang	1488
Segmented Optimization Design of Aluminum Alloy Goal Crossbar Based on FEM P. Liu, D.D. You and W.M. Zhou	1494
Flexural Behavior Characteristics of UHPC According to Twisted Steel Fiber S.H. Kim, G.S. Ryu and K.T. Koh	1499
Fatigue Life Prediction of Welded Case Shell on Aeroengine under Combined Internal Pressure and Axial Loads X.X. Duan and Y.H. Zhang	1505
Study on Bearing Behaviors of Bolted Joints in Composite Laminates T. Huang and Z. Su	1509
Analysis of Structural Parameters for Unbonded Flexible Pipes Z.B. Li, H. Xu and G.Z. Zhang	1514
Design and Cut Skills in Accordance with the Physical Properties of the Gem Stones H.M. Peng, F. Xia and W.W. Zhang	1520

Chapter 11: Environmental. Research, Friendly Materials and Recycling Waste Technologies

A New Comprehensive Utilization Method for Coal Gangue: Preparing Alite-Sulphoaluminate Cement G.L. Xu, C.M. Sun, Y. Sun and H. Liao	1527
Catalytic Hydrolysis of CCl_2F_2 over Solid Base CaO/ZrO_2 T.C. Liu, P. Ning, H.B. Wang and J.M. Guo	1533
Dissolution and Regeneration of Reed Leaf Fibers in Imidazole-Based Ionic Liquids H.J. Zhao, C.Y. Wei, Y.Z. Cui, L.H. Lv and X. Wang	1539
Effects of Molybdenum Doping on Optical Properties of $\text{Sm}_{0.3}\text{Ce}_{0.7}\text{O}_{1.85}$ H.Q. Li, Z.F. Hao, M.X. Chen, Q. Han and X.K. Hao	1543
Effects of Nano Particle Hydroxyapatite on Cadmium Bioaccumulation and Translocation in Pakchoi (<i>Brassia chinensis</i>) from Cadmium Polluted Soil Z.W. Li and Y.Y. Wu	1548
Experimental Study of Thermal Plasma Processing Waste Circuit Boards S.B. Wang, C.M. Cheng, W. Lan, X.H. Zhang, D.P. Liu and S.Z. Yang	1553
Preparation and Characterization of Alginate/Polyvinyl Alcohol Composite Fibers Containing Copper Ions J. Guo, Q.H. Chen, Y.Y. Zhang, Y.M. Gong and H. Zhang	1562
Study of Reed Leaf Fibers' Degumming in High Temperature and Pressure H.J. Zhao, C.Y. Wei, Y.Z. Cui, L.H. Lv and X. Wang	1566
Treatment of Cationic Dye Wastewater with Hybrid Sorbent Generated by Anionic Dye Wastewater Hybridization with Calcium Fluoride D.H. Zhao, X.L. Zhang, W. Yin and X.J. Liu	1571
Photoelectrocatalytic Degradation of HCB by N-Doped TiO_2 Nanotube Arrays Y.J. Guan, Z.B. Wang, S.L. Bai and Q. Xue	1580
QSAR Study of the Adsorption Mechanism of Ascorbic Acid towards Iron in Alkaline Media H.W. Tian, W.H. Li and B.R. Hou	1585

Study on the Performance of Orange Oil Cleanser Z.Q. Li, M. Li, S.H.W. Wang, J. Jiang, M.B. Wang and J.H. Huang	1589
The Preparation and Characterization of Starch Oxidized by Nitric Acid and its Properties of Calcium Complexing Capacity X.C. Wang, F.H. Li and T.T. Qiang	1593
Removal Chromium and Turbidity Using Starch Derivative Flocculant CSAX X.H. Li, X.K. Hao and Q. Chang	1597
Synthesis and Paclobutrazol Visible-Light Degradation of Al/S Doped TiO₂ Mesoporous Materials with Pyridine as a Template S.Y. Liu, F. Zhang, C.Y. Luo, T.Z. Jiang and Q.G. Feng	1602
Use of Rice Husk Ash to Treat Simulated Agricultural Cultivation Wastewater J.X. Liu	1609
Effects of Recycling Ladle Lining Materials on Phase Composition and Microstructure of Al₂O₃-SiC-C Castable for Iron Runner Y. Cui, R.L. Wang, L.R. Wang, J.L. Bu and Q. Wang	1614
Effects of Recycling Ladle Lining Materials on Sintering Performance of Al₂O₃-SiC-C Castable for Iron Runner L.R. Wang, R.L. Wang, Y. Cui and J.L. Bu	1619
Treatment of Chlorobenzene Containing Wastewater by Titanium Oxide Photocatalyst N. Li, G.D. Li and S.W. Wu	1624
Evaluation of the Leaching Behavior of Hexavalent Chromium from Malaysian Electric Arc Furnace Steel Slag K.B. Lateef, A.R. Sheikh, M.S. Nurulakmal and N. Baharun	1628
Simultaneous Nitrification and Denitrification in Biofilm-Electrode Reactor X. Liu, M. Yang and X.H. Huang	1633
A Preliminary Investigation on the Preparation of Bagasse Fly Ash as Clarifying Aid for Clarification of Cane Juice S.J. Zhou, X.Y. Qin, H.X. Liu and W.W. Wang	1637
Assessment of Degree of Maturity of Compost Produced by Different Kitchen Waste Composting Methods K.H. Cheng, M.C. Huang, M.F. Lu, Y.J. Chou and J.J.M. Lin	1642
Study on Spectrophotometric Determining Trace Tetracycline by Phase-Separation Floatation Y.M. Hou and J.M. Xie	1652
Experimental Study on Cr⁶⁺ Adsorption in Water about Corncob C.J. Wang, L.L. Tang, Z. Zou, W.J. Liu, J. Xie and Y. Wang	1656
Spatial Distribution in Forest Soil Nutrients and its Relationship with Ecological Factors on the up Stream of Taihu Lake Basin Y.G. Yang, Y. Shen, S.G. Shao and X.F. Li	1660
Study of Thermal Degradation of Polymers I. Turekova, Z. Turnová, K. Balog and M. Pastier	1664
Seasonal Soil Freezing Characters in Daxinganling L. Ding, Y.J. Liu and Y.M. Min	1668
Experiment and Analysis on Temperature Distribution of Straw Double-Grate Briquette Boiler Furnace-Tank K.X. Zheng, H.S. Chen, B. Yi, B.H. Wen, H.Z. Yuan and S.Y. Liu	1673
Heteropolyacid Photocatalytical Degradation of Atrazine in Aqueous Solution under UV-Irradiation W.Y. Shen, F.Y. Liu, J.Q. Chen and R.X. Guo	1680
Investigation on the Electrochemical Behaviors of Phenol Oxidation on GCE (Glassy Carbon Electrode) Y. Wang, S.Q. Zuo and H.G. Zhu	1684
Study on Preparation of Iron-Based Flocculant by Hydrogen Peroxide Oxidation Process L. Chen, G.F. Zheng and D.C. Ran	1688
Research on Cavitation and Impinging Stream Microelectrolysis Reactor for Treating Organic Wastewater F.B. Li, T. Lin, Q. Li, L. Li and H. Wu	1692

The Influence of Rainwater Reuse on Urban Water Circulation and Downstream Eco-Environment Z.M. Zhou and X.C. Wang	1696
The Evaluation of Photocatalytic Properties of Iron Doped Titania Photocatalyst by Degradation of Methylene Blue Using Fluorescent Light Source A. Abidov, B. Allabergenov, O. Tursunkulov, J. Lee, S.Y. Kim, E.Y. Lee, L.L. He and S.J. Kim	1700
Research on Characterization and Application of High-Performance Ion Exchange Material Q.Q. Liu, X. Tan and X.L. Shao	1704
An Evaluation Method of Water Resources Carrying Capacity Based on Projection Pursuit Model W. Wang, Y.J. Feng, W.F. Chen and F.L. Li	1710

Chapter 12: Surface Engineering/Coatings

Research of the New Composite Solid Lubricant Coating S.X. Hou, H. Gao and X.M. Jia	1719
Improving Anti-Aging Coatings by Coupling of Organic and Inorganic Ultraviolet Absorbers Q.X. Yao, M.L. Du and M. Sun	1723
Dielectric and Tunable Properties of Lead Barium Strontium Titanate Thin Films Fabricated by Radio Frequency Magnetron Sputtering Method Z.M. Luo, X.H. Sun, S. Hou, Y. Yang and J. Zou	1728

Chapter 12: Surface Engineering/Coatings

Study on Corrosion Wear Behavior of 70 Aluminum Alloy Anodic Oxide Coating B.Y. Lou, G. Zhu, P.H. Li and H.S. Dong	1735
Effect of Hydrogen Dilution on Properties of Microcrystalline Silicon Thin Films Prepared by VHF-PECVD X. Wu, L. Gu, J.S. Zhang and H.D. Yang	1739
Quantum Size Effects of Chemical Bath Deposited ZnSe Thin Films L.Y. Chen and C. Fang	1743
W-Doped Vanadium Oxide Thin Films Prepared by Reactive Magnetron Sputtering S. Chen, L.F. Zhang, C.Z. Dong, K. Zhang and X. Zhu	1747
Effects of Cu Addition on Microstructure and Adhesion Properties of Ti-Al-N Nanocomposite Films Deposited by Magnetron Sputtering C.J. Feng, X. Hu, Y.F. Jiang and Q. Zhao	1751
Influence of Rare Earth on the Peeling Properties of Ultra-Thin Copper Foil with Carrier G.F. Deng, G.R. He, J.Q. Huang and P. Xu	1755
Mechanical Instability of Wedge-Shaped Cr Films Quenched by Silicone Oil during Deposition Y.J. Zhang, S.J. Yu, H. Zhou and M.G. Chen	1759
Solution-Based Metal Induced Crystallization of Amorphous Silicon Films X.L. Qu, J. Jin, W.M. Shi, Y.F. Qiu, L. Huang, P.S. Zhou and W.Y. Dai	1765
Dependence of the Coating Carbon Layer Configuration of Cordierite Monolith on Coating Reaction Conditions in Methane Decomposition S.W. Liu, Z.L. Guan, W.Y. Tu, J.L. Chen and Z.H. Xu	1769
Investigation of Corrosion Resistant of Al-Zn-Si-Re-Mg Coating D.B. Wei, J. Huang, P.Z. Zhang, Z.J. Yao, Q. Miao, X.X. Wei, F. Ying and G.X. Yin	1775
Microstructure and Wear Properties of TiC/Fe-Based Composite Coating Prepared by PTA Weld-Surfacing Process Z.L. Zhao, K.F. Dang, J.H. Liu, D.M. Wu, Y. Liu, H.P. Yu and X.T. Zheng	1780
Microstructures and Wear Resistance of Si-Al-Y Co-Deposition Coatings on γ-TiAl Alloy Y.Q. Li, F.Q. Xie and X.Q. Wu	1787
Study on Surface Modification of Aluminum Alloys by Silicate-Based Hybrid Coating J.Y. Wang and C. Li	1792

The Investigation of Abrasive Jet Polishing on the Linear Micro-Channels Surface of SKD61 Mold Steel	1799
F.C. Tsai, T.C. Chang, M.Y. Kuo and T.C. Li	
The Property Comparison of Coating Prepared by Oxygen-Acetylene Spray Welding Technology and High-Frequency Induction Remelting Technology	1805
J.F. Zhu, W.F. Xiao, G. Liu and S.L. Wang	
Comparative Study of the Cyclic Oxidation Resistance of NiCrAlY and NiCoCrAlY Coatings	1810
J.M. Liu, Y.G. Yu, X.J. Ren, D.M. Zhang and J. Shen	
The High Temperature Oxidation Resistance and Anti-Oxidation Mechanism of Plasma-Sprayed NiCrAlY Coatings on Stainless Steel	1814
Y.P. Qu, Y.P. Qu, J.T. Liu and Y.F. Wang	
A Porous TiO₂ Coating with Vermiform Morphology Formed on Ti through Micro-Arc Oxidation	1818
Z.F. Liu, W.Q. Wang and M. Qi	
Effect of Atmosphere Composition on Lifetime and Oxidation Behavior of EB-PVD TBC with NiPtAl Bondcoats	1822
P. Song and J.S. Lu	
Effect of Thermal Cycling on Lifetime and Failure Mechanism of EB-PVD TBC with NiCoCrAlY Zr Bondcoats	1826
P. Song and J.S. Lu	
Effects of Conductive Pigments on the Anti-Corrosion Properties of Zinc-Rich Coatings	1830
L. Chen, X.J. Zheng, H. Ma and J.Q. Wang	
Electrodepositing Ir Film at Constant Current in NaCl-KCl Molten Salts	1834
J.G. Qian, H.T. Li, P.R. Li and T. Zhao	
Evolution of Microstructure and Properties of a Disk Cutter Ring Material during Carburization and Heat Treatment	1838
G.B. Lin, Z.J. Zhang, M.Q. Wang and S.M. Zhu	
Experimental Investigation on Anti-Fatigue Function of Gear Surface with Grid Micro-Morphology	1842
L.Y. Wu, Y. Lv, Y.Q. Song, Y.F. Cui and W.T. Ren	
Hydrothermal Synthesis of Lead Titanate Epitaxial Film for Non-Volatile Memory Device Application	1846
T.T. Thwe, T.T. Win, Y.M. Maung and K.K.K. Soe	
Synthesis and Surface Properties of SiO₂ Modified Fluorosilicone Acrylic Copolymer Hybrids	1851
X.Y. Yang and Y.C. Chen	
Interfacial Failure of SiN/GaAs Film/Substrate Bilayers Induced by Nanoscratch	1856
A.S. He and H. Huang	
Ni-P-Diamond Composite Coating on Friction Shims	1862
H. Chen, H.Y. Sun and S.Q. Jia	
Microstructure Characteristic of Laser Cladding Ceramic Layer on High Cr Cast Steel Surface	1866
Y.S. Li, B. Han and C. Gao	
Preparation of Superhydrophobic Coating from Fluorine-Containing Acrylate Polymer and Polysiloxane with Nano-SiO₂	1871
J.W. Zhou, Y.H. Zhao, Z. Liu, C.M. Li, W.L. Liu, H.H. Xu, G.P. Li and X.Y. Yuan	
Electrochemical Corrosion Behavior of Corrosion-Resistant Steel for Cargo Oil Tank	1876
J. Xu, J.W. Yang and J.P. Cao	
Effects of Friction Load and Ultrasonic Vibration on the Tribological Properties of Al₂O₃/Al₂O₃ Ceramic Friction Pairs under Liquid Paraffin Lubrication	1881
X.Y. Dong, Y.L. Qiao, Y. Zang and Q.S. Cui	
Research on the Microstructure and Performance of Co-Based Alloy Surfacing Layer	1886
H.M. Wang and C.J. Liu	
Fabrication of YBa₂Cu₃O_{7-δ} Superconducting Film on NiW Alloy Using Electrophoretic Deposition	1892
Q.W. Luo, Y.N. Li, F.H. Li and Z.G. Fan	

Effect of Laser Cladding Al₃Ti-Based Coatings on the Wear and Corrosion Resistances of AA6063 Aluminum Alloy	1897
H. He, W.H. Guo, M. Xiao, X.Z. Pang, X.M. Shen, Y.C. Fu and J.M. Zeng	
Application of WS₂ in Solid Lubricant Coating for Metal	1904
S.X. Hou, H. Gao and X.M. Jia	
Electroless Ni-P Plating on Mg-7Al Alloy by Chemical Conversion Pretreatment	1908
S.Q. Jia, J.X. Guan, J.D. Qiu, H. Chen and S.Y. Jia	
Synthesis and Characterization of New Mesoporous Silica Film Materials for Explosive Detection	1912
L. Ma, Y.Q. Wen and N. Yan	
Molecular Dynamics Simulation of the Influence Factors of Particle Depositing on Surface during Cold Spray	1916
H. Gao, C. Liu and F.H. Song	

Chapter 13: Materials Forming

Simulation of Microstructure Evolution on Copper, Aluminum and Alloy during ECAP	1927
T.B. Guo, J.Y. Zhao, Y.T. Ding, H.L. Li and B. Liu	
Comparative Study on Compression Deformation Behaviors of Cast and Extruded AZ31 Alloys	1932
J.T. Song, G.F. Quan, Z.M. Liu, Y.B. Zhang and J.L. Sun	
Dynamic Strain Aging during Tensile Deformation of Extruded AZ81 Magnesium Alloy	1937
S.Q. Zhang, L. Mao and L.J. Chen	
Die Wear Analysis of Spur-Gear Shaft Hot Extrusion Process	1942
G.C. Wang, C. Feng, B.H. Hao and T. Wang	
Forging Effect of Horizontal V - Shaped Anvil for Heavy Axial Forgings	1948
Y.J. Zhang, Z.B. Liu and J.T. Han	
Influence of Temperature Difference on Front End Bending in Hot Slab Rolling	1952
Y.X. Tan, R.B. Mei, W.J. Wang, Y.Q. Liu, Z. Liu, L.F. Huo and C.S. Li	
Development of Cyclic Rotating Bending Process for Microstructure Control of AZ31 Magnesium Alloy Tube	1956
Z.C. Zhang, K. Manabe, T. Furushima and K. Tada	
FEM Analysis of Glass Lens Molding Press	1961
J. Zhou, M.J. Li and L.G. Shen	
Research on Finite Element Simulation and Test of Two-Pass Deep Drawing Forming for Conical Parts	1966
Z.R. Han and Z.B. Yuan	
A Study on Initial Blank Design to Minimize Earing in Multi-Stage Deep Drawing Process for Rectangular Cup Using High Strength Steel Material	1971
P. Liu, T.W. Ku and B.S. Kang	
Deformation Behavior of AZ31 Magnesium Alloy at Elevated Temperature	1976
Y.L. Lu, X.C. Li, H.J. Wang and X.P. Li	
Development of Radial-Axial Ring Rolling Experimental Equipment and Calculation of Ring Rolling Forces	1980
Y.L. Tan, Q. Wang, S.H. Han and F. He	
Extrusion of Powder/Solid Clad Rods for a Desirable Hole Ratio in Powder Region	1984
Y.H. Pang, Q. Sun, L. Zhang, D. Liu and Y.H. Yang	
Heat Spinning Deformation Technology of 7A04 Loading-Wheel	1988
H.Q. Xu, M.Z. Li, L.L. Li, R. Zhang, D.L. Wang, C.J. Guo and J.Y. Chang	
Statistical Study on Correlation between Design Variables and Shape Errors in Flexible Stretch Forming Process	1994
Y.H. Seo, J.S. Yoon, B.S. Kang and J. Kim	
Study on the Slab Design of Medium Plate Hot Rolling	2002
Y.L. Wei, X.L. Li, Z.X. Yang, Y.Q. Tian, J.Y. Song and L.S. Chen	
Surface Roughness Analysis of Metal Spun Parts	2006
P. Šugár, J. Šugárová and J. Petrovič	

The Design and Simulation of Circuit for Electromagnetic Force Assisted Line Heating Device	
J. Wang, Q. Liu, Y.J. Liu, B. Shi, Y.D. Bao and L.J. Zhang	2010
Numerical Simulation of Large-Sized Pure Aluminum Rod under Multi-Pass ECAP	
X.L. Zhao, N.N. Zhao and N. Chen	2019
Impact Analysis of Microstructure Evolution in Hot Rolling of H-Beams	
W.P. Liu, B. Zhang, P.Q. Wang and Q.H. Zhang	2024
Optimization of Pre-Forging of the Aircraft Wheel Hub by FEM	
Y.Y. Dai, S.Q. Lu, K.L. Wang and S.Z. Shang Guan	2029
Analysis of Linear Defects of Cold-Rolled Galvanized Sheet	
Q.C. Peng, J.L. Yang, S. Peng, X.H. Zhang, S.P. Tang and Y.S. Tian	2034
Study on Developing Q345XJ by UFC in the CSP	
L.G. Chen, Y.L. Kong, J. He and H.T. Chai	2038
The Mathematic Model of Deformation Resistance of S50C Medium Carbon Steel in Hot Rolling Process	
J.L. Liang, Y.L. Feng, J.Z. Yin, D.Q. Cang and H. Li	2043
Simulation of Die Gap Variation in Temperature Field Distribution of High Strength Steel Hot Stamping Process	
S.L. Chen, Y.J. Cai, G.H. Li and Z.G. Liu	2048
Simulation and Optimization of Die Forging Process for High Pressure Valve Bonnet	
J.L. Zhang, L.W. Zhang, Y. Yang and Z. Zhu	2053
Work Roll Temperature Prediction Model in Hot Strip Mill Based on Two Dimensional Alternating Difference Method	
J. Shao, A.R. He and W.Q. Sun	2057
Analysis of Effect of Process Parameters on Warpage of a Automobile Bumper Injection Molded Parts	
S.T. Wu, H.B. Liu and H.T. Wu	2062
The Numerical Model of Axial Force for 4-High Mill	
F.F. Kong, A.R. He, J. Shao and C.C. Chen	2067
Research on Deformation of TC4 with Complex Profile in Hot Rolling	
Y.H. Pang, L. Zhang, D. Liu, Y.H. Yang and G.Z. Xiao	2073
A Novel Three-Dimensional Direct Controlled Cell Assembling System	
Y. Li, L. Zhang, C.Y. Liu, Y. Zhao and W. Sun	2079
The Hot Pressing Process Optimization of Ti(C, N) Matrix Nano-Composite Ceramic Die Materials with the Back Propagation Neural Network and Immune Genetic Algorithm	
J.J. Zhang, C.H. Xu and H.F. Zhang	2086
A New Method for Quantitatively Evaluating Defects of the Green Body in Injection Moulding Based on X-Ray Digital Radiography	
W. Fang, X.B. He, R.J. Zhang and X.H. Qu	2093
Modeling Powder Extrusion Pastes for Forming 410L Stainless Metallic Honeycombs	
Y. Zhou and X.Q. Zuo	2099

Chapter 14: Materials Machining

Research on the Cutting Characteristics of Coated Tools on End Milling Nickel-Based Superalloy Mar-M247	
X.X. Jin	2105
The Identified Principle of Machining Conditions and its Application in NC Machining	
Q. Li and L.P. Lu	2109
The Theoretical Analysis and Application of the Ultra-Precision Machining the End Surface of Stop Valve's Valve Flap with the Diamond Facing Tool	
J.H. Zhu, X.X. Liu, X.M. Tian and J.F. Chen	2113
A Dynamic Observation Concept to Keep Water-Soluble Coolant in Normal Condition for Long Time	
Y. Kondo, M. Yamaguchi, S. Sakamoto and K. Yamagchi	2119
A Visualization Study of Abrasive Flow Variation in Abrasive Air Jets	
J.M. Fan and J. Wang	2123

Dry Machining of T6061 Aluminium Alloy Using Titanium Carbonitride (TiCN) Coated Tools	
T.F. Ariff, N.N. Sofian and N.H. Che Mat	2129
Effects of Mixing Chamber Shape on Cutting Performance in Abrasive Water Jet	
H.R. Lee, Y.S. Cho, H.Y. Kim and J.H. Ahn	2134
Evaluation Influences of Residual Stress on Machining Aluminum Part of Cooling Plates	
Y.F. Yang, H.B. Qiao, Z. Zhang and L. Li	2140
Experiment Studies of Nd:YAG Laser Assisted Dressing Technique for Metal-Bonded CBN Grinding Wheel by Crankshaft Grinding	
G.J. Zhang, M.Z. Li, Y. Huang and S. Zhang	2147
Influence of Tooth Errors and Truing Principles of Grinding Wheel Abrasion for Machining Arc Enveloping Worm	
W.J. Jiang and J. Wei	2153
Micro-Channel Fabrication on Quartz Crystals by a Micro Abrasive Air Jet	
J.M. Fan and J. Wang	2159
Microgrooving Using an Ultrafine Wire Tool	
S. Sakamoto, T. Kano, M. Yamaguchi, S. Arakawa, Y. Kondo, K. Yamaguchi and T. Yakou	2164
Study of the Wear of Drills in Dry Drilling of NM360 Steels	
M.S. Xu, J.B. Jiang and G.C. Wang	2169
Analysis of Plunge Milling Force and Tool Deformation on Cr12	
X.H. Niu, L.Q. Cui, B.C. Hao, S.Y. Liu, Z.T. Zhang and X.L. Meng	2173
Determination of the Cutting Area Considering the Tool Slenderness Ratio for the Development of a 5-Axis Impeller Machining Automation CAM Module	
E.S. Lim, H.J. Son, Y.T. Cho and Y.G. Jung	2178
Experimental Research the Cutting Force of the 40Cr Circular Cone Turning	
X.H. Niu, B.C. Hao, L.Q. Cui, S.Y. Liu, Z.T. Zhang and X.L. Meng	2183
Influence of Dielectric Jet Flushing during Electro Discharge Diamond Surface Grinding Process	
G. Agarwal and M. Modi	2187
Modeling and Experimental Study on Cutting Force of Diamond Circular Saw in Cutting Granite Using Response Surface Methodology	
Z.M. Zhang, H.W. Xiao, G.Z. Wang, S.Z. Zhang and S.Q. Zhang	2191
Study on Arithmetic of Surface Damage Ratio in High Speed Machining of Graphite Based on Matlab Image Processing	
L. Zhou, Y.Z. Li and C.Y. Wang	2196
Wear Mechanism of PVD TiAlN Coated Cemented Carbide Tool in Dry Turning Titanium Alloy TC4	
B.L. Wang, X. Ai, Z.Q. Liu and J.G. Liu	2200
Research on Grinding Temperature of a New Diamond Grinding Wheel	
Q.P. Wu, Z.H. Deng and Y.L. Gong	2205
Study on Micro-Topography Characteristics of EDM Surface	
H.J. Ding, X.X. Wang, G.L. Xia, P. Feng and X.H. Li	2209
A Kind of Optimization Model on Turning Process Based on Productivity and Cost	
W. Yan, J. Fan and X.F. Guo	2214
Recent Development of Parameter Optimization for Metal Cutting and Grinding Processes	
L.B. An and C.G. Lu	2218
Research on Tool Wear Rate of Powder Mixed near Dry Electrical Discharge Machining	
X. Bai, Q.H. Zhang, T.Y. Yang, J.H. Zhang and J. Tan	2222
The Study of Silica Sol with Great Particle Size for the SiO₂ Dielectric CMP	
J. Wang, M. Sun, X. Jiang and Y. Zhang	2228
Analysis of the Vibration Mechanism in the Turn-Milling Machining of Micro-Miniature Shafts	
K.F. Liu, G.Z. Zhang and X. Jin	2232

Chapter 15: Welding & Joining

Atmospheric TIG Arc Diagnostics with a Low Disturbance Electrostatic Probe	
Y.B. Li and L. Zhu	2239

Corrosion Resistance Prediction of Laser Tailor-Welded Blank Based on Partial Least Square	
X.C. Li, W.L. Du, W.X. Zhu and J.H. He	2244
Distribution of Magnetic Flux Density and Magnetic Force in EMR	
J.H. Deng, C. Tang, Y.R. Zhan and X.Y. Jiang	2248
FEA Simulation of Clinching Process Based on GTN Damage Model	
B.J. Shi, S.H. Liao, S. Peng and H. Li	2254
Influence of 0 Degree to the Shoulder of the Friction Stir Welding on AA 6063 and AA 7075	
W. Pumchan	2261
Measurement of the Surface Tension of Liquid Metal-Droplet in Arc Welding	
L. Sun, X.B. Wang, X.L. Li and C.X. Liu	2265
Prediction and Control of Weld Width of Deep Drawing Steel Laser Tailored Blanks	
X.C. Li, J.H. He, W.X. Zhu and W.L. Du	2270
Research on Repair Welding Processes of a Bainite Steel Frog	
Q.Y. Wang, Z.B. Hu, M.Y. Zhang, Y.L. Zhou, J.B. Liu and H. Chen	2274
Research on the Usability of the Defective Grid Structure	
Y.T. Feng, Z.W. Li and J.F. Zhao	2279
Effect of Current Waveform on Droplet Oscillation in GMAW	
J. Xiao, S.J. Chen, G.J. Zhang and Y.M. Zhang	2285
Effect of the Wire Temperature on the Weld Formation in GMAW	
J. Ni and H.M. Gao	2289
Effect of TiH₂ Composition on Porous Stainless Steel and Titanium Hydride Composite Synthesized by Spark Plasma Sintering	
B. Allabergenov, O. Tursunkulov, A. Abidov, S.Y. Kim, E.Y. Lee, L.L. He, T.Y. Kim, S.W. Jeong and S.J. Kim	2293
Prediction Model of Droplet Size in Low-Current GMAW	
J. Xiao and G.J. Zhang	2299
Prediction of Welding Deformations of CRH380 Aluminum Alloy Side-Wall with Equivalent Thermal Load Method Based on Inherent Strain	
Y.N. Li, S.M. Xie and J.H. Zhang	2303
The Compulsively Short Circuiting Transfer Phenomenon Study in Rotational Arc MAG Welding	
Y.F. Gao and J.H. Xiao	2311
A Study of Material Flow Behavior in Thickness Direction in Friction Stir Welding of 7075 Alloy Plate	
Z.H. Guo, W.L. Liu, C.Z. Li, J.H. Cui and G.Y. Zhao	2315
Dissimilar Friction Stir Spot Welding without Key Hole between AZ31B Magnesium Alloy and 5052 Aluminum Alloy	
X.J. Wang, T.K. Guo, Z.K. Zhang, P.C. Wang, J.P. Shi, Y.L. Wu and Y.X. Lu	2320
Optimization of Parameters and Research on Joint Microstructure of Resistance Spot Welding for 316 Stainless Steel	
H. Liu, X.D. Xu and X.Q. Zhang	2326
Characteristics Evaluation of Weld Metal Zone Welded with Various Repair Welding Filler Metals	
J.H. Jeong, J.P. Won, D.H. Park, S.Y. Lee, Y.H. Kim and K.M. Moon	2330
Evaluation of Effect of Welding Methods to Corrosion and Hardness Characteristics of Welded Zone	
S.Y. Lee, J.P. Won, D.H. Park, Y.H. Kim, K.M. Moon and J.H. Jeong	2335
Research on Three Microcosmic Interface Defects of Titanium/Steel Laminates Manufactured by Explosive Welding	
P. Liu, M. Lu, J.P. Jiang and B.L. Sun	2339
Simulation Research on Relieving Welding Residual Stress by Vibratory Stress Relief Technology	
N.Q. Duan, X. Li, W.H. Du and X. Dou	2343
Effect of Welding Parameters on Temperature Field during Twin-Wire Submerged Arc Welding of X80 Pipeline Steel	
C.Y. Yan, X. Zhao, S.Y. Tian, S.X. Xu, B.Q. Ma and H.Y. Jiang	2347

Prediction of Weld Parameters in Gas Metal Arc Welding Process Using Curve Arc Fitting Techniques and Graphical Methods	
P. Mukhopadhyay, S. Chattopadhyaya, S. Bhatia, N.K. Singh and A.K. Mukhopadhyay	2352

Chapter 16: Laser Processing

Experimental Investigation on Femtosecond Laser Ablation of Polycarbonate	
L.T. Qi and J.P. Hu	2359
Experimental Study of Low-Pressure Water Jet Assisted Laser Processing of Al₂O₃ Ceramic	
J.H. Wang and G.F. Yuan	2363
The Optimization Study about Technological Parameters of YAG Laser Precision Cutting Stainless Sheet	
G.M. Yin, Z.G. Li and M. Li	2369
Ultrafast Laser Machine Based on All-Fiber Femtosecond Laser System	
D.J. Li, G.H. Cheng, Z. Yang and Y.S. Wang	2374
Characterization of TC17 Titanium Alloy Treated by Square-Spot Laser Shock Peening	
Z.W. Cao, S.L. Gong and Y. Gao	2378
Laser Processing Speed vs Morphology of Glazing Ceramics	
J.W. Fan, X.P. Li, H.J. Zhao, Z.Q. Jiao, X.L. Zhang, Z.J. Zhang, Z.G. Zhang and R.J. Zhang	2384
Experimental Research on Flight Trajectory of Edge Electron of the Electron-Beam in the Electron Gun of Furnace	
D.H. Zhang, C.D. Liu, L. Zhang and Z.Y. Wang	2388
Study of Displacement Value of the Electron-Beam in the Electron Gun in Electron-Beam Furnace	
D.H. Zhang, C.D. Liu, J.M. Liang and C.S. Li	2391

Chapter 17: Casting and Solidification

Microstructures and Properties of Twin-Roll Casting 7050 Aluminum Alloy Strip	
C.F. Li, H.B. Wang, F.L. Meng and H.Y. Zhao	2397
Effect of Casting Design to Microstructure and Mechanical Properties of 2 Mm Twidi Plate	
R.D. Sulamet-Ariobimo, J.W. Soedarsono and B. Suharno	2404
Effect of DC Casting Processes on Microstructure of AlCu4.5Mn0.8 Alloy	
L. Zhou and G.X. Luo	2409
Grain Refinement of 6061 Alloy by Low-Voltage Pulsed Magnetic Field Treatment	
Q. Zhou, Y. Cao and L.P. Chen	2413
Effect of Annular Electromagnetic Stirring Process on Solidification Microstructure of 7075 Aluminium Alloy	
Z.H. Gao, J. Xu, Z.F. Zhang and M.O. Tang	2418
Effect of Magnetostatic Field on Microstructure of 7075 Aluminum Alloy Strip Manufactured by Twin-Roll Casting	
X. Su, G.M. Xu and Y.H. Feng	2427
Influence of Different Roll Casting Conditions on Casting Microstructure	
X.B. Liu and W.K. Yan	2432
Simulation of Bridgman Directional Solidification Microstructure Using Phase Field Method	
C. Tang, J.J. Tang and C. Liang	2437
Application of the Dynamic Soft-Reduction Technology on the No.4 Slab Continuous Caster of Bayi Steel	
J.F. Cao, K. Feng and Z.W. Han	2441
Effects of Argon Partial Pressure on Interfacial Shape of Porous Copper under Unidirectional Solidification	
X.M. Li	2446
Numerical Simulation on Mold Electromagnetic Eccentric Stirring and Central Segregation of Round Bloom	
Z.H. Zhang and G.G. Cheng	2450

The Study on Microstructures and Properties of the Direct Squeeze Casting Al-Zn-Mg-Cu-Zr-Sc Alloy	
Z.G. Wang, J. Xu, Z.F. Zhang, B. Li and D.Q. Li	2455
Die Casting Mold Design of Auto Oil Pump Bracket	
Y. Jiang, Y. Su, P. Hu and W.P. Chen	2460
Analysis of Elemental Segregation in a Microalloyed Cast Steel	
J.W. Zhao, Z.Y. Jiang and D.B. Wei	2465

Chapter 18: Geology and Mineral Processing

Mineral Processing Experiment of Copper Mineral in Yunnan Province	
Y.M. Nie, J.X. Zhang and Q.H. Dai	2471
Mineral Processing Experiment of Quartz from Gold Ore Tailing	
Y.M. Nie, S.X. Liu and Q.H. Dai	2475
Analysis of Tight Gas Reservoir Forming Condition in Gulong-Changjiaweizi Region, Northern Songliao Basin	
X.J. Zhang, S.F. Lu, W. Huang and L. Zhang	2478
Shale Gas Seepage Mechanism and Pressure Dynamic Characteristics Research	
Y.M. Li, Y.Z. Li, X.P. Zhang, J.Z. Zhao and L.H. Zhang	2484
Geological Evaluation of Puzzle Reservoirs in Putaohua Reservoir of Weixing Oilfield	
S.Q. Zhang, M.L. Zhang, Y. Bao and K. Zeng	2490
Hydrocarbon Accumulation Characteristics in Cretaceous System Hailaer Basin	
Y.H. Yu, H.Q. Yuan, X.L. Zhong and X. Qiu	2496
The Analysis of Sedimentary Evolution Mode of Dengloulou-Formation in Gulong Area of Songliao Basin	
L. Zhang, X.J. Zhang, Y. Man, J. Xu and Z.R. Yang	2501
The Optimal Selecting Technique on Well Logging Items and its Application to Identify Complex Lithology Profile	
M.L. Zhang, L. Feng, J. Lin and K. Zeng	2508
Sedimentary Characteristics in Zhalainguoer Group in Cano Depression Hailaer Basin	
Y.H. Yu, H.Q. Yuan and Z.X. Guo	2515
Stratigraphic Sequence Framework of Zao IV Group in Zaobei Oilfield	
Y.H. Yu, D.D. Yuan and X.L. Zhong	2520
Preparation of Ammonium Tungstophosphate-Calcium Alginate Composite Adsorbent and its Adsorption Properties of Rubidium	
X.J. Huang, L.Y. An, X.Y. Zhao and X.Q. Chen	2524
Potential Indonesia Ores as Raw Material for Producing Iron Nugget	
J.W. Soedarsono, A. Kawigraha, R.D. Sulamet-Ariobimo, D. Johansyah, G.D. Kusuma, S. Suprayogi, A. Yosi, N.L. Saputro, A.T. Sidiq, E. Erwin and D. Natanael	2529
Fractal of Grain Distribution in Sintered Ore with Variable Brazil Iron Ore	
Y.Z. Zhang, Q.J. Zhang, R.L. Sang, Y. Chen and Y.L. Li	2534
Study on the Effect on Sintering Mineralization of Iron Ore	
X.H. Fan, Y. Li and X.L. Chen	2538
Thermodynamic Studies on Selective Oxidation of Nb, P and C in Dephosphorization of Low Niobium Hot Metal	
Y.L. Jin, Z.W. Zhao and J.Y. Zhang	2543
Experimental Study on Carbothermic Reduction of Magnesite with Different Carbon Materials	
Y. Jiang, H.W. Ma and Y.Q. Liu	2552
The Practice of Strengthening Pulverized Coal Injection	
S.P. Yang, G. Du, J. Wang, X. Du and J. Liu	2556
The Investigation between Sedimentary Facies of Middle Cambrian and the Characters of Volcanic Rock, in Wenshan, Yunnan Province	
J.G. Huang, R.S. Han, T. Ren and Z.Q. Li	2560
Analysis of Physical Structure and Chemical Composition of Oil-Water Transition Layer in Oil Gathering and Transportation System	
D.D. Yuan, H.J. Wu, H.X. Sheng, B.H. Wang and X. Sui	2566

Resourcing Utilization of High Alumina Fly Ash J.M. Sun and P. Chen	2570
Experimental Research of Fluorite Flotation Separation Y.M. Nie, L.M. Bai and S.X. Liu	2576
Comparison of Thermal Decomposition Kinetics of Magnesite and Limestone L. Su, G. Zhang, Y. Dong, J. Feng and D. Liu	2580
Experimental Study on the Recovery of Apatite from Ore Tailings in Hebei Q.M. Jia, F.J. Li and Y.L. Qu	2584