Table of Contents

Preface and Committee

Chapter 1: Material Engineering and its Application

Study on the Amount of SiO ₂ on the Thermal Resistance of the Ceramic-Lined Composite Cast Iron Pipe	
H.G. Zhu, H. Wang, J.Z. Song, Y.Q. Yao, J.L. Li and Y.L. Jiang	3
Research on μ -Stability of Unbounded Time-Varying Delays Neural Networks with Impulsion in Intelligent Materials System L.Z. Yin and X.Q. Wang	7
Study on Mechanical Model of Borehole Confining Pressure of Dual-Porosity Considering Seepage Z.X. Lan	11
Synthesis of Biodiesel from by-Product of Plant Oil by the Catalysis of Solid Acid in Fixed Bed L.M. Xi and S.Y. Cao	15
Effects of Natural Organic Acids on Growth of Maize and Uptake of Copper and Lead by Maize in Contaminated Soil G.L. Cheng, X. Bai and Q.H. Wang	21
Skid Resistance Performance Optimization of Asphalt Pavement on Super Long Continuous Downgrades	
H.X. Guan, J. Liu, Q.S. Zhang and Y. Xu Microstructure Characterization of AZ91D Magnesium Alloy Weldment Using Tungsten	25
Inert Arc Welding Method P.Q. Xu, J.W. Ren and H.Y. Gong	31
A Novel Direct Torque Control Scheme for Permanent Magnet Synchronous Motor Y.P. Liu	35
Effects of EDTA, EDDS and Oxalic Acid on Catalase and Peroxydase Activities of Soil G.L. Cheng, H. Liu and Q.H. Wang	39
Effects on Plant Growth of Material from Hydrothermal Humification Process of Biomass S.Q. Guo and X.Y. Dong	43
Experimental Research on Effects of Coal-Fired Derived Mercury Emissions on Human Hair's Mercury Concentrations J. Wu, J.H. Fang, M.Y. Sun, Y.C. Wu, J.X. Ren, W.G. Pan, T. Zhang, L. Chai and J. Wang	47
A Study on the Ammonia Removal Mechanisms for the A/O Biological Nitrogen Removal Process with the Enhancement of the Zeolite	.,
G.W. Cheng, W.Y. Wei, G.D. Lu, Z.C. Wu, X.F. Huang and F.J. Zhang	52
Stability of Material from Hydrothermal Humification of Biomass in Soil S.Q. Guo and X.Y. Dong	57
Lattice Boltzmann Simulation on Natural Convection Heat Transfer for Phase-Change with Heterogeneously Porous Medium J.G. Shao, Y. Liu and Y.S. Xu	61
Synthesis and Fluorescence Properties of New Europium (III) and Terbium (III) Complexes with N-(3-methoxyl-phenyl)ketoacetamide X.S. Tai	68
Adsorption of Neutral Red from Solution by Bio-Chars Produced from Pyrolysis of Wheat Straw	70
L.J. Zhang, D. Ma, G.Y. Mao, M.M. Zhang and R.P. Han Synthesis, Photoluminescence and Surface Analysis of Bis(salicylicaldehyde-trimethylol amino methane)Zn(II)	72
X.S. Tai Material Properties and Natural Frequency of Stator Core of Large Turbo-Generator Y.X. Wang and Y. Wang	77 81

Synthesis and Characterization of Poly(ethylene glycol)-Grafted Expanded Graphite M.C. Zhu, K.Z. Li, X. Qing, W. Qi, S.L. Zeng, Y.J. Mao, Y. Hu, Y.C. Zhang, D.X. Li and A.L. Liu	85
Removal of Methyl Orange from Aqueous Solution onto Expanded Graphite by Adsorption	
Process M.C. Zhu, T. Yang, J.B. Huang, Y.C. Zhang, D.X. Li, Q.Q. Zhang, J. Xiao, J. Song, J.Y. Bao and P. Li	89
Synthesis, Characterization and Adsorption Property of Expanded Graphite/Conducting Polymer Composite	
M.Č. Zhu, W. Qi, Y.J. Mao, Y. Hu, X. Qing, K.Z. Li, Y. Ye, Y.C. Zhang, D.X. Li and H.M. Chai	93
Study on the Springback Characteristics of CR340LA Steel during the Typical Auto Part Stamping Process	00
H.Y. Gong, J.Y. Wang and Z.H. Zhao Ammonium Removal from Aqueous Solutions Using an Ammonium Ion-Exchange	98
Material, the Equilibrium Study L.H. You, X. Tan, Q.Q. Liu and L. Zhao	102
Soil Inorganic Phosphorus Fractions as Affected by Fertilization B.T. Huang, H. Zhou and H.X. Ding	108
Experimental Study on the FBG Sensing Character under Three-Dimensional Uniform Stress Field	
Z.X. Wu, R. Mao, Z.Y. Zhang and Z. Kong	112
Textile Pattern Design Based on Multi-Rules L-System G.L. Meng, X.H. Yang and M. Lin	116
Application of Long-Range-Corrected Density Functional in Zinc Porphyrin for Dye-	
Sensitized Solar Cells Y.D. Zhao and Y. Liao	120
Sorption and Desorption of DDTs to Natural Surface Coatings X.O. Ding, X.Y. Hua, F. Zhao, Z.Y. Guo, X. Song and D.M. Dong	125
Efficient Heat Pump Water Heater Regulated by the Superheat of Compress Suction Tube C.Z. Jin, Q.L. Chou and H.X. Chen	129
Vapor Compress Flash: Synthesis and Progress on Seawater Desalination Methods Q.L. Chou, C.Z. Jin and P.C. Shu	134
Influence of Flux on Sintering Property of Imported Hematite Ore J.Z. Zhang and J. Huang	139
Study on Three-Dimensional Fluorescence Spectra of Oil Concentration in Water Y.T. Wang, L.L. Yang and X.Q. Lu	144
Application of 3-D Fluorescence Spectrum and PARAFAC Method in Petroleum Pollutant Measurement and Identification	
Z. Pan, Y.T. Wang, X.Q. Shao and X.J. Wu	148
Fabrication Study on Rectangular Luminous Layer for Field Emission Display Panel Y.S. Zhu, C.T. Bai, D.F. Zhou and Q. Wang	152
Fabrication Research on the Panel Packaging for FED with Carbon Nanotube Emitters F.Z. Hao, Y. Dong, Q. Li, F. Zhao and B. Zhao	156
Composition and Antimicrobial Activity of the Essential Oil of a Wild Kiwi Y. Lu and H. Chen	160
Research on Harbor Oily Wastewater Treatment by Fenton Oxidation Y.J. Wei, G.Y. Li and B. Wang	164
Repair of Rabbit Facial Nerve with Amniotic Extracellular Matrix Based on Biological Material	
Z. Gao, X.T. Luo, N.S. Li, W. Deng and S.M. Li	169
Application of Amniotic Extracellular Matrix Nerve Conduit with Biological Material in the Peripheral Nerve Defect <i>In Vivo</i> Z. Gao, X.T. Luo, N.S. Li, W. Deng and S.M. Li	173
The Source and Control of Nitrate Pollution to Surface and Underground Water H. Wang, Q. Li, L.Y. Yang, S.B. Yu and Z.M. Ma	177
Photocatalytic Decomposition of Methylene Blue Waste Water by Using Pt Nanoparticles Modified TiO ₂ Film Photocatalysts	
P.F. Fu and Z. Zhao	181

Preparation of Nano-TiO ₂ Modified by Ionic Liquid and its Photocatalytic Activity C.G. Kou, Y.J. Hao, R.H. Liu and F.T. Li	185
Remediation of City River Water by Combining Submerged Macrophyte and Bioenergizer L.M. Ma, H.R. Song, D.L. Meng and B.T. Gong	189
Dynamic Model of Catalytic Denitrification of Nitrate over Pd-Cu Catalysts from Groundwater H.Y. Liu and Y. Zhang	195
Synthesis of Zirconium Tungstate by Hydrothermal Method L.Y. Zheng and Z.W. Yang	201
CO Emission Characteristics in a Designed Premixed Burner F.G. Liu, X.Y. You, Q. Wang, W.B. Liu and R. Zhang	205
Fabrication of Self-Organized TiO ₂ Nanotubes by Anodization and its Photocatalytic Properties T.Y. Wu, X. Tan, J.R. Huang, T. Yu and L. Zhao	209
In Situ Remediation Technology of Groundwater Contaminated by Petroleum Contaminants	
S.B. Yu, Z.M. Ma and H.S. Zhang	213
Preparation of Biocompatible Micelles as Drug Delivery via RAFT Polymerization L.L. Cui, T. Yu, X. Tan, Y. Zhao, J.P. Li and L. Zhang	219
The Process to Recover Soda Ash from Mining Solution in a Pilot Plant J.R. Huang, C.C. Xu, Y.L. Sun, Z.Y. Cao, J.G. Wang and K.J. Yang	224
Carbon Black Conductive Composite Based Resistance-Temperature Measurement System Using AT89S51 J. Wang and S.Y. Lai	230
Applying Computer Aided Design in Composite Molding J. Wang, S.Y. Lai and Y. Liu	235
Study on the Dose Parameters of ¹⁰³ Pd Radioactive Seed X.J. He, D.W. Qi and N. Hu	239
Comparative Study on Radiated Noise Estimation Error with Sound Pressure and the Pressure Variation L.K. Zhang, L. He, D.D. Lu and J.C. Tao	243
Effect of Bile and Nalidixic Acid on Growth of Selected Probiotics G.W. Shu, Z.X. Ma, Z.W. Wang and H. Chen	248
Study on the Kinetics of Wet Flue Gas Desulfurization by Carbide Slag S.Y. Liu, L.C. Nengzi, C.W. Lu, W. Qiu and Y.M. Hu	252
Chapter 2: Material Science and Engineering	
Selection of Complex Adsobent and Catalytic Absorption NO from Flue Gas S.Y. Liu, L.C. Nengzi, B. Qu, Y.Y. Xu, W. Qiu and C.W. Lu	259
Microstructure and Mechanical Properties of Weld in 980MPa Grade Steel by Ultra- Narrow Gap Welding L. Zhao, F.J. Zhang and S.H. Feng	263
Research on Adsorption Material for Organic Solvent Floating on the Water G.L. Liu, X. Xia and Q.B. Wu	267
Edge-PI Index of $TUC_4C_8(S)$ Nanotubes L.Z. Gong	271
The Elasticity of Soybean Protein Fiber Blended Yarn Q.B. Yang and S.W. Gao	275
Relationship between the Tensile Property of the SPF-PVA/Polyester Blended Yarn and the Blended Ratio of SPF-PVA Q.B. Yang	279
Study on the Relation between the Properties and the Blended Ratio of Soybean Protein Fiber/Cotton Blended Yarn Q.B. Yang	283
Research on the Tensile and Surface Frictional Property of PLA Fibers	203
Q.B. Yang	287

Design of Mechanical Vibration Test System Based on Virtual Instrument Technology H. Zhao	291
Preparing Fatty Acid by Hydrolysing Waste Oil from Restaurants under Normal Pressure C.M. Wang, W.D. Zhang, X.Q. Zhou, Y.B. Chen, F. Yin, J.C. Li, R. Xu and S.Q. Liu	296
Influences of Doping Mg Ion on Luminescent Properties of Tb Complex Material X.S. Tai	302
Study on Ca (II) Ion Quenching Luminescent Emission of Tb Complex Material X.S. Tai	306
Test and Analysis of Shengma Pure Yarn and Shengma/Modal Blended Yarn Mechanical Property	210
Q.B. Yang Improvement and Fabrication of Anode Pixel for FED Panel with Cold Cathode Emitters	310
C.T. Bai, Y.S. Zhu, D.F. Zhou and H. Niu Synthesis, Spectral and Luminescence Properties of Complexes Europium with N-	314
benzenesulphonyl-L-phenylalanine and 1,10-Phenanthroline X.S. Tai	318
Model and Simulation of Reheater Based on Thermal System Dynamics D.L. Zeng, J.W. Liu, J.Z. Liu and X. Xie	322
Dynamic Transmission Experiment Research of Underground Heat Storage	
X. Wang, B.C. Liu, H.Y. Guan, Z.W. Cheng, H.R. Li and Y. Jiang	328
Synthesis and Luminescent Properties of Magnesium Complex with Schiff-Base Ligands L.C. Du	333
Synthesis, Spectral Characterization and Luminescent Properties of Ternary Rare Earth Nitrates Complexes with 2-Acetylpyridine-tris(2-aminoethyl)amine and Pyridine-N-oxide Ligand	
L.Č. Du	337
Synthesis and Luminescent Properties of Two Zn (II) Complexes with Schiff-Base Ligand Y.M. Feng	341
The Effect of 1,10-Phenanthroline on the Luminescent Properties of Eu (III) and Tb (III) Complexes with 2-Acetylnaphthol-Hydrazinehydrate Y.M. Feng	345
Numerical Study of Laminar Flow and Heat Transfer Characteristic in Wave Tubes Based on Sine Curve	
Z.M. Tong, K. Zhu, J.L. Lu and G. Li	349
A Numerical Simulation of Diffusion Experiment in Clay Q.C. Yang	353
Grid Operation and Maintenance Station Locating with Electricity Materials Based on Improved k-Means Algorithm	
Y.X. He, J. Zhu, T. Luo, Y.Y. Chi and R. Fang Effect of Eutectic Reaction Induced by Pr on Microstructure in Semisolid A356 Alloy	357
Z. Liu, X.M. Liu and Y.M. Hu	361
Preparation and Characterization of Two New Luminescent Material Z.X. Ji	365
Preparation and Structural Characterization of Chain Ni (II) Coordination Polymer Material	
Z.X. Ji	369
The Development and Property Studies of Nonwoven Filtering Materials for Car Air-Conditioner C. Qian	373
The Physical Properties of Ultra-Short Leather Fiber Extracted from Chromed Leather Waste and its Use in Textile Industry	277
C. Qian Study on the Prediction Model and Software of Heavy Metals Pollutant in Coal-Burning	377
Power Plants F. Zeng and X.Y. Zhang	381
Study on the Novel Label Free Impedimetric Immunosensor for Aflatoxin B1 Based on Poly(o-phenylenediamine) Film Modified Gold Electrode N.N. Wu, L.X. Cao, P.S. Yan and M.H. Wang	385

Friction Material Optimization Design for the Traveling Wave Ultrasonic Motor with Stator Contact Layer	
F.Y. Sun and J.J. Qu	390
Compatibilization Effect of Polyfunctional Monomers on PP/TPU Blends L.F. Guan and J.Z. Chen	394
Discussing on Biochemical Pathway of Anaerobic Fermentation for Hydrogen and Methane Producition by Eupatorium Adenophorum Spreng Based on Biochemical Materials F. Yin, W.D. Zhang, S.Q. Liu, J.C. Li, R. Xu and Y.B. Chen	398
Tribological Properties of Ekonol Composites Friction Material in Traveling Ware Ultrasonic Motor F.Y. Sun and J.J. Qu	404
Synthesis, Infrared Spectrum and Luminescent Characterization of Zn (II) Complex Materials L.H. Wang	408
Infrared and Luminescent Properties of Mg (II) Fluorescence Materials L.H. Wang	412
The Research on Infrared and Luminescent Spectra of a New Mg (II) Luminescent Materials L.H. Wang	416
Synthesis and Characterization of 1-Acetyl-2-Naphthol-4, 4'-Diaminodiphenylsulfone Cd (II) Complex Material Z.X. Ji	420
The Laboratorial Research on Ultimate Stress of Material H. Wang, F. Yao and L.F. Wang	424
Optimization, Characterization and Kinetic Model of Electroless Ni-P Deposition on Quartz Optical Fiber Surface B.Q. Jiang and Z.Q. Xiao	428
Preparation and Thermodynamics of Nickel-Phosphor Deposition on Surface of Quartz Optical Fiber by Electroless Plating B.Q. Jiang and Z.Q. Xiao	432
Equilibrium and Kinetic Studies of Copper Metal Ion Biosorption by <i>Flavobacterium sp.</i> as a Low-Cost Natural Biosorbent X.C. Zhang and X.G. Li	436
Biosorption Applications of <i>Flavobacterium sp.</i> Biomass for Decolorization of Soluble Reactive Light-Yellow K-4G Solutions K. Zhang, H.Q. Xing and Y.Q. Wang	440
Mechanical Properties of the Knitted Fabric of SPF/Modal Blended Yarn Q.B. Yang and Y.K. Dou	444