

Table of Contents

Preface and Committe

Chapter 1: Material Engineering and its Application Technology

Preparation of Silicone-Modified Polyester Resin for Colored Steel Sheet Q. Yi, H.L. Fan, J.M. Liu and P.P. Jia	3
Preparation and Characterization of Novel Hollow Fiber Membrane with Multicomponent Polymeric Materials Y.Q. Li, D.L. Xi and S.L. Fan	8
Numerical Simulation of Die Casting for Semi-Solid Aluminum Alloy and its Mould Research C.Z. Wang, G.H. Yao and F.G. Liu	13
Study on the Frontal Polymerization of Polyurethane/Hollow Glass Microsphere Hybrid Material C. Wang	17
Surface Plasmon Propagation in Gold Stripes and the Effect of Incident Light Polarization on Propagating Z.W. Wei, S. Gang, D.W. Zhao and L. Yu	21
Effect of CMCS on the Thermal Stability of Natural Rubber T. Chen, H.X. Gui, Y.Z. Wang, H.H. Huang, R.Z. Zeng and M.F. Huang	25
Hydroxyapatite Whisker Effect on Strength of Calcium Phosphate Bone Cement P. Zhao, S. Zhao, T.R. Zhao, X.H. Ren, F. Wang and X.N. Chen	30
The Appropriate Chemical Admixture for Alkali-Activated Cementitious Material Z.X. Li and J.W. Tang	34
Research on a Neotype of Silica Sphere Filler W.J. Gu, B.G. He and H.B. Li	42
Optical Interaction in a Plasmonic Metallic Nanoparticle Chain Coupled to a Metallic Film D.W. Zhao, S. Gang, Z.W. Wei and L. Yu	46
600MPa Grade TMCP Steel with Low Yield Ratio and Excellent Weldability M.W. Tong, Z.X. Yuan and K.G. Zhang	51
Study on Rheology of UHMWPAN /MMWPAN/DMSO Solution D. Xu, Q. Han and H.F. Chen	56
The Optimization of Synthesis Condition of ZnSe Nanocrystals T. Wang and L. Guo	61
Application of Power Ultrasound in Coal Seam Water Infusion J.Q. Meng	65
Optimization Study on Frame Material of Mini Wind Generator Base on FEM Stress Analysis S.F. Wang	69
Research of Novel Functional Stealthy Nanomaterials Q. Wang, L.N. Sun, C.W. Hu and C. Cao	73
One-Step Synthesis and Antibacterial Properties of Polyaniline/TiO₂ Nanocomposites T.W. Hu, S.Y. Shan, S.M. Yang, L.H. Jiang, Y.M. Wang and Q.M. Jia	78
Electrochemical Synthesis of Polyaniline and its Anticorrosion Performance for X70 Steel W.J. Fan, J.L. Mu, S.Y. Shan, L.H. Jiang, Y.M. Wang and Q.M. Jia	82
Preparation of Fibrous CaO Sorbent by Hydrothermal Method S.M. Yang, S.Y. Shan, Q.M. Jia, T.W. Hu, L.H. Jiang and Y.M. Wang	86
Process on Inorganic Nanomaterial Synthesis by Microwave-Hydrothermal Methods S.M. Li, S.Y. Shan, Q.M. Jia, Y.C. Hu, L.H. Jiang and Y.M. Wang	89
Microstructure and Mechanical Properties of Ti_{1-x}Al_xN Thin Films C.L. Zhong, P.A. Wei and L.E. Luo	93
Study on Oxidation Resistance of Ti_{1-x}Al_xN Coating C.L. Zhong, P.A. Wei and L.E. Luo	97

Pore Structure Characterization of TiO₂-SiO₂ Composite Aerogel Prepared via Ambient Pressure Drying by Sol Pre-Modification Process J.X. Liu, L.N. Bai, F. Shi, Z.Q. Hu, Y.Y. Jiang and T. Zhao	101
Preparation and Characterization of Silica Aerogels/Glass Wool Composites J.X. Liu, X.J. Wang, F. Shi and J.Y. Luo	106
Preparation of Forsterite by Solid State Synthesis Process and its Dielectric Properties F. Shi, P.C. Du, J.X. Liu, J.W. Wu and C.Y. Luo	110
Application of Wavelet Analysis Technique in the Life Sign Detection below Solid Material Z. Zhang and F. Liu	114
Synthesis of Perylene-Containing Polyimides for Non-Covalent Functionalization of Graphene by Self-Assembly W.J. He, C.E. He, R.G. Peng and Y.K. Yang	118
Synthesis and Thermotropic Liquid Crystallinity of Alkylammonium Salts Containing Azobenzene Mesogens L.J. Yu, R.G. Peng, Y.Z. Wang and Y.K. Yang	122
Study on the Adsorption Behavior of Chrome and Manganese on Potassium Tetratitanate Whisker S.M. Wang, L.K. Liu and W.Z. Xu	126
Synthesis and Luminescence Characteristics of Zn (II) Complexes with 2'-Hydroxyacetophenone-Furan-2-Carbohydrazine X.S. Tai	131
Photocatalytic Activity of Pd Doped Tin Dioxide Inverse Opal Films Y. Liu, B. Li, Y.W. Yao, J.J. Gao, Z.D. Liu and J. Zhou	135
Steam Reforming of Acetic Acid for Hydrogen Production: Thermodynamic Calculations L. Guo, X.B. Li, Q. Wang and S.R. Wang	141
The Research of Diluents Added to HZSM-5 on the Methanol to Gasoline Reaction J.F. Guo, L.J. Zhu, Q.Q. Yin and S.R. Wang	146
Emulsion Fuels Production between Diesel and Bio-Oil Middle Fraction from Molecular Distillation X.Y. Wang, Z.G. Guo and S.R. Wang	151
Effect of Tin Composition on Cu₂ZnSnS₄ Photovoltaic Absorbers D.H. Fan, R. Zhang and H.R. Peng	156
Morphology Affects the Stability and Surface Photovoltage of Cu₂O S. Xu, S. Nuan and C.L. Qiu	160
Hydriding and Dehydriding Kinetics of Nanocrystalline and Amorphous Mg₂₀Ni_{10-x}M_x (M=Cu, Mn; x = 0-4) Alloys Prepared by Melt Spinning Y.H. Zhang, C. Zhao, Y. Cai, H.P. Ren, B.W. Li and D.L. Zhao	164
Growth Mechanism and Characterization of Zinc Oxide Spheres S. Xu	169
Ferroelectric Domain Patterns Writing in PbZr_{0.3}Ti_{0.7}O₃ Thin Films Using a Biased Sweeping PFM Tip Y. Yin, L.M. Liu and J.H. Mo	173
Preparation, Cross-Linking and Characterization of Novel Benzocyclobutene-Siloxane Polymers with Polysiloxane Mainchain and Silylbenzocyclobutene Pendant Groups H.L. Li, Y.W. Hang, K. Cao, F.H. Zhu and J.X. Yang	178
A New Kind of Silica Microspheres Used as Filler for PDMS Composite W.J. Gu, B.G. He and Y. Li	184
The Removal of Chromium(VI) by Synthesized CMC Stabilized Zero-Valent Iron Materials T.E. Fan, Z.M. Shen, M.Y. Jin, J. Zhu, N. Wang and Z. Zhang	188
Theoretical Investigations on Elastic and Thermodynamic Properties of CdTe Y.H. Huang, W.Q. Jie and G.Q. Zha	192
Properties of InSnTaO Films as Transparent Conductive Oxides B. Zhang	197
Synthesis and Luminescence Characteristics of Mg (II) Complexes with Salicylaldehyde-Henyl-Sulfonylhydrazone X.S. Tai	201
Preparation and Characterization of SiO₂-WO₃ Composite Aerogel by Ambient Pressure Drying Process F. Shi, L.N. Bai, J.X. Liu, X.L. Dong, J.Y. Luo, C. Chen and X.F. Zhang	205

Optimize the Dielectric Slab of the Tunable Active Frequency Selective Surface Absorbing Material	
Q. Chen, J.J. Jiang, X.X. Xu, B. Sun, L. Zhang, L. Miao and S.W. Bie	209

Chapter 2: Environmental Materials and Advanced Biochemical Technique

Experimental Research for Heavy Metal Lead and Zinc Smelting Wastewater by Electroflocculation	
L.D. Fan, X.J. Xu, G. Wang, J.J. Yang, T. Lei and Z.Y. Han	217
Removal of COD from Piggery Wastewater Using a Lab-Scale UASB Reactor	
F. Yan, J.L. Zuo, T.L. Qiu and X.M. Wang	221
Stickies Treatments of Recycled Fiber Pulping Wastewater by Lipases	
T.Z. Liu, D.F. Wang, H.Y. Zhao and K.Y. Zheng	225
Microbial Inoculants of Environmental Material in the Compost Application Research Progress	
Z.L. Huang, P. Ning and Z. Liu	230
Lead Pollution and its Assessment of Roadside Soils in Suzhou City	
Q. Li	235
Distribution Characteristics of Zn Content and its Pollution Assessment in Suzhou Street Dusts	
D.S. Xu	239
Heavy Metal Pollution in Suzhou Urban Soils and its Health Risk Assessment	
S.L. Huang, Q. Li and D.S. Xu	244
Determination of Main Components in the Excess Activated Sludge	
R.J. Su and D.X. Li	249
Characteristics of Particulate Matter Emissions on Diesel Passenger Vehicles Fueled with GTL Based on Real-Road Operating Parameters	
D.M. Lou, Y.Z. Zhao, Y.H. Zhi, P.Q. Tan and Y.J. Zhu	253
Emission Characteristics of Gaseous Pollutants in an On-Board Test of a Diesel Passenger Car Fueled with Biodiesel	
D.M. Lou, C. Shao, Y.H. Zhi, P.Q. Tan and W.S. Li	261
Synthesis of Co₃O₄/RGO as Catalyst for Degradation of Orange II in Water by Advanced Oxidation Processes Based on Sulfate Radicals	
P.H. Shi, S.B. Zhu, R.J. Su, J.T. Ren, D.X. Li and S.H. Xu	269
Evaluation of Zinc Pollution in Soils of Suzhou City	
Y.F. Han	273
Effects of EDTA, EDDS and Citric Acid on Growth of Maize and Uptake of Lead by Maize in Contaminated Soil	
G.L. Cheng, X.F. Ma, X.B. Sun and S.Q. Zhao	277
Effects of Inorganic Ions on the Heterogeneous Catalytic Degradation of Orange II	
S.B. Zhu, P.H. Shi, J.T. Ren, D.X. Li and S.H. Xu	281
Monodispersion Soot Position Interference Mechanism on Measuring the Soot Concentration Using the Scattering Method	
Y.J. Zhao, H.T. Zhang, X. Zhao and B. Qu	285
Protection Window Pollution Interference of the Monodispersion Soot on Measuring SO₂ Concentration Using NDIR	
Y.J. Zhao, D.X. Wang, Y.C. Lu and R.K. Gong	289
Dynamic Analysis on Change and System Simulation of Food Production Materials in the Northern Anhui Province	
H.M. Su, A.X. He and Y. Gao	293
Research on Optimal Formula of Dustfall Agent to Remove Blasting Smoke	
W. Niu, Z.A. Jiang and J.S. Chen	298
Synthesis of a New Silicon-Phosphorus Hybrid Flame Retardant from Waste Silicon Oil and its Application in Polypropylene System	
M.L. Song, Y.W. Huang, K. Cao and J.X. Yang	304

Spectroscopic Investigation on OH (A-X) Emission in a Corona Radical Shower System for Purifying Flue Gas from Energy Material Burning H. Lu	309
Fitting and Prediction of City's API Based on RBF and Application of CCRBF Model in Atmosphere Environmental Quality M.Q. Gong, M.W. Sun and M.Z. Jin	314
Environmental Pollution Analysis and Countermeasures of Chang-Ji Regional Integration with Analysis of Emission Materials from Waste Water and Pollutants D.F. Wang, W.Y. Zhao, H.Y. Duan and X.E. Wang	318
The Research of Low Carbon Decorative Materials B.Z. Sheng	323
Study on the Treatment of Phosphate-Containing Waste Water by Modified Fly Ash J.J. Song	328
UV Induced Degradation of Crude Oil in Polluted Water Based on Analysis of Environmental Materials H. Liu, B. Sun, Z.Y. Yan and X.Y. Tian	333
Effects of N:P Ratio and Nutrient Level on the Competition between Invasive <i>Alternanthera philoxeroides</i> and Native <i>Oenanthе javanica</i> R.Y. Chang, R.Q. Wang, Y.R. Zhang and J. Liu	337
Study of Analysis Technology of Organic Carbon in Sediment as Powder Materials with Ozonation Chemiluminescence Method Y. Liu, H.B. Zhang, R. Ma and G.X. Ren	343