

Table of Contents

Preface and Committees

Chapter 1: Bio-, Chemical, Food Materials, Material Engineering and Technology

Research on the Application of GSHP (Ground Source Heat Pump) Technology with Composite Properties of Biochemical Materials Z.Y. Yuan	3
The Warning Measurement System of Erythema Time with Ultra Violet Photodevice and Properties of Biological Filtration Materials B. Li, J.W. Liu, H. Luo, C.Y. Feng and X.X. Duan	9
Synthesis and Photovoltaic Properties of Poly(p-phenylenevinylene) Derivatives Modified by Thiophene Derivatives M.H. Huang, Z.F. Tian and H. Huang	13
Optimization of Formulations of 1% Abamectin Microcapsule Suspensions with Properties of Biochemical Materials K.F. Xiao, Z.H. Hao, L.L. Wang and X.G. Feng	17
Research on Pollution Control Technologies of Oil Spill in River Water with Properties of Biochemical Materials M. Zhao, B.Q. Wei and Y. Liu	21
The Application of Biological Materials on the Cruciate Ligament Reconstruction of Knee-Joint in Athletic Injury K. Liu	25
A Label-Free Electrochemical Immunosensor for Carcinoembryonic Antigen Based on Graphene and Thionine J.M. Han and Z.F. Ma	29
Corrosion Behavior of Cu₅₀Zr₄₀Ti₁₀ Metallic Glass in HCl and NaCl W.K. An, A.H. Cai, G.J. Zhou, Y. Luo, T.L. Li and X.S. Li	33
Thermal and Mechanical Property Research of Polyethylene Modified by Reactive Quaternary Ammonium Salt J. Li, X.J. Song and R.J. Yang	37
Simultaneous Determination of Lomefloxacin and Ciprofloxacin in Dairy Products by First-Derivative Synchronous Spectrofluorimetry Y. Wang, T. Tian, L. Wang and X.Y. Hu	43
The Correlation between Blood Lead Level and T-Lymphocyte Subpopulation with Analysis of Biochemical Materials L. Li, Q.H. Meng, S.G. Li and Q.H. Kong	47
Preparation of Squid Gelatin-Polysaccharide Scaffolds F. Zhang, Y.G. Wang, W.J. Zhang and P. Wang	52
Sequence Analysis of Potato α-Amylase Gene <i>amyA2</i> Y.G. Wang, J.Z. Ma, X.Q. Ma, J.G. Liu and M.J. Yang	56
Study on the Luminescent Properties of Europium (III) Complex with 2, 3-Pyrazinedicarboxylic Acid L.H. Wang	60
Study on Crystal Structure and Thermal Stability of Hexaaquanickel (II) Bis[4-amino-3-methyl-benzenesulfonate] L.H. Wang	64
The Application of Tissue Engineering Cartilage and Bracket Constructed Biomaterials for Athletic Injury B.H. Li, Y. Yu and D. Xu	68
Synthesis of Spindle-Like Hollow Mesoporous Silicas with Tunable Wall Thickness Y.X. Li and Z.F. Ma	72
Low Temperature CO Oxidation over Cobalt Catalysts Supported on Mesoporous CeO₂ J.J. Tian, W. Na, H. Wang and W.G. Gao	76

Thermoresponsive Ion-Imprinted Hydrogels with Interpenetrating Network Structure for Removal of Heavy Metal Ions J.J. Wang and F. Liu	83
Effect of Phosphates on Weight Gain, Thawing Loss and Cooking Yield of Frozen Pollock (<i>Gadus morhua</i>) Fillets G.P. Ni, Q.C. Zhao, Z.B. Li, J.W. Li and G.B. Wang	87
Synthesis and Anti-Tumor Activity of Cyclodepsipeptides Paecilodepsipeptide A M.J. Yang, Y.G. Wang, X.F. Liu and J. Wu	92
Electrochemical Properties of LiFePO₄/C Composite by Spray-Drying Method Y.J. Gu, F.X. Hao, Y.B. Chen, H.Q. Liu, Y.M. Wang, P. Liu, Q.G. Zhang and S.Q. Li	96
Influence of pH on Electrochemical Performances of Iron Phosphate (FePO₄·xH₂O) Particles and LiFePO₄/C Composites Y.J. Gu, P. Liu, Y.B. Chen, H.Q. Liu, Y.M. Wang, F.X. Hao, Q.G. Zhang and S.Q. Li	100
The Thermodynamic Analysis of Ni_{1/2}Mn_{1/2}(OH)₂ Prepared by Hydroxide Co-Precipitation Method Y.J. Gu, Q.G. Zhang, Y.B. Chen, H.Q. Liu, Y.M. Wang, F.X. Hao, P. Liu and S.Q. Li	104
Effect of Polysaccharides from Fresh Persimmon (<i>Diospyros kaki</i>) Fruits and its Sulfated Derivates on the Immunomodulatory Activity of Mouse Peritoneal Macrophage Cells Y. Ding, Y.L. Zhang and H. Guo	108
Molecular Dynamics Simulation of Liquid Cu-Ni Alloy Using Embedded Atom Method T. Fang, L. Wang and Y. Qi	116
The Study of HEPA/ULPA Filter Efficiency Certification with Properties of Semiconductor Materials in Semiconductor Industry Y.J. Chiu, C.H. Yang, L.M. Chang and K.S. Leong	120

Chapter 2: Nanomaterials and Nanotechnology

Nanostructured Morphology of Adsorption of Polyelectrolyte at the Solid/Liquid Interface Observed by Atomic Force Microscopy H.Y. Xia and F. Zhao	127
The Application of Modified Anatase Nano-TiO₂ J.C. Wu	131
Mechanics Modeling upon Nano-MRM for Treatment of Intracranial Aneurysm T. Sun, S.P. Jiao, X.H. Peng, C.X. Xu and J.Z. Li	135
Research on Lubrication Behaviors of Nano-TiO₂ in Water-Based Hot Rolling Liquid Z.X. Zhu, J.L. Sun, H.R. Wei, T.L. Niu and Z.L. Zhu	139
Progress in Cartilage Tissue Engineering with Nanostructured Extracellular Matrix Y. Li, S.J. Zhang and H.Y. Wu	144
Micro Vibration Sensor Based on the Nano Measuring Machine M.C. Li and Z.H. He	149
Synthesis of a Disaccharide with a Thiol Spacer Used in Gold Nanoparticles C. Wang	153
A Ferromagnetic Resonance Numerical Computation Method of Ferromagnetic Nano-Sphere X. Wang, L. Zhang, M.R. Guan, J.L. Xie and L.J. Deng	157
An Amperometric Glucose Biosensor Based on Pd-Pt Nanodendrites and Chitosan Matrix X.B. Sun and Z.F. Ma	162
A Heat Sensitive Color-Developing Nanocapsule as Leucocompound Delivery Carrier P.Y. An, Z.Y. Yu and S. Lu	166
Degradation of Alizarin Red Solution Using Nanometer TiO₂ Film under UV Light Irradiation P. Tian, L. Sun, G. Liu, Y.H. Kang, J.D. Duan and W.L. Du	170
Photocatalytic Degradation of Cresol Red in Wastewater Using Nanometer TiO₂ P. Tian, T. Huang, Z.G. Zheng, L. Sun, W.L. Du and G.T. Su	174
Degradation of Congo Red in Wastewater Using Nanometer TiO₂ Film under UV Light Irradiation P. Tian, W.L. Du, Z.G. Zheng, J. Lu, Q.Y. Chen and L. Sun	178

Photocatalytic Degradation of Bromophenol Blue Solution Using Nanometer TiO₂ P. Tian, J. Zeng, H.B. Zhang, W.L. Du, L. Sun and L. Yu	182
Large Scale Synthesis of Dendritic CdS Nanostructures M.L. Sun and Y.X. Yang	186
Preparation of Hydrophobic Magnesium Hydroxide Nanoparticles by Oleic Acid and Polystyrene-Grafting Surface Modification Z.W. Li, H.C. Ma, J. Wang and Z.J. Zhang	191
Fabrication of Silver Nanoparticle Decorated AFM Tips for Tip-Enhanced Raman Scattering Applications Y.H. Li, C.H. Xu and M. Han	195
Correlated Transitions of Pb/PbO Core-Shell Nanoparticles Induced by Electron Beam Irradiation Y. Zhou, L.B. He, M. Han and B. Xie	199