

Table of Contents

Preface, Committees and Sponsors

Chapter 1: Material Science and Chemical Engineering

| | |
|---|----|
| Study on the Preparation Process of Photocatalysts by the Acidolysis of High Titanium Slag with Hydrochloric Acid X.F. Lei, C. Chen, X. Li, X.X. Xue and H. Yang | 3 |
| Preparation of Acrylated Epoxidized Soybean Oil with Excellent Properties X.M. Chu, S.J. Liu and F.Q. Zhao | 7 |
| The Limy Composite Binder with the Use of the Synthesized Aluminosilicates V. Loganina, L.V. Makarova, R.V. Tarasov and A.D. Ryzhov | 11 |
| A New Geometric Model for Three-Dimensional Braided Composites C.B. Ni and G.F. Wei | 15 |
| Dielectric Relaxation Measurements in $\text{La}_{1.94}\text{Ba}_{0.06}\text{Mo}_{2-y}\text{W}_y\text{O}_{9-\delta}$ ($y=0, 1.0$) Oxide-Ion Conductors D. Li, B. Wang, P. Gong, J. Li and X.H. Li | 20 |
| Mechanical Properties of Polypropylene Fiber Concrete after High Temperature X. Du, Y.L. Chen, Y.C. Li, D.X. Nie and J. Huang | 24 |
| Electrospun Nanofibers for Fast Dissolution of Naproxen Prepared Using a Coaxial Process with Ethanol as a Shell Fluid Y.H. Wu, D.G. Yu, H.C. Li and D.N. Feng | 29 |
| Study on Mg-Y-Mishmetal-Zr Alloy Melt Reaction M.L. Ma, K. Zhang, J.W. Yuang and X. Feng | 33 |
| The Influence of Modified Polytetrafluoroethylene(PTFE) on the Properties of PA6/PTFE Blends J. Liu, H. Lin, H.L. Yi, T. Wei and B.C. Zheng | 38 |
| Experimental Study on De-Fluorinating by Adding Dilute Alkali in Wet Phosphoric Acid Extraction Organic Phase H.Y. Zhang, J. Yang, D.Z. Ming and Z.X. Li | 46 |
| Problems and Countermeasures in the Application of the Fire Chemical Detection Equipment Based on Material Properties Y.Y. Wang | 51 |
| Metal-Catalyzed Synthesis of a Monomethine Cyanine C.J. Wang, S.S. Gong and Q. Sun | 55 |
| Efficient Synthesis of DiAZT Triphosphate S.S. Gong and Q. Sun | 59 |
| Preparation of Bis-Functionalized 1,4-Diaminobutane Derivatives X.C. Li, S.S. Gong and Q. Sun | 63 |
| Efficient Synthesis of Functionalized 3-Aminopropanols X.C. Li, S.S. Gong and Q. Sun | 67 |
| Preparation of Adenosine-Containing Artificial Dinucleoside Triphosphates Z.B. Xie, S.S. Gong and Q. Sun | 71 |
| The Factors Affecting the Surface Properties of W-Implanted H13 Steel J.H. Yang, S. Li and X.J. Ma | 75 |
| Synthesis and Photochromism Studies of 1-(2,5-Dimethyl-3-Thienyl)-2-[2-Methyl-5-Pyrenyl-3-Thienyl]Perfluorocyclopentene X.R. Dong, R.J. Wang and S.Z. Pu | 79 |
| Synthesis and Properties of 1-(2-Cyano-1,5-Dimethyl-4-Pyrryl)-2-{2-Methyl-[5-(4-Methylene-Hydroxyl)Phenyl]-3-Thienyl}Perfluorocyclopentene F. Duan and G. Liu | 83 |
| Synthesis and Application of 1-[2-Methyl-5-Phenyl-3-Thiophene]-2-[2-Methyl-5-Phenyl-(4-Vinyl)-3-Thiophene]Perfluorocyclopentene Y.L. Fu, X. Li and G. Liu | 87 |

| | |
|---|-----|
| Synthesis and Properties Study of 1-(2,4-Dimethoxyl-5-Pyrimidinyl)-2-[2-Methyl-5-(3-Cyano)-3-Thienyl]Perfluorocyclopentene D.H. Jiang and G. Liu | 91 |
| Research on Photochromic Materials with Synthesis and Properties of 1-(2-Methyl-3-Benzothiophene)-2-[2-Methyl-5-(3-Cyanophenyl)-3-Thienyl]Perfluorocyclopentene G.M. Liao, C.H. Zheng and S.Z. Pu | 95 |
| Synthesis and Properties Study of 1-[2-Methyl-5-(3-Trifluoromethyl)-3-Thienyl]-2-[2-Methyl-5-(9-Phenanthrene)-3-Thienyl]Perfluorocyclopentene J.J. Liu, H.J. Jia and S.Z. Pu | 99 |
| Synthesis and Properties of 1,2-Bis[2-Methyl-5-(9,9-Dihexyl-Fluorene)-3-Thienyl]Perfluorocyclopentene L.L. Ma and G. Liu | 103 |
| Synthesis, Photochromism and Fluorescent Switch of 1-(2-Methyl-1-Benzofuran-3-Yl)-2-(2-Methyl-5-(4-Benzylazide)-3-Thienyl)Perfluorocyclopentene Z.Y. Tian, S.Q. Cui and S.Z. Pu | 107 |
| Synthesis and Properties of 1-[2-Methyl-5-(3-Cyanophenyl)-3-Thienyl]-2-[2-Methyl-5-(4-Pentylphenyl)-3-Thienyl]Perfluorocyclopentene C.C. Zhang, X.D. Zhang and S.Z. Pu | 111 |
| Applied-Information Technology in Concentration Depth Profile of Multi-Charged Mo Ion Implantation J.H. Yang and X.J. Ma | 115 |

Chapter 2: Construction and Environmental Engineering

| | |
|--|-----|
| Research on Formation, Influence and Regulation of Eco-Environmental Frangibility of Recreation Area of Urban Islets in River C.Q. Huang and H.J. Peng | 121 |
| Study on Ultrasonic Degradation of Methyl Orange Wastewater by Modified Steel Slag X.F. Lei, C. Chen, X. Li, X.X. Xue and H. Yang | 125 |
| Architecture Study on the Whole Lifecycle Management of Construction Contract in the Large Construction Projects H. Liu and W.J. Sun | 129 |
| Hydromechanics Study on Lahars of the Erdaobai River Basin, Changbai Mountains, China Q.F. Yang, H.R. Ma and Y. Zhang | 135 |
| Recovery of Copper by Electrodeposition Method from Electroplating Wastewater S. Fan, J.S. Wang, Q.W. Guo, W.M. Zhang and P. Sun | 141 |
| Buckling of Thin-Walled Cylindrical Shells of Desulphurizing Tower under Wind Loading L.C. Pan and D.F. Wang | 147 |
| Numerical Simulation on Characteristics of Nitrate Nitrogen Leaching under Different Irrigation Levels S.H. Ji and J.Y. Deng | 153 |
| Shape Optimization Design of Gravity Buttress of Arch Dam Based on Asynchronous Particle Swarm Optimization Method L. Xu | 160 |
| Determine the Reinforcement Effect of Gravel Layer on a Sandy Foundation S.A. Matveev, E.A. Martynov and N.N. Litvinov | 164 |
| Seismic Mechanics and Engineering Application Analysis of Shear Wave Velocity Inferring J.J. Qi, Z.Q. Yin and K.B. Wu | 168 |
| Information Processing in Significance in Legislation of China's Environmental Protection Tax - Viewed from the EKC Curve B.X. Gao, J. Chen and G.H. Zhang | 173 |

Chapter 3: Machinery, Automation and Control

| | |
|--|-----|
| Effects of Different Vents Location on Flow Characteristics of Air Conditioning Z.B. Luo | 179 |
|--|-----|

| | |
|--|-----|
| Design of Bilateral Automatic Window Cleaning Device Based on Solid Edge G.L. Xu and T. Wu | 183 |
| Comparing and Simulation of APF Control Strategies with Time Varying Inductive Load J.B. Wan, L.X. Zhang, Z.Y. Wei and W. Kang | 187 |
| Dynamic Optimization of Ship Boiler Startup Based on Modelica and JModelica.org G.Q. Zhu, L. Yang and G. Cheng | 191 |
| Study on Residual Strength of Corroded Pipes D.P. Yang, Y.M. Wang, Y.F. Cao, F.L. Long and G.Q. Niu | 196 |
| Study on Calculating Takeoff Distances on Non-Dry Runways Y. Qian | 204 |
| Applied Technology in Simulation of Photovoltaic Cell Model Based on MATLAB/Simulink S. Shi and Z.X. Zhou | 209 |
| Finite Element Analysis on Hybrid City Bus Frame Based on ANSYS-Workbench14 M.L. Wan, Z.Q. Dai and H.X. Zhang | 214 |
| Applied Information Technology in Fault Diagnosis of Marine Lube Oil System Based on Bayesian Network Inference W. Xu, G. Cheng, Y.T. Chen and F.M. Zeng | 220 |
| Applied Technology in Diaper-Based UTI Testing for Elder People by Using Nitrite Ion Selective Electrode S.L. Feng and T. Dong | 225 |

Chapter 4: Communication, Computational Algorithms and Applied Information Technology

| | |
|--|-----|
| Design of the High-Speed X-Band Frequency Hopping Source S. Zhao and D.R. Chen | 231 |
| Design of the Millimeter-Wave Receiver S. Zhao and D.R. Chen | 235 |
| Design of the Millimeter-Wave Microstrip Array Antenna S. Zhao and D.R. Chen | 239 |
| Research on the Circular Polarization Microstrip Array Antenna S. Zhao and D.R. Chen | 243 |
| Research on the Angle Measurement Algorithm for Low-Speed Target of Radar S. Zhao and L. Chen | 247 |
| The Design and Application of Information and Communication Networking Training Needs Analysis Simulation System Y.J. Peng and P.F. Zhu | 251 |
| Applied-Information Technology with Mutil-Agent Cooperation in Education Model Control Engineering J.H. Ma, H. Zhang and B.F. He | 255 |
| Applied-Information Technology in Short-Term Wind Speed Forecast Model for Wind Farms Based on Ant Colony Optimization and BP Neural Network Q.D. Zhao, Y. Yu and M.M. Jia | 259 |
| Study on Content Distribute Mechanism of Cloud Storage C.P. Wang | 263 |
| Self-Cooperative Network Coding in Deep Space Communications J. Li, K. Chen and L.G. Xie | 267 |
| Applied-Information Technology and Data Processing in Determination of Subjective Weights in Multiple Attribute Decision Making B.P. Su and H.Y. Su | 271 |
| Applied Technology with an Improved EGO Algorithm for Incremental Kriging Y.H. Li, Y.Z. Wu, Z.D. Huang and S.T. Wang | 277 |