

# Table of Contents

## Preface and Organizing Committee

## Chapter 1: Engineering Solutions in Traditional Energy

<b>Research on Dynamic Conducted EMI Characteristics of Electric Drive System in Electric Vehicles</b> Y.J. Guo, L.F. Wang and C.L. Liao	3
<b>Theoretical Analysis about Boiler Retrofit to Burn CWS</b> Z.X. Zhao, W. Lv, C. Qi, R.Y. Li and C. Cheng	9
<b>Analysis of Flow Instability for OTSG in Movable Nuclear Power Devices</b> S.X. Hou, J.J. Luo, J. Xu and Q.H. Zhang	13
<b>The Effect of Geometry of Outlet Channel of Nozzle Box on Solid Particle Erosion</b> L. Zhang and Y.T. Zheng	19
<b>Study on Computational Methods for the Refractory Belt Area of Coal Fired Boilers</b> D.H. Wang, B. Yang, Y.F. Zhong, B.M. Sun, J. Xin and X.M. Chen	25
<b>Grid Shift the Peak Air Conditioning Load Regulation Applied Research</b> C.J. Cui and S.W. Li	30
<b>The Industrial Test of Coal Type Adaptability for 300MW CFB Boiler</b> J.M. Su, R.F. Ding and K.T. Hu	37
<b>The Project Design for Cold Energy Recovery of LNG Vehicle Air-Conditioning System</b> F.Y. Yan and B.Y. Xu	43
<b>Analysis and Countermeasure for the GAP Abnormal Phenomenon of 500kV Fixed Series Compensation System Caused by Fiber Attenuation</b> Z.J. Wang, Y.R. Dong and X. Du	47
<b>Research on TZSI Control Method</b> L. Pan, H.X. Sun, L.F. Fu, B. Liu, R. Gao and B.B. Wang	51
<b>Error Analysis for Metering Current Transformer with DC Bias</b> S.H. Yang, K.Q. Zhang, Z. Zhuang, M.R. Xu, M.J. Cao, M.M. Chen, Z.D. Wang and G. Zhou	58

## Chapter 2: Engineering Solutions in Renewable and Alternative Energy

<b>A Review of the Hydrodynamic Characteristics of Heave Plates</b> J.B. Liu, Y.J. Liu and Y. Li	65
<b>Polymer-GaN Bulk Heterojunction Photovoltaic Cells</b> Q. Feng, Y.K. Li, K. Du, P. Shi, Q. Wang, Q. Feng and Y. Hao	70
<b>Lake Sediment Microbial Fuel Cell Generate Electricity and Power Wireless Sensor</b> T. Yin, X.M. Cai, L. Su, L. Wang, F. Rong, C.W. Yuan and D.G. Fu	74
<b>Optical Absorption Measurements at High Temperature (500 °C) of Oxide Nanoparticles for Application as Gas-Based Nanofluid in Solar Thermal Collector Systems</b> A. Creti, M. Epifani, A. Taurino, M. Catalano, F. Casino, M. Lomascolo, M. Milanese and A. de Risi	80
<b>The Research about the Wind Turbines Pitch Control</b> C. Wang, D.Z. Meng and X.F. Bo	87
<b>Research on Application of Corn-Diesel Fuels in the Diesel Engine</b> H.F. Li and G.D. Chen	91
<b>A Novel Photosynthetic Bacteria Solar Cell</b> L.Q. Wang, X.X. Deng and L. Tian	97
<b>Heat Utilization of Solar Energy in Burley Tobacco Modulation</b> C.L. Yang, X.Y. Yuan, J. Yu, J.P. Yang, S. Yang, A.F. Gao, X.Z. Du, K.C. Fu and C.W. Ma	101
<b>A Survey of External Feature of Solar Cells in Partially Shading</b> X.S. Zhou, X.B. Shen and Y.J. Ma	108
<b>Evaluation of DNA Extraction and Purification Methods for Corn Straw Biogas Slurry</b> J.T. Qiao, R.B. Guo, X.S. Shi and Y.L. Qiu	113

<b>Mechanism of the Improvement in Microcrystalline Silicon Solar Cells by Hydrogen Plasma Treatment</b>	
J.Y. Li, X.B. Zeng, H. Li, X.B. Xie, P. Yang, H.B. Xiao, X.D. Zhang and Q.M. Wang	118
<b>The Amorphous/Crystalline Silicon Interface Research of HIT Solar Cells by Simulation</b>	
H. Li, X.B. Zeng, X.B. Xie, P. Yang, J.Y. Li, X.D. Zhang and Q.M. Wang	124
<b>Ant Colony Algorithm for the Coordination of Wind and Thermal Generation Dispatch</b>	
K. Dhayalini, S. Sathiyamoorthy and A.R.C. Christofer	132
<b>The Research of Two Staged Non-Isolated Photovoltaic Grid Connected Inverter Control Method</b>	
J. Guo, Z.G. Li, Y.P. Cheng and C.Y. Cui	139
<b>Experimental Research on Solidification Characteristics of Spherical Capsule Packed Bed Latent Heat Storage System</b>	
Y.J. Zhao, J.H. Pei and H.T. Cui	143
<b>Sectional Data Acquisition and Control System for Solar Street Lamps Based on Internet of Things</b>	
J. Zhou, B.Y. Chen, M.N. Zhang and Y.Y. Tang	148
<b>Research on Application of a Multiple DC/DC Converter in Photovoltaic Power Generation System</b>	
H.B. Zhang	154
<b>Research and Design of Centralized Control System for Optimizing Microgrids with Renewable Energy Power Generation</b>	
H.N. Niu, M.H. Yang and X. Luo	158
<b>Experimental Studies of Emissions in a CI Engine Blended with Refined Palmolein Oil</b>	
J. Hemanandh and K.V. Narayanan	165
<b>Preparation and Properties of Poly (phthalazinone Ether Ketone) Based Anion Exchange Membranes for Vanadium Redox Flow Battery</b>	
S.H. Zhang, B.G. Zhang and X.G. Jian	171
<b>Maximum Power Point Tracking Control for Photovoltaic Module</b>	
P. Luo, X.F. Lv and M. Li	175
<b>Progress in Research of Lewis Acid Ionic Liquids Used as Catalyst in Biodiesel Synthesis</b>	
B.Y. Han, W.D. Zhang, Y.B. Chen, F. Yin, S.Q. Liu and X.L. Zhao	181
<b>Preparation of Biodiesel from Soybean Oil by Ultrasound-Assisted Transesterification</b>	
Y.G. Bi and H.C. He	188
<b>The Analysis and Application on the Typhoon-Induced Vibration Control of the Wind Turbine with a Pendulum Damper</b>	
J. Li, J.Y. Chen and X.B. Chen	193
<b>The Study on Coordinated Control Strategy for Micro-Grid Containing Various Distributed Generators</b>	
S.H. Wang, Y.Y. Wu, H.J. Zhao and Y.F. Yang	199
<b>Effect of Diagonal Layout on Efficiency of Twin Vertical Axis Turbine</b>	
K. Sun, S.K. Syed, L. Zhang and S. Ghazala	203
<b>The Structure Design Techniques of the Embedded Piezoelectric Power Generating Device in Intelligent Building</b>	
W. Li	207

### **Chapter 3: Energy Saving**

<b>Internet of Things Sensor Node Information Scheduling Model and Energy Saving Strategy</b>	
G.X. Liu, J.L. Xu and X.B. Hong	215
<b>Research on High Energy Efficient Servo Drive with Safety Integrated Function</b>	
X.F. Chen and W.M. Zhang	221
<b>Smart Lights Technology Used in Library Energy-Saving</b>	
R.M. Zheng, G.X. Liu and Y.H. Xu	227
<b>Exploratory Study on Correct use of Air-Conditioning System for Energy Conservation and Emission Reduction</b>	
X. Lei, B.P. Jin and G.J. Han	233
<b>The Artificial Neural Network On-Line Monitoring Model of Boiler Efficiency</b>	
X. Dai, B. Yang, Y.F. Zhong and Y.H. Guo	239

<b>Assessment of Life Cycle Energy Consumption and Emissions for Conventional and Advanced Powertrain Vehicles</b>	
S.H. Li, N.N. Li, Y.G. Hou, Y. Gao and J. Li	244

## **Chapter 4: Applied Materials Science and Chemical Engineering, Processing Technologies of Materials and Raw Materials**

<b>First-Principles Investigation of N-Al Co-Doping Effect on ZnMgO Wide-Gap Semiconductor</b>	
G.Y. Zhang, G.L. Liu and H. Zhang	253
<b>Comparison Experimental Study on Apparent Porosity of Brake Linings for Car Based on Water Granulating Technology</b>	
Z.Y. Wang, T.S. Wang and L. Song	259
<b>Preparation and Characterization of Cobalt Modified Rectorite</b>	
X.R. Zhao, L.H. Zhu and H.Q. Tang	263
<b>Numerical Simulation of Upset-Bending Forging for Heavy Crankshaft</b>	
C.L. Zhang, Z.S. Cui and D.S. Sui	267
<b>Experimental Study on Powder Suppression Characteristics of Autoclaved Brick</b>	
W. Zhang, Y.Y. Zhang and F. Zhu	272
<b>A Review of Experimental Results about <i>In Situ</i> Concrete Strength</b>	
M. Vona	278
<b>Separation of Heavy Metal Ions from the Solution Obtained by Leaching Low-Grade Pyrolusite with Pyrite and <math>H_2SO_4</math></b>	
X. Zou, X.Q. Chen, H.C. Xie and X.D. Qiu	283
<b>Experimental Analysis on the Lubrication Performance Decay of the Using Internal Combustion Engine Oil</b>	
J.W. Qiu, H.L. Wang, T. Tang, J.W. Hou, T. Fu and F.X. Li	289
<b>Value Analysis and Properties Investigation of High Performance Rice Husk Ash Concrete</b>	
L.K. Lin, W.S. Wu and H. Lee	293
<b>Laboratory Experiment Research and Field Tests on Catalyst of Aquathermolysis of Heavy Oils</b>	
L. Dong, Y.J. Liu, K.M. Xu, F.J. Zhao, W.W. Liu and X.W. Kong	298
<b>Preparation of Copper Sulfate Solution from Copper Slag Using Sulfuric Acid Solution</b>	
G.M. Pi	304
<b>Effects of Rotational Speed of Driver Roll on Hot Ring Rolling of 6061 Aluminum Alloy by 3D FE Simulation</b>	
L.J. Li, X.D. Luo and Y.X. Zhu	309
<b>Kinetics of Alkali Isomerization of Linoleic Acid from Walnut Oil Converted into Conjugation of Linoleic Acid</b>	
X.F. Xiong, C.Y. Chen, S.L. Zhao and B.Y. Han	316
<b>Effect of Different Microbes on Extraction of Main Elements from Illite</b>	
S.F. Zhan, Y. Chen and D.S. Sun	322
<b>Nitrite Scavenging Activity of Apple Polyphenols in Simulated Gastric Condition</b>	
H. Ma, W.B. Liu, Y.X. Zhou and T. Guo	327
<b>Studies on Citronellal Extract Column Reflux Ratio and Theoretical Plate Number Design</b>	
Z.H. Zhang and Q. Chen	331
<b>Purification and Characterization of Superoxide Dismutase from <i>Martianus Dermestoides Chevrola</i></b>	
W.G. Yu, B.B. Zhang, Y.J. Shen, Y. Li, Y.B. Tian and M.H. Jiang	336
<b>The Expression of HIF-1<math>\alpha</math> and VEGF in Endochondral Ossification Processes</b>	
W. Song and J. Xing	342
<b>Effect of Partial Oxygen Pressures on Pollutant Removal with Membrane-Aerated Bioreactor</b>	
J. Xing, C. Yu, W.J. Wang, H. Zhang and S.P. Zhan	347
<b>A Review on Utilization of Organic Matters in Activated Sludge</b>	
G.J. Duan, R.J. Su and D.X. Li	353
<b>Regulation and Homologous Expression of PNA in <i>Panax ginseng</i> by RNAi</b>	
S.K. Jin and S.J. Zhao	362

<b>Recent Advances in Study of Ginsenoside Biosynthetic Pathway in <i>Panax ginseng</i></b> S.K. Jin and S.J. Zhao	368
<b>Progress in Understanding of the Key Enzyme Genes of Ginsenoside Biosynthesis in <i>Panax ginseng</i></b> S.K. Jin and S.J. Zhao	374
<b>Molecular Dynamics Simulations of Atomic Structure in Cu<sub>46</sub>Zr<sub>46</sub>Al<sub>8</sub> Metallic Liquid and Glass</b> D. Zhang, X.M. Gao, X.Y. Xiao, Z.F. Cheng and J.H. Xia	380
<b>Hole Expanding Formability Performance and Fracture Appearance Analysis of High Strength Automobile Sheet Metal</b> B. Guan	386
<b>Influence of Direct Lamellarizing and Tempering on Microstructure and Properties of F550 Ship Plate Steel</b> X.L. Li, Q.W. Cai and W. Yu	391
<b>The Tribological Properties of Mg Alloy Produced by ECAE and Laser Melting</b> L.L. Gao and J.Z. Zhang	397
<b>The Wear Mechanism Analysis for the Surface of Aluminum Brass in Recoil Brake</b> K.B. Cui, J.Q. Qin, C.C. Di and Y.L. Yang	402
<b>Summary of the Function of Sn in Iron and Steel</b> J.P. Han, Y. Li, Z.H. Jiang, Y.C. Yang, X.X. Wang, L. Wang and K.T. Li	406
<b>Study on Abrasion and Corrosion Resistance of Ti-6Al-4V Alloy Implanted by Carbon in Hank's Simulated Body Fluid</b> C.H. Liang, Q.Q. Yu, J.L. Li, N.B. Huang and H. Yang	412
<b>Research on Crack Propagation Life of LD2 Aluminum Alloy Material in Corrosive Environment</b> S. Wang, X. Cui, W. Wang, W. Li and Y.C. Ma	417
<b>Effect of Ce(SO<sub>4</sub>)<sub>2</sub> Additive on Coating Formed by Micro-Arc Oxidation Process on Casting Aluminum-Copper Alloy</b> D.F. Wu, X.Y. Zhang, Y.Y. Lei and X.S. Zhou	424
<b>Preparation and Corrosion Behavior of Environment Friendly Conversion Coating Formed on Zn-5%Al Galvanized Steel</b> W.Q. Zhou, J. Wang, L. Sheng, Y.H. Kang, S.G. Xin and S.W. Wu	429
<b>The Minimum Representative Volume Element Size for Coefficient of Thermal Expansion of Particle Reinforced Metal Matrix Composites</b> X.X. Zhang, B.L. Xiao and Z.Y. Ma	435
<b>New Building Material - The Development and Application of Recombinant Bamboo</b> S.M. Liu and J.S. Liu	441
<b>Research on Synthesis of Hexafluoropropylene</b> J.Z. Qin, F.F. Shan and Y.Q. Chen	445
<b>Influence of Chemical Treatments on Properties of Flax Fiber Reinforced Composites</b> Y.F. Zhang, H. Li, Y.Q. Liu and G.Z. Zhao	450
<b>Value Management and Analysis of Plastic Formwork</b> L.K. Lin, Y.C. Wu and B.C. Tseng	455
<b>Prediction of Fatigue Life for Single Fastener Joints in Composite Laminates</b> D.Y. Wang, J.C. Liu, Y.W. Chen, S.H. Li and H.Z. Wei	460
<b>Corrosion Resistance of SiC<sub>p</sub>/Al Metal Matrix Nanocomposites</b> C.L. He, Y.Y. Bai, D.Y. Lou, G.F. Ma, J.M. Wang, Z.F. Du and D.L. Zhao	468
<b>Poly(Acrylic Acid)/Bentonite Composites for Removing High Concentration of Methylene Blue</b> Y. Wang, Y.F. He, L. Zhang, R. Li, L. Wang and R.M. Wang	472
<b>Enhanced UV Photo-Stabilization of PBO Fibers via Sol-Gel Surface Modification</b> H. Wang and J.P. Liu	477
<b>Preparation of Mesoporous Alumina Using Hexamethyl Disilylamine as Substitute Solvent</b> S.M. Cui, L.L. Ren and F.C. Cao	482
<b>An Environment-Friendly Thermal Insulation Material from Porous Cellulose Aerogel</b> J.J. Shi, L.B. Lu and J.Y. Zhang	487
<b>Preparation and Characterization of Macroporous Foams Derived from a Phenolic Resin</b> Y.Y. Zhang, H.W. Wang, Y.W. Du, L.H. Song, G.G. Dong, H.Y. Li and X.Y. Lu	492

<b>Co-Extrusion Technology for Functioned Nature Fiber Reinforced Polymer Composites</b> R.Z. Huang, C.J. Zhou, Y. Zhang and Q.L. Wu	497
<b>Effect of Formulation on Thermal Expansion Behavior of Bamboo/HDPE/PA6 Composites Using TMA</b> R.Z. Huang, X.W. Xu, C.J. Zhou, Y. Zhang and Q.L. Wu	502
<b>Effect of Sintering Temperature on <math>\text{MAI}_2\text{O}_4</math> Catalysts Used for the Catalytic Pyrolysis of Microalgae</b> Y.W. Zha, J. Liu, X.Q. Yang and X. Li	508
<b>Study on Structure and Properties of Degradable Polymer/Modified Nano-<math>\text{SiO}_2</math> Composites</b> H. He, Z. Long, L. Dai and Y. Lv	514
<b>Effect of the Substrate Temperature on the Transition from Amorphous to Microcrystalline Silicon with High Hydrogen Dilution</b> M.L. Zhang, H.D. Yang and K.Z. Yang	520
<b>Application of <math>\text{MoS}_2</math> Nanoflakes in Supercapacitor</b> X.S. Han, X.Y. Jiang and S.G. Yin	524
<b>The Melting Behavior of Poly(Ethylene Terephthalate)/ Attapulgit Nanocomposites</b> C. Liu, X.H. Lu, X. Qi and P. Li	530
<b>Preparation and Thermal Properties of Polyethylene Glycol/ Silica Hollow Nanospheres Composite as Shape-Stabilized Phase Change Materials</b> L.L. Feng, J.J. Tong and C.Y. Wang	534
<b>Scale Inhibition of the ESA / AMPS Copolymer with Magnetic Field or Electrostatic Field</b> Z. Liu, Z.F. Liu, X. Wang, Y.J. Wu and L.H. Zhang	538
<b>Defect Recognition for Honeycomb Sandwich Composites Using Pulsed Thermography</b> H. Yan and H.J. Li	542
<b>Optimal Design of Corrugated Ribbon Sandwich Structure Subjected to Biaxial Shear Loads</b> S.D. Pan, Z.G. Zhou and L.Z. Wu	549
<b>Longitudinal Shear Modulus of Honeycomb Cores Based on Shear-Compressive Model</b> S.D. Pan, Z.G. Zhou and L.Z. Wu	555
<b>Field Synergy Principle Base on Divergence Equation for Heat and Mass Transfer of Porous Media</b> L. Yu, S.R. Yu and C.L. Li	561
<b>Monte Carlo Simulation of Adsorption Isotherms of Pure C5-C7 Linear Alkanes in Pillared Layered Materials</b> W.Z. Li, D.J. Xu, S. Zhang and J.L. Wang	566
<b>Preparation and Mechanism of Spherical <math>[\text{Ni}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}]\text{Ox}</math> Precursors for Li <math>[\text{Ni}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}]\text{O}_2</math> by an Ultrasonic Atomization Method</b> Q.L. Chen, X.W. Liu, B.H. Rong, K. Tang, H.Z. Yang, Y.W. Lu, X.Y. Wu, F. Shen, Y.F. Tang and Y.F. Chen	572
<b>Fabrication of Hollow <math>(\text{Ni}_{0.8}\text{Co}_{0.1}\text{Mn}_{0.1}) [\text{Ozgur, 2010 \#912}]\text{O}_y</math> Spheres by Ultrasonic Spray Pyrolysis Method</b> K. Tang, Q.L. Chen, B.H. Rong, X.W. Liu, H.Z. Yang, X.Y. Wu, Y.W. Lu, F. Shen, Y.F. Tang and Y.F. Chen	580
<b>Molecular Dynamics Simulation of Water-Based Nano-Lubrication</b> S.M. Zhang, P.H. Guo, J.N. Zhu and X.P. Wen	585
<b>The Study of Structural Transformation Induced by Cu Concentration Variation in the Frozen <math>(\text{CoCu})_{309}</math> Clusters</b> X.Y. Xiao, R.P. Chen, L.T. Sun, Z.F. Cheng and J.H. Xia	589
<b>Use of Hydroxyl Radical Yield to Investigate a Urea and Cobalt Modified <math>\text{TiO}_2</math> Photocatalyst Degrading Rhodamine B under UV and Visible Light</b> J.H. Shen, P.C. Lu and J.J. Horng	595
<b><math>\text{CuO/CeO}_2</math> and <math>\text{CuO/PrO}_2\text{-CeO}_2</math> Catalysts for Preferential Oxidation of CO</b> Z.J. Zhao, R.Y. Wang, Q.L. Zhao, E.P. Wang, H.Q. Su and S.H. Zeng	601
<b>Synthesis of TEOS-Based Silica Spherical Particles by Sol-Gel Process</b> J. Li, H.Q. Zhang and W. Xue	606
<b>Effects of K in <math>\text{Mn}_2\text{O}_3</math> on the Electrochemical Performances of Spinel <math>\text{Li}_{1.06}\text{Mn}_2\text{O}_4</math></b> X. Zou and C.L. Peng	611
<b>Interconnecting Silicon Posts by Pyrolyzing Diffraction-Induced SU-8 Fibers</b> H. Zheng, Y. Gao, S.L. Jiang, Z.R. Tang, T.L. Shi and Q. Xia	617

<b>Quantum Confinement Stark Effect of Different Gainnas Quantum Well Structures</b> Y.N. Qiu, W.S. Lu and S. Calvez	622
<b>The Feasibility of Fluorine Ammonium Compounds for Sandstone Formation Matrix Acidizing: Laboratory Study and Discussion</b> F. Li, A.L. Wu, M.M. Xia, H.X. Liu and T.T. Zhang	628
<b>Study on the Promoting Effect of Additive on the Calcium-Based Sulfur-Fixing Agent</b> Y. Zhu, C. Liu, Q.W. Yang, P.F. Li, Y.J. Sun and D.Y. Xu	634
<b>Characterization of Oxide Layer Formed on NiTi Alloy by Anodic Oxidation in a Molybdate Electrolyte</b> X.D. Su, L. He, Y.F. Ding, J. Huang, Y. Li and W.C. Hao	639
<b>Study on the Mechanism of SCR NO by Mn-Ce/CNTs Catalyst at Low-Temperature</b> Q.W. Yang, P.F. Li, B.N. Ren, Y. Zhu and D.Y. Xu	645
<b>Symmetrical Dynamic Expansion Issues of Mode III Interface Crack</b> N.C. Lu, F. Wang and C. Shi	649
<b>Preparation and Characterization of UV Curable Polyurethane Acrylate Adhesives</b> Q.Z. Wen, Y. Zhang and J.H. Zhu	654
<b>P-Doped SiO<sub>2</sub> Proton Conducting Films for Low Voltage Thin Film Transistors</b> L.Q. Guo, Z.J. Guo, Y.Y. Yang and J.M. Zhou	660
<b>Memory Devices Based on the Nanoparticle Silicon Floating Gate Double-Barrier Structure</b> Z.J. Guo, L.Q. Guo and G.D. Wu	664
<b>Influences of Particle Sizes on Properties of Natural Rubber/Waste Ground Rubber Powders Blends</b> J.L. Liu, P. Liu, X.Q. Tang, D. Zeng, X.K. Zhang, W.P. Yang, M.M. Wang and M. Zhang	668
<b>Self-Assembled Low-Power In-Plane-Gate Transparent Oxide-Based Thin Film Transistors Gated by Atomic-Layer-Deposited Al<sub>2</sub>O<sub>3</sub></b> G.D. Wu, H.L. Zhang and Z.J. Guo	673
<b>Low-Temperature Sintering Study of Ceramics Based on Multiple Regression Analysis</b> Y.Z. Zhou, H.J. Wu and Q. Yu	678
<b>TiO<sub>2</sub> Nanotube Arrays Fabricated by Anodization</b> S.Q. Yang, B. Xu, T.H. Liang, Y.F. Meng, Q.X. Yang and M.J. Tang	682
<b>Microscopic Mechanism of the Diffusivity of Concrete Chloride Ion</b> J. Liu, F. Xing and B.Q. Dong	687
<b>Fracture Properties and Microstructure of Concrete Made with Recycled Aggregate</b> B. Qi and J.M. Gao	693
<b>Fabrication and Mechanical Properties of Natural Rubber/Waste Ground Rubber Powders Blends via a Mechano-Chemical Method</b> W.P. Yang, M.M. Wang, J.L. Liu and M. Zhang	700
<b>The Preparation and Performance of a Multifunctional Corrosion Inhibitor in Seawater</b> X. Wang, Z.F. Liu, Z. Liu, Y.J. Wu and L.H. Zhang	704
<b>LiFePO<sub>4</sub>/C Cathode Materials Prepared by One-Step Fast Carbothermal Method Using Fe<sub>2</sub>O<sub>3</sub> as Raw Materials</b> B.H. Rong, Y.W. Lu, Q.L. Chen, K. Tang, X.W. Liu, H.Z. Yang, X.Y. Wu, F. Shen, Y.F. Tang and Y.F. Chen	709
<b>Practice of Fuzzy Ball Cementing Pad Fluid in Leakage Zone of Naiman Well N-X-Y</b> Z.C. Li	714
<b>Research on Coal-Formed Gas Reservoir Combined Qualitative and Quantitative Methods</b> Z.T. Wu and S.H. Tang	720

## **Chapter 5: Environmental Science and Engineering**

<b>Dynamic Behaviors of a Discrete Two Species Competitive Model</b> T. Wu	729
<b>Evaluation System of Air Distribution in Gymnasium</b> L. Ting	734
<b>Analysis of Game Theory Application in the Land Acquisition of Major Projects in China's Urban Area</b> Y. Ni and W.Z. Yue	738

<b>Field Study on Remediation of PAHs Contaminated Soil by <i>Ex Situ</i> Technologies at a Coking Site</b>	
T.X. Xia, J.J. Yao, M.S. Zhong and X.Y. Jia	744
<b>Effects of Flue Gas Inlet Structure on the Flow Field Characteristics of Multi-Stage Liquid Column Scrubber</b>	
Z.Y. Duan, F.L. Zheng, H.L. Shi and J.M. Zhang	749
<b>Research of the Processing Technology and Quality Standard of <i>Indocalamus latifolius</i> Leaves</b>	
X.F. Wang, J.F. Wang, Z.G. Liu, T.X. Liu, X.Q. Yue and J.C. Yang	755
<b>The Characteristics of Rare Earth Elements of Red Mudstones in the Lower Part of the Fourth Member of Shahejie Formation in Dongying Depression and its Geological Significance</b>	
L. Liu and N.H. Zhu	763
<b>The Application of GIS to the Study of Historical Geography: a Case Study of China T'ang 'FanZhen' Period</b>	
J. Yang and J.F. Chen	768
<b>Analysis of Energy Conservation and Environmental Protection in Construction Enterprises</b>	
Y. Liu, P. Deng and D.K. Yang	775
<b>Effect of Slope Positions and Years on Three Indexes to Artificial Ecological Substrate</b>	
Z.Y. Hu and H. Hu	779
<b>Growth Trajectory Modeling for a Full-Sib Pedigree of <i>Salix suchouensis</i></b>	
Y.N. Chen, Q.Y. Ma, J.T. Qu, X.G. Dai and T.M. Yin	784
<b>Bending Strength and Effective Modules of Songhua River Ice</b>	
L.Z. Zhang	789
<b>Performance of Soil-Root System of <i>Setaria viridis</i> Community in Soil Reinforcement and Slope Protection on the Water-Level-Fluctuation Belt in the Three Gorges Reservoir Region</b>	
J.H. Mao, J.X. Zhang and F.Q. Chen	794
<b>Research on Interface Symbols of Sand Groups and Characters of Interior Gyration of Heidimiao Layer in Yingtai Area</b>	
G.Y. Lv	800
<b>Study on Water Saving Technology of Water Ecological Construction in Shaoxing</b>	
D.Y. Xu and G.D. Chen	806
<b>Numerical Simulation of Flow Structures on the River Conjunction Area</b>	
D.D. Jia, L.H. Qian, W.L. Peng, W. Li and X.B. Zhang	811
<b>Evaluation of Water Quality of Rural Drinking Water and Countermeasure Research in Luquan City</b>	
F.H. Li and X.L. Liang	815
<b>Exploration of Ecological Design Strategies and Technologies for the Floating Residences on Sea - A Case Study in the Xiapu Region of China</b>	
Z.X. Yang, Y. Liu and Y.D. Zhu	819
<b>Study on Water Source Area Environmental Protection and the Coordinated Development of Towns in Water Source Area</b>	
L.L. Li	825
<b>Combined Forecasting Model Based on the Rough Set to Predict the Chinese CO<sub>2</sub> Emissions</b>	
J.G. Zhou and X.G. Zhang	831
<b>Comprehensively Evaluating Soil Nutrients in Spring Wheat (<i>Triticum aestivum</i>) Field under Regulated Deficit Irrigation in an Arid Environment</b>	
H.J. Zhang and J.H. Li	837
<b>Soil Nutrients and Grain Yield Performance in Spring Wheat (<i>Triticum aestivum</i>) as Influenced by Regulated Deficit Irrigation</b>	
H.J. Zhang and J.H. Li	844
<b>Formation and Evolution of Luyang Lake Wetland</b>	
J.H. Yang, M. Xi and J.M. Wu	852
<b>Research on Dust Pollution and Control Countermeasures in Working Environment of Manufacturing Friction Materials</b>	
Y.Y. Wang and L. Li	857

<b>Accumulation and Environmental Risk on Heavy Metal Pollution in Bottom Sediments of Surface Waters in Xiao Qinling Gold Mine Belt, China</b>	862
R.P. Liu, Y.N. Xu, J.H. Zhang, H.Q. Chen, H. Fang, X. Li, H.L. Ke and G. Qiao	
<b>The Analysis of Stability of Inter-Regional Water Resource Redistribution</b>	869
S.H. Jiao	
<b>Study on Well Location Methods in Deep Buried Area of Karst Aquifer-Giving an Example in Boai County, Henan</b>	875
Z.B. Ma, C.H. Yan, J.C. Wu and Z.X. Li	
<b>Thermal Comfort Analysis of a Ship Air-Conditioning System Using Solidworks Flow Simulation</b>	883
H. Nawaz and Y.S. Yuan	
<b>Removal of Arsenic from Wastewater by Using Pretreating Orange Peel</b>	889
Y. Peng, H.Y. Xiao, X.Z. Cheng and H.M. Chen	
<b>Comparative Study on Classification of Remote Sensing Image by Support Vector Machine</b>	893
Y. Xu, C.C. Cheng, X.M. Wang, M.Q. Mao and C.J. Zhang	
<b>Adsorption and Regeneration Characteristics of Granular Adsorbent Based on Coal Fly Ash for Methylene Blue Removal</b>	899
J. Wang, C.S. Peng, Z.F. Yang, D.D. Li and Y.T. Wu	
<b>Activated Carbons for Ventilation Air Methane Enrichment by Vacuum Pressure Swing Adsorption</b>	907
S.B. Ouyang, S.P. Xu and N. Song	
<b>N,Fe Nano-TiO<sub>2</sub> Doped on the Fly Ash Forming Absorbent and the Photocatalytic Activity Study</b>	912
Y.M. Liu, Z.N. Liu and X.G. Han	
<b>Effect of Gas Composition on Removal of NO by Dielectric Barrier Discharge</b>	917
X. Dai and D. Wang	
<b>Analysis Degradation Effect of Aniline Wastewater by Ultrasound</b>	923
Y.G. Bi and M.X. Huang	
<b>Enhancement of Carbon Dioxide Adsorption by Lithium Decorating and Fullerene Encapsulating in Metal-Organic Frameworks</b>	927
R.F. Lu, D.W. Rao, Z.S. Meng and K.M. Deng	
<b>Research on Incentive Mechanism of Green Building Development</b>	932
J.X. Deng and W. Hu	

## Chapter 6: Engineering Management

<b>Relationship between Dollar Exchange Rate, Monetary Liquidity and International Oil Price</b>	939
L. Lan, Q. He, Q. Liu and X.T. Zhao	
<b>Impact of Monetary Policy on Industries Energy Demand in China</b>	944
Y.P. Fan, M.Q. Fan, X.Q. Yue and H. Wang	
<b>Research on the Electric Vehicle Remanufacturable Battery Supply Chain with Recycling Channels</b>	948
G.P. Nong and S.L. Pang	
<b>An Evaluation of Critical Raw Materials for China</b>	954
J. Yang, H.L. Zhu, L.W. Ma and Z. Li	
<b>Full Life-Cycle Analysis of Electric Power Enterprise Device Management</b>	961
L.Z. Tang, B.H. Bai and K.P. Xu	
<b>Research on Risk Assessment of the Power System Operation Safe</b>	965
S.H. Zhao	
<b>Investigation and Analysis about the Construction and Utilization of Biogas Digester in Changyang County</b>	969
X.R. Zhao, Y.H. Luo, N.N. Du and Y.P. Huang	