

# Table of Contents

## Preface and Conference Organization

## Chapter 1: Damage and Fracture Mechanics

<b>Influence of the Cross Section Shape on Energy Absorbing Component of Bumper Subjected to Low Speed Crash</b> Y.J. Liu and L. Ding	3
<b>Optimization of Sonic Boom Suppression by Off-Body Energy Deposition</b> X.Q. Feng, Z.K. Li, J.H. Sang and B.F. Song	7
<b>Evaluation of Stress Corrosion Resistance Properties of 15CrMoR(H) in H<sub>2</sub>S Environment</b> C.C. Wang, J. Wang, Y.L. Zhang and Y. Li	14
<b>Analysis of Plastic Strain between Substrate and Micro-Cantilever under Different Deformation Characteristics</b> H.K. Gao and J.M. Huang	21
<b>Evaluation of the Higher Order Terms of the Wedge-Splitting Specimen Based on the SBFEM</b> F.L. Xu, J.Y. Liu, B.K. Ning and H. Fan	25
<b>Study on Failure Mechanisms of Composite Materials Based on HHT</b> W.Q. Han and J.Y. Zhou	30
<b>The Research on Oblique Crack Tip Deformation Field of Airship Envelope Composites Based on the Digital Speckle Correlation Method</b> L.B. Liu, Y.C. Gu, S. Cao and H.D. Xiao	34
<b>Numerical and Experimental Buckling and Post - Buckling Analysis of Composite Cylindrical Panel with Delamination</b> M. Barski, A. Muc, P. Pastuszak and A. Bondyra	39

## Chapter 2: Fatigue and Creep

<b>Finite Element Analysis of Input Axis in Six-Speed Transmission</b> Q.D. Zeng and X. Pan	45
<b>Design of Flat Ends in Pressure Boilers with Circular and Elliptical Stress Relieve Grooves</b> B. Szybiński	49
<b>Analytical Estimation of Maximal Fatigue Loads in Cylindrical Roller Bearings</b> P. Romanowicz and B. Szybiński	54
<b>Analysis on Stress and Contact Failure of BNC Connector Components</b> Z.Y. Li, Y. Liu, S.J. Wang and W.J. Wei	58
<b>Qualitative Calculation of Fatigue Life for Turbine Rotor Blade</b> W.F. Zhang and Q.Y. Tang	63

## Chapter 3: Dynamics, Vibration and Structural Stability

<b>Modal Stability Control of a Wheeled Heavy Machine</b> S. Chwastek	69
<b>Initial Temperature Influence to the Rectangular Plates Free Vibrations under Different Types of Boundary Conditions</b> O.I. Poddaeva and A.N. Fedosova	73
<b>Research on Analytic Calculation Method of the Dynamic Response of Buried Pipelines under Indirect Ground Shock</b> G.F. Xu, Z.D. Deng, C. Ji and J.J. Jia	77
<b>Dynamic Experimental Investigation on the Fundamental Frequency of Liquid Storage Tanks under Seismic Excitations</b> D.Y. Liu and Z. Fang	81

<b>Design Principles of Controlling Vehicle Gear Whine Noise Based on Loudness Metric</b> D. Guo, Q. Shi, W.L. Li and C.H. Xu	86
<b>Dynamics of Turbocharger Rotor with Spin Softening Effect</b> X.S. Yao, C.L. Zheng and Y.F. Liao	90
<b>Study of Contact Interface Rough Effect on Vibration Stress Wave Propagation</b> T. Liu	95
<b>Performance Analysis and Improvement Design of School Bus Seat Based on Workbench</b> C.Q. Hu	99
<b>Sensing of Driving Conditions Based on Vibration Signal</b> J. Li	105
<b>A Novel Structural Form of Semi-Submersible Platform for a Floating Offshore Wind Turbine with Hydrodynamic Performance Analysis</b> B.B. Lai, C.B. Zhao, X.M. Chen, Y.H. Tang and W. Lin	109
<b>Effects of Wind Load on Hydrodynamic Performance of an Offshore Wind Turbine Semi-Submersible Platform</b> J.R. Xie, C.B. Zhao, X.M. Chen, Y.H. Tang and W. Lin	114
<b>Tendon Response of 10 MW Offshore Wind Turbine TLP Platform in Extreme Environment Condition</b> Q. Zhang, C.B. Zhao, X.M. Chen, Y.H. Tang and W. Lin	119
<b>Oscillation Suppression in a Delay-Coupled Flexible-Joint System</b> S.Y. Jiang	123
<b>Development of an Novel Adaptive Suspension System Based on Ball-Screw Mechanism</b> C.N. Huang, K.H. Chen and D.T.W. Lin	128
<b>Stable Platform Based on Workbench Vehicle Structure Analysis</b> J.X. Liu, C. Chen, L. Wang and C. Zhang	132

## **Chapter 4: Solid Mechanics Theory and Methods and Engineering Application**

<b>A Method for Calculating the Amount of the Deflection and Force-Energy Parameters for Copper-Clad Steel Tube in the Process of Straightening</b> L.Y. Xia, D.M. Sun, G.R. Kang and J. Sun	137
<b>The Sinusoidal Buckling Mechanical Analysis for the Coiled Tubing Based on Energy Method</b> C.S. He, J.B. Liu, Q.B. Yue and Y. Wang	141
<b>The SVC Based AFOSM Method for the Structure Reliability Sensitivity Analysis</b> W.D. Chen, P. Jia, X.D. Wu, Y.C. Yu, F.C. Zhang and S.Z. Lu	146
<b>Research on Hexahedral and Tetrahedral Mesh Applied to Strength Analysis of Bogie Frame</b> G.J. Li, W.J. Wang, L. An and Z.J. Zhang	150
<b>Research on Geometry Model and Stress State Leading-In through Heavy Rail Cooling to Compound Straightening</b> H. Song, J.K. Yao, K.X. Li, F.B. Lian, S.H. Tong, H. Jia, S.Y. Yuan and Z.Q. Wang	155
<b>Dynamic Response Analysis of Square Honeycomb Sandwich Plates Subjected to Blast Loading</b> L. Deng, A.W. Wang and L.W. Mao	160
<b>Investigation into Dynamic Postbuckling of Thin Rectangular Plate under Elastic Compression Wave</b> D. HAN, A.W. Wang, L.W. Mao and G. Li	165

## **Chapter 5: Fluid Mechanics and Fluid Engineering**

<b>Study on Flow Rate and Steady Flow Force of Hydraulic Combination Valve Based on CFD</b> J.Y. Shi	173
<b>Research on Effects of Positioning Ways on the Strength of Port Plate in Axial Piston Motor</b> J.Y. Shi	177

<b>Investigation of the Predictive Ability of Two Advection Schemes on the Formation of a Turbulent Separation Bubble in a Boundary Layer Wind Tunnel</b>	
M. De Queiroz, G.L.F. De Vasconcellos, C.B. Maia, J. Weiss and S. De Moraes Hanriot	181
<b>The Numerical Simulation and Calculation of Aircraft Horizontal Stabilizer to Aerodynamic Forces by Using Visual Method</b>	
W.Y. Wang, W. Li and C.Z. Jin	186
<b>The Simplified Flow Field Analysis Method of Multi-Layers Parallel Plates Perfusion Bioreactor</b>	
Y.B. Gao, W.H. Zhou, L.S. Cen, Y.C. Xu, J.X. Liang and Y.X. Luo	191
<b>Study on the Blood Flow with Rolling Manipulation of Traditional Chinese Massage</b>	
H.L. Tan, K.Z. Bai, F.R. Kong, L. Jin and H.B. Li	197
<b>Investigation of CFD Method Simulating Hydrodynamic Performance of AUV with Complicated Shape</b>	
Y.X. Wang, Y.J. Pang, T. Gao and J. Wang	203
<b>Direct Solution of Three-Dimensional Turbulent Rayleigh-Bénard Convection</b>	
W. Xu, Y. Bao, G.Y. Ding and Y.Z. Zhang	209
<b>Study on the Characteristics of the Flow Resistance of the Mixed Plate Heat Exchanger</b>	
Z.M. Tong, F. Xie, G.H. Qin and X.G. Tao	213
<b>Influences of the Compliances and the Resistance on Pulsatile Flow Waveforms</b>	
W.B. He, Y. Wang and X.Y. Gong	217
<b>Flow Field Numerical Simulation Analysis of Five Wing Horizontal Wave Turbine Power Plant with Different Blade Angles</b>	
S.M. Wang and K. Tian	221
<b>Simulation Study of Three-Phase Flow Field Based on Microbubble Flotation</b>	
W. He, Z.K. Li, A.R. Tang, A. Liu and B.G. He	226
<b>Numerical Simulation of the Effect of the Uneven Wall on the Liquid Film Flow</b>	
M. Liu, Y. Zhu and S.L. Wang	232
<b>Computational Fluid Dynamic of Date Transfer</b>	
B.Y. Lu and Y.Z. Li	236
<b>Supersonic Bi-Directional Flying Wing Wave Drag Optimization Based on Alternative Form of CST Method</b>	
X. Guan	240
<b>New Exact Solutions for Stokes First Problem of a Generalized Jeffreys Fluid in a Porous Half Space</b>	
X. Guo	246
<b>An Analytical Solution of Wave Exciting Loads on CALM Buoy with Skirt</b>	
D.J. Wang and S.P. Sun	254
<b>Understanding Regular Waves Effect on Ship by Numerical Wave Tank Simulation</b>	
S. Fan, C.B. Zhao and Y.H. Tang	259
<b>Suppression of Vortex Shedding of Circular Cylinder by a Small Control Rod</b>	
L. Hsu, D. Lai and J. Ye	265
<b>Numerical Simulation of Magnetostriction-Induced Cavitation Flow</b>	
D.S. Xia, Y. Yu and H.C. Zhang	271
<b>A Method for Aerodynamic Characteristic Analysis of Hypersonic Aircraft Based on Response Surface Model</b>	
J. Yang, S.P. Wu and W.X. Hou	277
<b>An Immersed Boundary Method for Compressible Flows with Complex Boundaries</b>	
J. Yang and S.P. Wu	281
<b>A Numerical Investigation on Hydrodynamics of Multiple Floating Bodies in Offshore Installation Engineering</b>	
Z.Y. Zhang and L.P. Sun	285

## Chapter 6: Computational Mechanics

<b>Computational Technique of the Sliding Interface in Numerical Simulations of 3D Penetration</b>	
J. Yan, F. Wang, J.H. Shen and L. Sha	295

<b>The Energy Relaxation Method for the Verification of Finite Element Analysis</b> Z.C. Xuan, Y.H. Li and M. Guan	299
<b>Mechanical Analysis and Strength Evaluation of KEY COMPONENTS Tripod of SNUBBING UNIT</b> M. Luo, F.C. Li, T.T. Zhao, T.T. Xu, J.B. Liu and W.X. Zhao	303
<b>Nonlinear Calculating Method for Multi-Bar Luffing System of Giant Crane Considering the Sagging Effect</b> Q.C. Zhou, W.J. Li, Q.L. Wu and X.L. Xiong	307
<b>The Mathematical Model of Crane Hoisting Mechanism</b> W. He, Z.K. Li, Z.Y. Wang and A. Liu	315
<b>Dynamic Characteristics Analysis and Modeling of Giant Magnetostrictive Actuator Turning System</b> D. Li, D. Luan, Z. Wang and T. Ma	321
<b>Cross-Deck Slamming Load Calculation of Trimaran Based on Modified Plate Slamming Theory</b> H.L. Ren, L.L. Chen, G.Q. Feng, F. Duan and P.Y. Yu	325
<b>Simulation of Red Particles in Blood Cell</b> A.S.M. Jahangir, G.Q. Hu and L.K. Yu	330

## **Chapter 7: Biomechanics and Sports Mechanics**

<b>A Study on Strength and Training Characteristics of Elite Female Skaters</b> X.M. Zhang and J.Y. Xia	337
<b>The Fitness Characteristics of Elite Female Skaters and Regression Analysis</b> X.G. Mu and J.Y. Xia	341
<b>Research on Body Pressure Distribution at Different Angles of Wheelchair Seat Surface</b> T. Qin, J.G. Zhang and Y.X. Dai	345

## **Chapter 8: Research and Design in Mechanical Engineering and Manufacturing**

<b>Study on Structure Analysis and Control of the Underwater LED Lamp Capable of Changing Brightness</b> H.S. Choi, Y.H. Kim, J.H. Ha and H. Son	351
<b>Affect the Comfort of Pants Crotch Curve Analysis of the Factors</b> Z. Zhang and L.P. Qiao	359
<b>Concept of the Partial Throw-Away Design of Piezoelectric Micropump for Medical Uses with Low Cost and Waste</b> W.F. Luo, R.H. Chen and H.K. Ma	363
<b>Monopole-Gear Design Based on Neural Network and Modified Particle Swarm Optimization</b> H.R. Fang	368
<b>The Influences of New Paper Surface Efficiency on Printing Quality</b> Y.G. Yang, Q.Z. Gao and Q.X. Liu	374
<b>RCS Calculation of Tank Turrets and their Improved Stealth Shapes</b> X. Xu and Y.W. Chen	379
<b>Kinematics Analysis of Morse CVT Input Mechanism</b> Q.H. Chen, D.M. Sun, D.H. Zhao, G.R. Kang and J. Sun	384
<b>Development of a Self-Balancing Cooling System Based on Harvesting Heat via Stirling Engine</b> C.N. Huang, Z.Z. Yu and C.K. Lan	388
<b>Small Refrigerator Simulation and Experimental Study</b> H.C. Zhang, F.L. Li and L.Q. Zhang	392
<b>Solar-Powered Wireless Sensor Network's Energy Gathering Technology</b> D.X. Ma, J. Ma, P.M. Xu, C.X. Song and Y. Pang	396
<b>Research on the Application of Green Air Conditioning in the Granary</b> Y.H. Di, C.Y. Jiang and Z.L. Xu	400

<b>Performance Comparison for Different Material Quantum Dot Single Intermediate Band Solar Cells</b>	
W.S. Wei, F. Shan, S.Y. Zhao and Q.B. Zhang	404
<b>A Method for the Assessment of the Inhalation Dose Exposure to Radionuclides in an Indoor Environment</b>	
X.F. Hu, H. Huang, S.F. Shen and H.Y. Yuan	412

## **Chapter 9: Geotechnical Engineering**

<b>Simulation of Primary Fracture Propagation around Compressive Cavity with the Extended Finite Element Method</b>	
K. Su and Z.M. Zhang	425
<b>Study on Protection Measures of Highway Cutting Soil Slope in Seasonal Frozen Regions</b>	
H. Wu, W.C. Yu, Q. Ge, G.F. Wang and Y.Q. Wang	431
<b>Research on Stability of the Rock-Socketed Piles in a Landslide Control Project</b>	
Y.L. Deng, Y. Lu, Q.M. Li, K. An and S. Niu	435
<b>Reliability of GDS-RCA Resonant Column on Routine Experimentation</b>	
X.F. Li and R. Sun	439
<b>Study on Test and Practical Application of Solidification Treatment of Wasted Mud</b>	
Y. Chen, J.C. Wang, H.B. Gao and J.G. Han	443
<b>Characters Analysis of the Retaining Structure of the Foundation Pit under Local Load</b>	
C.J. Xu, M. Yin and G. Lin	448
<b>Approximate Analytical Method of Load-Settlement Relation for Composite Foundation with Lateral Restriction</b>	
X.Y. Tang, J. Liu, J. He and Q.D. Xie	453
<b>A Method to Determine Pre-Consolidation Pressure of Soft Soil in Dongting Lake Area</b>	
J.H. Zhang, J. He, J.F. Lin and J.L. Zheng	459
<b>Laboratory Test Method for Dynamic Rebound Modulus of Subgrade Red Clay in Moist-Heat Area</b>	
J.H. Zhang, Y. Zhou and J.L. Zheng	466
<b>Experimental Study of Influence Factors in Unsaturated Soil Infiltration Rate</b>	
L. Cao and X.Z. Li	472
<b>Experimental Study on Influence of Seasonally Frozen Ground on Horizontal Frost-Heave Force of Frozen Wall</b>	
H.L. Yu, Y. Zhang, W. Wang, X.Y. Xu and C.X. Zhang	476
<b>Effect of Different Organic Matter Content on Soil Moisture Dynamics</b>	
Y. Ding, H. Huang, L. Wang, Z.Q. Zhang and W.H. Zhang	481
<b>Meso-Mechanical Simulation of Fracture Grouting under Fluid-Solid Coupling Environment and Engineering Applications</b>	
F. Sun, R. Pan, X.Y. Zhu and T.L. Chen	485
<b>Study on Grouting Heave for Pipeline Underground in Urban Tunnel Engineering</b>	
F. Sun, R. Pan and T.L. Chen	492
<b>Further Debate about Visual Design Methods for Pile Foundation</b>	
S.F. Zou, J.Y. Zhang, S.J. Wang, Y. Han and C. Wang	499
<b>Application of Axial Force Compensation for Steel Support System in Practical Project</b>	
S.M. Zhang, X.M. Jia, T.K. Yuan, W.G. Liu and Y. Jun	503
<b>Experimental Study on O-Cell Test of Long Rock Socket Bored Pile</b>	
L.Z. Yao, D.F. Sang, L.W. Su and D.Y. Tan	509
<b>Research on Stability Analysis of Soil Slope in Consideration of Creep Property</b>	
Q.H. Wang and Y.Q. Li	514
<b>Geotechnical Engineering Anti-Leakage in Unstable Mountain</b>	
H.S. Yang, X.L. Peng, B.C. Fu, Y.L. Yang, Y. Wang, X.P. Wang and Y.J. Pu	519
<b>The Grouting Diffusion Model of Power-Law Fluid in Single Fracture</b>	
W. Zhang	524
<b>Hydro-Mechanical Coupled Analysis of the Variable Permeability Coefficient of Fractured Rock Mass</b>	
Y.J. Zhang and T. Xu	531

<b>Analysis on Railway Ballast-Glue Micro-Characteristics</b> Z.J. Wang, G.Q. Jing and G.X. Liu	535
<b>FBG Sensor Application for GFRP Soil Nailing Pull-Out Test</b> Q.P. Jin, Z.J. Zheng, B.Q. Dou and X.W. Lei	539
<b>Simulation and Optimization on GFRP Soil Nailing Support</b> Q.P. Jin, Z.J. Zheng, Z. Chen and X.W. Lei	543
<b>Comparative Analysis on Stress-Strain Characteristics for Cement Stabilized Macadam Base in Different Layer Contact Conditions</b> B. Li, Y.H. Yue and Z.W. Zhang	547
<b>Comprehensive Prediction of Rockburst in High-Speed Railway Tunnel</b> B. Li, L. Wu, C.M. Xu, Z.G. Li and Q.J. Zuo	553
<b>Nonlinear Dynamic Analysis of Macroscopic Fracture of Limestone in General Experiments</b> L. Wang, C.X. Liu, S.S. Lin and X.H. Liu	558
<b>Numerical Simulation on Soil Pressure Distribution Characteristics of Gravity Retaining Wall</b> F.D. He, G.J. Guo, Z.D. Zhou and J.Q. Wu	562
<b>Comparative Analysis on Different Types of Anchor Reinforcing Gravity Retaining Wall</b> D.F. Ma, L. Guo, J.Q. Wu and Z.D. Zhou	567
<b>The Research on Applied of Cement-Soil Mixing Method Reinforcing Shallow Soft-Soil Foundation in Yinchuan Distric</b> C.X. Ma	572
<b>Numerical Simulation of the Effect of Joint Orientation on the Failure Strength of Rock</b> Y.L. Yan, T. Xu, Y.J. Zhang and P.L.P. Wasantha	577
<b>Analysis of Individual Contribution of Two Compression Waves in Vertical Vibration of Water-Saturated Soils</b> J. Yu, Z. Li and J. Huang	582
<b>Experimental Study on Creep of Highly-Weathered Breccia</b> Q. Zhang, S.C. Li, L.P. Li and Q.Q. Zhang	588
<b>Dynamic Stability Analysis of Defective Piles under Vertical Harmonic Load</b> X.G. Ni	592
<b>Numerical Simulation on the Stress Characteristics of Prestressed Retaining Wall</b> J.Q. Wu, H.B. Zhang, X.G. Song, Y.F. Yu and C. Li	596
<b>The Effect of Hole behind Lining on Safety of Tunnel</b> J. Liu and G.H. Zhang	600
<b>A Mathematical Model for Subgrade Soil Water-Vapor Migration</b> J.L. Zheng, C.Q. Mai and J.H. Zhang	604
<b>Transformation of the Triaxial Seepage Device for Measuring Deformation of Coal Containing Gas</b> M. Yuan, Q.H. Meng, J. Xu, B.B. Li and Y.Q. Du	610
<b>Physical and Chemical Characteristics of High Clay Content Dredger Fill in Different Regions</b> X.P. Su and J. Song	614
<b>Acoustic Emission (AE) Propagation Attenuation Theory and Rule in Non-Perfect Elastic Coal and Rock</b> G.W. Dong	620
<b>Experimental Study of C Band Passive Microwave Remote Sensing of Soil Moisture</b> X.L. Gao and H.H. Zhang	624

## Chapter 10: Structural Engineering

<b>The Local Stress Analysis for the Anchorage Zone of Tooth Plate in Steel Box Girder</b> Z.L. Luo, J.L. Wang and F.H. Dong	631
<b>Analysis on Vertical Swivel Construction of Cable-Stayed Bridge with Steel Arch Pylon</b> Q.H. Li, X.Y. Wang and L.L. Han	635
<b>Redistribution of Internal Force under Structural Defect and Non-Linear Spatial Stability under Live Load and Wind of Tied-Arch Bridge</b> Q.H. Pu and H. Zhao	640

<b>The Adhesion Experimental Study on the PESB</b> X. Liu and X. Wang	646
<b>Based on ANSYS Buckling-Restrained Brace Frame Structure Shock Absorption Analysis</b> L.J. He, Y. Yao and Y.P. Chu	651
<b>Research on Performance of Precast Two-Way Hollow Slab Shear Wall with Cast-<i>In Situ</i> Boundary Elements</b> H.C. Cui, J.L. Liu and M.J. Chu	655
<b>Theoretical and Experimental Research on Joint Slippage Effects of Lattice Angle Steel Tower</b> Z.Q. Wang, Z.M. Song and W.Q. Jiang	660
<b>A Iterative Computation Method for Main Cable Shape Calculation of Self-Anchored Suspension Bridge</b> X.M. Song	666
<b>Storey-Adding and Strengthening Design for A Reinforced Concrete Frame Structure</b> F. Wang	671
<b>Jacking Technology for a Simply Supported Girder Bridge</b> L.G. Xu, Y.L. Wang and C.J. Xu	675
<b>Research on CFRP Strengthening Corroded Reinforced Concrete Columns in Seismic Performance</b> L.Y. Leng and P.F. Zhang	681
<b>Design Method of Shear Resistance of Hybrid Fiber Reinforced High Performance Concrete Deep Beams</b> S.B. Liu, L.H. Xu, H.L. Lu and H. Tan	686
<b>An Incremental Method for Cable Force Tuning of the Concrete Cable-Stayed Bridge Considering Cable-Girder Temperature Difference Effect</b> N.J. Ma	690
<b>Pull-Out Tests of Deformed Bars from Ferrous Mill Tailing Concrete</b> Y. Zheng, H.Z. Kang and G.Q. Wang	697
<b>Numerical Study on the Influence of Sleeve-Rib Space on the Static Response of Grouting-Sleeve Reinforcement-Connection Component</b> F. Gu, T.G. Wu, W.J. Zhao, X. Dui and P. Zhang	701
<b>Analysis of the Impact Effect of the Suspender System in a Half-Through Concrete Filled Steel Tubular Arch Bridge</b> Y. Shao, Z.G. Sun and Y.F. Chen	705
<b>The Ultimate Bearing Capacity Analysis of RC Beams Strengthened by Externally Bonded and Anchored I-Section Steel</b> L. Zuo, B.L. Ye and W.X. Yu	710
<b>Analysis on Fire-Resistance Performance of Slabs Strengthened by Carbon Fiber Sheet Bonded with Inorganic Adhesive</b> F.X. Wan	714
<b>Numerical Analysis for Geometry Nonlinear Characters of Laminated Box Beam Columns</b> Y.P. Wu, J.W. Zhang, Y.R. Zhao and Y.H. Wang	718
<b>Structural Optimization Design Considering Reliability Constraints</b> L.R. Sha and Y.C. Shi	723
<b>Comfortable Evaluation of Bridge-Station Combined Large Span High Speed Railway Station under High Speed Train Load</b> Y.L. Yu and W. He	727
<b>Modal Parameters Identification of Civil Engineering Structures Based on the Random Decrement Technique</b> Q. Pei and L. Li	732
<b>Structural Modal Parameter Identification Based on ARMA Model</b> Q. Pei and L. Li	736
<b>Flexural Behavior of CFRP Strengthened Reinforced Concrete Beams</b> H. Zhang, H.S. Wu and X.Q. Li	740
<b>Application of Modified Consistent Mode Imperfection Method in Stability Analysis of Single-Layer Reticulated Shells</b> S. He, J. Cai and Q.Q. Liu	744
<b>Study on the New Energy-Saving Structure System with Seismic Performance</b> G. Xu, J. Li and Y.G. Tian	749

<b>Model Test for Hydrodynamic Parameters of Immersed Tube Tunnel in Static Water</b> R.D. Wu, Z.Q. Ying, Z. Wang and L.W. Su	754
<b>Study on Truss Structure Damage Identification Base on Residual Force Vector</b> W.J. Zou, Y.X. Zhang and C.G. Li	759
<b>Research of Rigid Pavement on Structure Combination of HMA Overlays</b> T. Liu, G.W. Hu and Y.C. Gu	765

## **Chapter 10: Structural Engineering**

<b>Interfacial Shear Stresses Calculation of RC Beams Strengthened with FRP Plate under Symmetry Concentrated Loading</b> J. Yang, L.G. Wang and N. Zhang	773
<b>FEM Analysis of Impact Tests for Steel Plate Concrete Panels against Scaled-Aircraft Impact</b> X.Y. Zhu, R. Pan and F. Sun	777
<b>Seismic Performance Analysis under Different Conditions of Location for Shear Wall Frame Shear Structure</b> Y.Z. Yang and H. Gan	784
<b>Stochastic Imperfection Mode Superposition Method for Stability Analysis of Lattice Domes</b> H.J. Liu, L.F. Yang and Y.L. Li	788
<b>Investigation on Wind Tunnel Blockage Effects of High-Rise Building</b> H. Tang and L. Wang	793
<b>Research on the Wind Tunnel Force Balance Tests of Long-Span Closed Coal Trestle</b> S.L. Wang, S.G. Liang, L.H. Zou and X.Y. Zhou	797
<b>The Design of Blasting Demolition of the Reinforced Concrete Chimney Based on Complicated Conditions</b> C.L. Zhang, B. Wang and Y.Z. Zhu	803
<b>Stochastic Analysis to Truss Spar Platform in Deep Sea</b> Y. Wang, R. Gao and L.Q. Yang	809
<b>Test Installation of a Marker-Based Framework for Structural Health Monitoring of Bridges</b> M. Magdics, R.J. Garcia, V. Wattanasoontorn and M. Sbert	813
<b>Aerodynamic Testing of Bridge Structures</b> P. Churin and O.I. Poddaeva	817

## **Chapter 11: Hydrology and Hydraulic Engineering**

<b>A Hydropower Station Energy Dissipation Shape Optimization Test</b> Y. Chen, B. Jiang and H. Chen	825
<b>A Study of Suspended Sediment Transport Characteristics in the Offshore of Yangtze Estuary</b> L.B. Huang and Y.T. Li	829
<b>The Evaluation Model of Fuzzy Analytic Hierarchy Process in Water Project of Xiasha District Based on Entropy Weight</b> P. Qin, Z.Y. Zhang, Z.H. Qin and J.F. Zhou	836
<b>Research on Automatic Safety Monitoring System for Artificial Islands</b> Z.B. Jiao, H.M. Tan, S.H. Zhang and T.T. Mei	840
<b>The Application Study of Non-Linear Dynamic Contact Model of Arch Dam with Contraction Joints</b> Y.Z. Yan, C.X. Xiong and W.H. Li	845
<b>Two-Dimensional Shear Stress on Bonding Interface of FRP Plate Reinforced Hydraulic Concrete</b> L. Zhang, J.L. Wang, K.W. Zhou, Y. Yang, B. Zhang and J. Zheng	850
<b>Research on Relation among Inlet/Outlet Pressure, Pressure Loss and Inlet Velocity of a Complex Resistance Muffler</b> J.H. Fang, Q. Ji, Y.Q. Zhou and D.L. Zhu	858



<b>The Impacts of Water Transfer on Thermal Structure of Shallow Reservoir</b> G.Y. Ma, B.B. Wu and H. Jiang	864
<b>The Application of Entropy Weight of Attribute Recognition Model in Reservoir Eutrophication Evaluation</b> D. Wu, D.S. Tang, X.W. Lu and W.Z. Yu	870
<b>The Classification and Analysis of Risk Response Measures in the Hydraulic Engineering Slope</b> Y.C. Guo and J.L. Guo	874
<b>Prediction and Optimization of Groundwater Development in Beijing Plain</b> H.P. Guo, L.Y. Wang and S.S. Fan	878
<b>Studies on Coupled Model of Seepage Field and Temperature Field and Stress Field</b> H.M. Gao, Y.W. Lan, Y.L. Zhao, J. Ma, B. Liang and Y. Zhao	883
<b>Multiple Stepwise Regression Analysis Crack Open Degree Data in Gravity Dam</b> W.W. Shen and J.M. Ren	888

## Chapter 12: Construction Materials

<b>Microstructure Analysis of the Influence of Composite Polymers on Concrete Mechanical Performance</b> C. Zhao and J.Z. Gao	895
<b>Applied Research on Foamed Asphalt Cold-Regenerating Technique in Overhaul Engineering of Binshi Expressway</b> H.Y. Wei, W.F. Zhou and J.Y. Sun	898
<b>The Flowability and Adsorption of Low Sulfate Cement with Superplasticizers</b> M.Z. An and S. Han	904
<b>Hydration Kinetics and Microscopic Analysis of Calcium Oxide Expansion Clinker</b> H. Li, J.P. Liu, Q. Tian and S.Z. Zhang	908
<b>An Innovative Admixture to Enhance the Fresh Properties of Slag Pastes</b> Q. Pan, S. Zhao, H.Y. Zheng and B. Zhu	915
<b>Bond Properties of Ceramic Concrete Reinforced by Bamboo Bar</b> J. Zhou, H.N. Liu, S. Ma, J.J. Li and H.T. Hou	920
<b>The Properties of High-Strength Concrete Containing Super-Fine Fly Ash and Limestone Powder</b> J. Hu and M.Y. Li	926
<b>Several Common Retarders on Performance of Ultra-Early-Strength Grouting Material</b> C.Z. Sun, X.P. Zhang, H.N. Zhao and Q. Gao	931
<b>Early Strength Agent on the Properties of Reinforcement Materials Research</b> C.Z. Sun, X.P. Zhang, H.N. Zhao and Q. Gao	936
<b>The Influence of Super-Fine Steel Slag on the Properties of High-Strength Concrete</b> J.J. Feng, X.Q. Wang and S.S. Wang	941
<b>Research on Secondary Cooling Technology for Billet of HRB500E Vanadium-Containing Steel Rebar</b> P. Tian, Z.Y. Zhong, R.G. Bai, X.L. Zhang, Q.L. Wang, H. Gao and X.G. Hu	945
<b>Study on Hybrid Fiber Reinforced Lightweight Aggregate Concrete</b> Y. Chen	949
<b>Study on Rubber Particles Modified Concrete</b> L. Wang and Y.H. Huang	953
<b>Application of Diatomite Modified Asphalt</b> L. Jiang and Q.L. Liu	959
<b>Laboratory Research on Aging Properties of Recycled SBS Modified Asphalt</b> W.G. Zhang, L. Zhou and L. Zou	964
<b>Simulation of Numerical Test of Concrete Microscopic Structure by Second-Order Manifold Method</b> Y. Zhao, G.X. Zhang and H.F. Li	968
<b>Experimental Research on Fireproofing Measure of Beams Strengthened by Carbon Fiber Sheet Bonded with Inorganic Adhesive</b> F.X. Wan	972

<b>Optical and Micro-Mechanical Properties of Ag-Based Low-E Glass by Magnetron Sputtering</b>	977
J.K. Yang, H.L. Zhao, L.P. Zhao and J. Li	
<b>Thermal Performance Study of Core Board of Metal Sandwich Thermal Insulation Board on Ecotect</b>	982
K.W. Ding, M. Li and D. Chen	
<b>Research on Finite Element Model for Parallel to Bamboo Culms Axial Shear</b>	986
W.S. Fu, Z.R. Zhao, W. Han and J.B. Zhou	
<b>Research on Multivariate Composite Super early Strength Grouting Materials</b>	990
X.P. Zhang, C.Z. Sun and T.F. Zhao	
<b>Research on the Compound early Strength Agent to the Performance of Super High early Strength Grouting Material</b>	996
X.P. Zhang, C.Z. Sun and T.F. Zhao	
<b>Research on Damage Characteristics about Reinforced Concrete Circular Pipe Culvert</b>	1002
J. Zhang and X.D. Zhang	
<b>Electro-Migration Corrosion Inhibitors for Chlorides Induced Corrosion in Reinforced Concrete</b>	1007
X.D. Hu, J.Y. Huang, Z.Q. Li and S.G. Weng	
<b>Mesosopic Numerical Simulation of Temperature Crack with Non-Uniform Temperature Distribution in Concrete</b>	1014
Y. Duan, C. Zhang and X. Chang	
<b>Numerical Simulation on PPFRC with Different Contents</b>	1019
Y.F. Zhang, H. Liu, J.P. Chen and Y. Yang	

## Chapter 13: Seismic Engineering

<b>Seismic Performance Evaluation of Large Span Cable-Stayed Bridges</b>	1029
M. Zhang, S.F. Qin and L. Song	
<b>Large-Span Cable-Stayed Bridge Seismic Response Analysis Considering Traveling Wave Effect</b>	1034
J.J. Zhao	
<b>Seismic Damage of Suspended System in Lushan Earthquake</b>	1038
D.Z. Wang and J.W. Dai	
<b>Research Status for Nonstructural Components under Severe Earthquake</b>	1042
D.Z. Wang and J.W. Dai	
<b>Research of Random Seismic Response of Large-Span Multi-Tower Cable-Stayed Bridge</b>	1046
C.Z. Sun and L. Zhao	
<b>Verification of Seismic Safety Evaluation Program LSSRLI-1 Using Exact Solution</b>	1052
R.S. Li and X.M. Yuan	
<b>Difference between Two Seismic Response Analysis Programs for Soft Site</b>	1056
X.B. Yu and R. Sun	
<b>Evaluation of N-M Model on Simulating Seismic Response of High-Rise SRC Structure</b>	1060
G.B. Bu, J. Cai and K.N. Li	
<b>The Influence of Stress Drop on Synthesized Ground Motion</b>	1064
X.X. Tao and H.M. Liu	
<b>The Stability of Ground Motions Randomly Synthesized for an Engineering Site</b>	1069
H.M. Liu, X. Tao and L.Y. Wang	
<b>Research on Static Stress Triggering and Seismicity in Minxian and Adjacent Area, Gansu</b>	1075
F.B. Liu, A.G. Wang and W. Pang	
<b>The Amplification Effect of Soft Site Based on Records from Borehole Arrays</b>	1084
L. Wang, Y.L. Wang and X.M. Yuan	
<b>Application of Post-Stack Seismic Inversion in Discription of the Reservoir Distribution</b>	1088
X.T. Li	
<b>Numerical Simulation Analysis on Seismic Behavior of Tow-Story Websteel</b>	1092
H. Ye and Y.P. Chen	
<b>Numerical Analysis on Seismic Behavior of RC Frame with Different In-Filled Panels</b>	1096
X.H. Zhou	

<b>Research on Material Damage Limits of RC Components for Performance-Based Seismic Design and Assessment</b> Y.L. Qi, X.X. Zhou and C.D. Xie	1101
<b>Examination of CPT-Based Liquefaction Evaluation Methods for New Zealand Earthquake</b> T.Z. Chen and X.M. Yuan	1105
<b>Research on Regional Dividing Technology for Liquefaction Based on ArcGIS</b> C.C. Li, Y.L. Wang and X.M. Yuan	1109

## **Chapter 14: Architectural Design and Theory**

<b>Research of the Economical Campus Construction in Hangzhou</b> G.J. Li and L.Y. Mo	1115
<b>Protection of the Sichuan Earthquake Ruins Landscape Resources</b> Y.W. Ma and X.X. Kang	1119
<b>Study on Disaster Prevention Index System and Evaluation Method of Large Commercial Building</b> B. Song, L. Li and P. Zhang	1124
<b>Study on Architectural Design for Indoor Space of Small Area House</b> F.L. Du and T. Li	1128
<b>Analysis on the Space Characteristics of Shanxi Private Gardens in Ming and Qing Dynasties</b> Y. Liang and J. Gao	1132
<b>The Influence of Social Class in Human Settlements - Take Yen Hsi-Shan's Former Residence and Zhang Jiata Villages as an Example</b> G.Y. Xu and J.P. Wang	1136
<b>Museum Exhibition Space Analysis Based on Tracing Behavior Observation</b> Q. Zhou, Z. Li and J. Li	1140
<b>Study of Traditional Architectural Form Adapt to the Mountain Environment Research - Zhang Jiata Ancient Village in Fangshan County of Shanxi</b> X. Guo and J.P. Wang	1144
<b>Analysis of Shanxi Traditional Local-Style Dwellings</b> F. Tian and J.P. Wang	1148
<b>Brief Analysis of Settlement Patterns in Taiyuan County in Ming Dynasty</b> J. Zheng and J.P. Wang	1152

## **Chapter 15: Composites and Polymers**

<b>Analysis of In-Plane Equivalent Elastic Modulus of Aluminum Honeycomb Cores Based on Finite Element Method</b> M. Chen, X.C. Xu and J.F. Liu	1159
<b>The Influence of Reactive Diluents on the Properties of UV Dual Cured Polyurethane-Modified Epoxy Monoacrylates Films</b> H.B. Liu, W.Y. Zhang, F. Lin, N. Qing and L. Xu	1169
<b>Applied Research of the Modifying Agent of Rubber Plastic Composite (MaR) in Asphalt Mixture</b> L. Zou, J.W. Ne and W.G. Zhang	1175
<b>Study on the Thermodynamics and Dynamics of <i>In Situ</i> Ni-Al/Al Reinforced Aluminum Matrix Composite</b> L.Z. Zhao, J. Xiao, J. Zhang and M.J. Zhao	1179
<b>Preparation and Property of Waterborne Polyurethane Waterproofing Composites</b> Y.P. Wang, X.L. Su, Y.S. Tan, K.L. Zhao and Y.H. Qu	1184
<b>Polymerization and Chiroptical Behavior of N-[o-(4-isopropyl-4,5-dihydro-1,3-oxazol-2-yl)phenyl] Methacrylamide</b> Z. Fu, H. Wei, Y. Ding and C. Yuan	1187
<b>Preparation of a Net with the Function of Sand-Resistance and Sand-Fixation</b> H.W. Wang, M.L. Cheng, Y. Zhu and X.F. Wei	1192

<b>Cross-Linked Alternately Copolymerized Electrolyte Poly (styrene-a-maleic ester) Synthesized through Solvent-Free Strategy</b> G.X. Li, S.C. Zhang, W.B. Liu and X. Wei	1196
<b>Corrugated Board Flute-Shaped Finite Element Analysis and Optimization</b> W. Yuan, G.M. Zhang, D.Z. Liao and J. Liu	1205
<b>Preparation and Anti-Corrosion Performance of Conductive Copolymer (aniline-co-pyrrole)/TiO<sub>2</sub> Composite</b> L.F. Lv, S.L. Lin and C.X. Chen	1210
<b>Mechanism of Micro-Void Initiation in Composite Materials during VaRTM Process According to the Pressure and Thickness of the Impurity</b> Y.H. Kim, H.V. Kim, S.W. Yoon, B.G. Choi, J.W. Lee, H.S. Choi and J.C. Ha	1214

## Chapter 16: Micro / Nano Materials

<b>Non-Linear Modeling of Single-Walled Carbon Nanotubes</b> M. Chwał	1225
<b>Production and Properties of Mononuclear Microcapsules Encapsulating Cinnamon Oil by Complex Coacervation</b> W.L. Liu, Z.B. Xiao, G.Y. Zhu, R.J. Zhou, E.Q. Wang and Y.W. Niu	1229
<b>Influence of Free Volume on Residual Solvents of SiO<sub>2</sub> Modified Polypropylene Films</b> J.Y. Zhang, D.L. Li, W.C. Xu and Y.B. Fu	1234
<b>Preparation of the Al<sub>2</sub>O<sub>3</sub>/3Y-TZP Ceramics by Microwave Sintering under Low Temperature</b> J.M. Luo, J.L. Xu, H.Y. Zuo and J. Huang	1238
<b>Direct Growth of Graphene on SiO<sub>2</sub> by Using Ga-Ni Flux</b> Q. Yu, J.C. Zhang, B. Cao, S.Y. He, C.H. Wang, J.C. Zhang, J.F. Wang and K. Xu	1242
<b>Synthesis of Monodispersed Lauric Acid Capped Silver Nanoparticles by Wet-Chemical Reduction Method</b> C.F. Dong, X.L. Zhang, C.L. Cao and H. Cai	1246

## Chapter 17: Metal and Alloys

<b>Investigation of Structure and Performance of SAE4330 Steel</b> L.J. Tan, J.Q. Wang, Q.Q. Wang, X.L. Chen and S.Z. Zhou	1255
<b>Crystallization Kinetics Analysis and SPS Consolidation of Mechanical Alloyed Fe<sub>79</sub>Ti<sub>16</sub>P<sub>5</sub> Amorphous Powders</b> C.Y. Tang, Z.Y. Xiao, Z.F. Zhuang, W.P. Dai, S.G. Meng, X. Zhang and X.Y. Chen	1259
<b>Assessment of Fatigue Life of Ni-Ti Samples Prepared by Different Techniques</b> W. Abu Jadayil and M. Alnaber	1264
<b>Study on the Dynamic Recrystallization Critical Stress of AZ91 Magnesium Alloy</b> G. Chen, S.Q. Zheng, J. Lv and Z.M. Zhang	1269
<b>Influence of P<sub>2</sub>O<sub>5</sub> and Al<sub>2</sub>O<sub>3</sub> on Mineral Formation in Converter Slag</b> Z.H. Deng	1273
<b>Influence of Ti to the Microstructure and Mechanical Properties of Al-12Si-3.2Cu-1Mg-2.4Ni Piston Alloy</b> L.Z. Zhou, Y.J. Peng, X.R. Zhu, G.M. Zhang, L.M. Yang and H.X. Shi	1278
<b>Fatigue Characteristic of Aluminum Alloy Plates with Different Thickness</b> H.G. Jian, M.X. Du, F. Jiang and Z.M. Yin	1284
<b>Study on the Microstructure and Properties of Low Cost TiFeAl Alloy</b> B.L. Li, T. Liu, J. Yuan and Z. Nie	1288
<b>Research on Grain Refinement Effect of Al-5Ti-C Alloy on Pure Aluminum and its Attenuation Mechanism</b> W.W. Ding, T.D. Xia, J.T. Zhu, W.J. Zhao and Y.T. Xu	1293
<b>The Effect of Initial Microstructure on the Dynamic Mechanical Behavior of Titanium Plate at Different Strain Rates</b> M. Li, B.L. Li, T.B. Wang and Z. Nie	1298

<b>Pressure-Induced Tunable Magnetism and Half-Metallic Stability in Co<sub>2</sub>FeGa Heusler Alloy</b>	
Q.X. Gao	1303
<b>Influence of Extrusion Ratio on Microstructures and Properties of Cu-17Ni-3Al-X Alloy</b>	
Y.H. Weng, Y.X. Liu, T. Wei, W.W. Zhang and Z.Q. Luo	1307
<b>Effect of Cooling Velocity and Casting Temperature on Solidification Microstructure of Pure Al Refinement under Al-5Ti-B Alloy</b>	
W.W. Ding, X. Zhao, F.L. Zhu, T.D. Xia and W.J. Zhao	1316
<b>The Study on Properties of Soluble Alumina Based Ceramic Cores</b>	
Z.H. Jia, S.C. Wang, M.Z. Ma, L. Xu, Y.T. Zhao, D.X. Ma and X. Zhu	1321

## **Chapter 18: Biomaterials and Biotechnology**

<b>The Adsorption Isotherm Studies of Orange Peel on Pesticide Furadan</b>	
G.F. Xu, H.M. Jing and R.X. Guo	1331
<b>Morphology and Performance Analysis of Alpaca and Cashmere Fiber</b>	
X.Y. Wei, E.L. Yang, Y. Xue and S.Y. Sun	1336
<b>Heterogeneous Method for Grafting of Syringaldehyde onto Chitosan by Laccase Oxidation</b>	
C.H. Yu, J.C. Pei and F.D. Zhang	1340
<b>Distribution Characteristics of Heavy Metals in EPS and Cells</b>	
Q. Hao	1345
<b>Effect of Different Winemaking Technologies on Quality in Cabernet Sauvignon Red Wines</b>	
J.Q. Meng, Y.B. Zhang, W.Q. Yang, X.Y. Jia and X.H. Li	1349
<b>Effect of Multiple Gas Media Package on Preservation of Fresh Sweet Corn at Room Temperature</b>	
J.Q. Meng, X.Y. Jia, W.Q. Yang and X.H. Li	1354
<b>Development of the Reliable Fluorometric Assay for the Sensitive Determination of Nitric Oxide Metabolites in Biological Fluids</b>	
Q. Yang, X.L. Zhang and H.L. Huang	1359

## **Chapter 19: Materials Processing Technology and Chemical Engineering**

<b>Accelerated Seeded Precipitation Pre-Treatment for the Improvement of Reverse Osmosis Membrane</b>	
Y. Chen, X.L. Zhang, J.L. Lu, W.J. Liu and Y. Tu	1365
<b>Study on Metal Transfer and Welding Spatter Characteristics of Basic Flux Cored Wire</b>	
Y. Wang, Y.Q. Zhang, B. Wang and Z.J. Wang	1369
<b>Influence of Plasma Treatment on Size Adhesion Strength to Raw Cotton Yarns</b>	
S.Y. Sun, C.H. Fu and X.Y. Wei	1373
<b>Linear Rock Cutting with SMART*<sup>®</sup>CUT Picks</b>	
W. Shao, X.S. Li, Y. Sun and H. Huang	1378
<b>Study on the Abrasive Wear of Ceramic Piston Rings and the Different Cylinder Bore</b>	
W.W. Gao, Z. Zheng, Y.Q. An and S.B. He	1385
<b>Study on Welding Deformation of 304 Stainless Steel Plate with Different Thickness</b>	
L. Dong, C.Y. Zhou, C.X. Lin and S.Y. Chen	1389
<b>Coating of Fe-Mn-Si Shape Memory Materials on AISI 304 Stainless Steel by Laser Cladding Method</b>	
P. Xu, H. Ju, C.X. Lin and C.Y. Zhou	1393
<b>Effect of Annealing on Properties of the TiN &amp; TiAlN Coatings Deposited on Powder Metallurgy High Speed Steel ( S790 )</b>	
C.L. Cao, X.L. Zhang, C.F. Dong and X. Zha	1397
<b>A Novel Method for Preparing Biomimetic Oleophobic Surface on X70 Pipeline Steel</b>	
	1403
<b>Preliminary Study on Temperature Field of a Cylinder Circumferential Surface under Laser Spiral Scanning Quenching</b>	
Z.X. Pan, H.W. Xu, D.G. Wen, L.F. Yan and S. Zhou	1407

<b>Copper from Copper Smelting Slag by Oxidation Leaching</b> M.S. Chen, X.M. Zhu, Z.R. Han, P. Ning and Y.X. Ma	1413
<b>Numerical Research on Implosion of Condensed Liners Used in Study of Shock Adiabatic of Materials</b> G.H. Wang, M.X. Kan and H.L. Zhao	1419
<b>Preparation of Ceria from Bastnaesite with <math>\text{NaHCO}_3</math> as Fluoride Retention Additive</b> H. Zhong, K.H. Qiu, Y.C. Qiu, Y.T. Li and N.J. Fu	1423
<b>Experiment on the Performance of Filtration by Ceramic Media</b> C.H. Li	1428
<b>The U-Bending Forming of Aluminum Foam Sandwich Panels</b> S.G. Chen, H.B. Chen, Z.Z. Sun, R.Y. Li, W.F. He and S.Q. Zou	1432
<b>Study on the Preparation of Rich Hydrocarbon Bio-Diesel from <i>Cornus wilsoniana</i> Vegetable Oil with High Temperature Catalytic Cracking</b> H.Q. Zhang, Y.J. Zhang, A.H. Zhang, C.Z. Li, W.W. Jiang and Z.H. Xiao	1440
<b>Catalytic Cracking of <i>Cornus wilsoniana</i> Oil to Liquid Bio-Fuel Oil Using <math>\text{KF/CaO}</math> as a Solid Base Catalyst</b> Z.H. Xiao, W.W. Jiang, L. Lin, S. Vittayapadung, A.H. Zhang and C.Z. Li	1446
<b>Measurement and Correlation for Solubilities of 2,4-D Acid in Ethanol-Water</b> Y.F. Wang and L.S. Hu	1452
<b>Study on the Catalyst Performance on <i>Cornus wilsoniana</i> Oil Catalytic Cracking Prepared Biological Fuel Oil</b> D.M. Huang, W.W. Jiang, L. Lin, S. Vittayapadung, Z.H. Xiao, A.H. Zhang and C.Z. Li	1457
<b>Composition - Property Relationships of Magnetic Inks for Screen Printing</b> Y.L. Zhang, W. Jiang and L. Lin	1464
<b>Catalytic Gasification of Lignin in Supercritical Water</b> Q.Q. Guan, T.X. Mao, R.R. Miao, Q.L. Chen, P. Ning, J.J. Gu and S.L. Tian	1477
<b>Microwave-Assisted Secondary Synthesis of NaA Zeolite Membranes Grown on <math>\text{ZrO}_2</math> Substrate</b> Z.L. Cheng and X.X. Qin	1481

## Chapter 20: Information Technologies and Computational Algorithms

<b>Study on Cloud Data Destruction Mechanism and its Application</b> J. Wu, F.Z. Zhao and Y.D. Dong	1487
<b>Study on Collaborative Learning System Design Based on Web Platform</b> Y. Nan	1491
<b>Preparation of Target CETP in Docking-Based Virtual Screening</b> W.Y. Tao, L.Y. Wang, G.Q. Huang and M. Luo	1495
<b>Existence of Anti-Periodic Solution for Delayed Cellular Neural Networks with Impulsive Effects</b> L.L. Zhang, R.L. Fan, A.P. Liu and W.F. Yang	1499
<b>A Windowed Range Migration Imaging Algorithm for Ground Penetrating Radar Applications</b> W.T. Lei and Y.J. Shi	1504
<b>An Improved Iteration Back Projection Imaging Technique for Surface Penetrating Radar Applications</b> W.T. Lei and Y.J. Shi	1509

## Chapter 21: Engineering Management

<b>Multi-Level Automotive Service Performance Evaluation Model</b> G.X. Yu, J.C. Fang, Y.M. Zhou and Q. Zhang	1517
<b>Research on Cost Risk Identification of Metallurgical EPC Project</b> Z.G. Yin and H.M. Li	1521
<b>Manufacturing Industry Structure and Export-Import Development of Chinese (2007-2012)</b> B.N. Liu	1525

<b>Eco-Criticism and Urban Ecological Civilization</b> D.B. Cao	1529
<b>Development Trend of Food Packaging Materials</b> L.X. Ma and K.Q. Wang	1533
<b>The Optimization of Slotting Based on the Power Drive-Through Rack</b> S. Yang, M.Z. Shi, Q. Zhang, Y. Yu, Y.M. Zhou and X.Y. Li	1537
<b>A Case Study of English Language Learning Strategies for University Students of Engineering Design Specialty</b> Y.H. Sun, X.W. Jiang, L. Zheng and X.D. Xu	1541