## **Table of Contents**

## **Preface and Committees**

## **Chapter 1: Advanced and Sustainable Materials**

Luffa Sponge as a Sustainable Engineering Material J.H. Shen, Y.M. Xie, X.D. Huang, S.W. Zhou and D. Ruan	3
Mechanical Properties Research on Concrete Block Doped Nano-TiO <sub>2</sub> under the Conditions of Common Conservation Z.Y. Deng	9
Axial Compression Behaviors of Concrete Confined by Basalt Fiber Sheets Z.C. Deng, J. Raphael-Daud and H.B. Xu	13
A Study on Structure and Properties of Basalt Fiber F.J. Shi	17
Study of Road Property of Basalt Fiber Asphalt Concrete Y.Z. Chen and Z.X. Li	22
A Review of Stee-Polypropylene Hybrid Fiber Reinforced Concrete X.K. Li, L. Sun, Y.Y. Zhou and S.B. Zhao	26
Experimental Study on Flexural Toughness of SFRC C.Y. Li, L.S. Song, L. Sun, C.J. Cao and T. Xing	33
Constitutive Model Based on Damage Mechanics of Fiber Reinforced Concrete (FRC): A Review	27
D.X. Zhang and Q.Y. Wang  Experimental Study on Full Stress-Strain Curve of SFRC in Axial Tension  H.Y. Hue, G.L. Coo, L. Sun, L.S. Sangand T. Ying	37
H.Y. Huo, C.J. Cao, L. Sun, L.S. Song and T. Xing  Study on Damage Evolution Mechanism of Concrete under Uniaxial Tension  W.F. Bai, Y. Cui, Q. Wang, J.F. Guan and J.W. Zhang	41 46
Experimental Research on Sulfate Attack Resistance of Steel Fiber Reinforced Fly Ash Concrete	
L. Cui, X.D. Ge and Q.Y. Ma	51
Toughness of ECC Evaluated by Nominal Fracture Energy S.L. Gao, W. Shao, J.L. Qiao and L. Wang	57
A Review on the Connection of FRP Bars G.Q. Yuan and N. Zhu	61
A Novel Internal Model Control Method for Non-Square System L. Quan, H.L. Zhang and Y. Yang	66
Ocean Engineering Concrete Using High-Volume GGBS K.L. Li	71
Mechanical Behaviors and Chloride Permeability of Rice Husk Ash Concrete H.L. Wang, Q.W. Peng and X.Y. Sun	75
<b>Square-Shaped Nd</b> <sub>2</sub> <b>Sn</b> <sub>2</sub> <b>O</b> <sub>7</sub> <b>Nanocrystals Prepared by Salt-Assistant Combustion Method</b> Y.P. Tong, X. Chen, S.B. Zhao and L.D. Lu	79
Safe and Sustainable for the Structural Silicone Sealant in Ultra High-Rise Building Curtains	
H.L. Zhang and L. Quan	83
Research on Comprehensive Utilization of the Tail Ore Y.J. Chen and G. Li	87
Experimental Study on Mechanical Behavior of Concrete Loading along Path (Constant Stress, Constant Strain, Increasing Strain)  Z. Wang, J. Li and R.J. Shang	91
<b>Robust Statistics Analysis of Proficiency Test Result of Cement Chemical Composition</b> Y. Jia, X.T. Cheng and D. Wei	96
Influence of Sludge Content on Compressive Strength of Sintering Sludge-Shale Bricks B.B. Huang, X.H. Zhang and J.Z. Zhu	101

Preparation of PZT Material with Different Zi/Ti Ratio by Sol-Gel Method X. Chen	105
<b>Toughness Properties of Concrete Modified with Water-Borne Polyurethane</b> B. Ding, X. Zhang, D.L. Zhou and C.W. Miao	109
Soil Stabilizer Prepared with Saline Soil and Industrial Solid Wastes X.F. Zhang, J. Wang and W. Ni	118
An Improved Method to Calculate the Direction and Weight in Microplane Constitutive	
Model M.X. Jia, S.S. Li and W. Xie	121
<b>Experimental Study on Long-Term Exposure of Concrete in Magnesium Sulfate Solution</b> F.L. Li, X.X. Ding and L.H. Jin	129
Experimental Research on the Influence of Grain Size of Coarse Aggregate on Pebble Concrete Compressive Strength W. Xie, Y.N. Jin and S.S. Li	133
Basic Mechanics Properties Test of Fly Ash Concrete W. Xie, H.J. Zhang and S.S. Li	138
<b>Bond-Slip Relation of Plain Steel Bar in Concrete with Machine-Made Sand</b> S.B. Zhao, X.X. Ding and C.Y. Li	142
Influence of Aggregate Gradation of Coarse Aggregates on Concrete Strength W. Xie, D.K. Yuan and S.S. Li	147
Influence of Surface Treatment of Testing Specimens on Spacing Factor M. Kostelecká and J. Kolísko	150
Investigation of Corrosion of Cement-Based Materials by Using of Rotating Disc Method D. Dobiáš	153
Effect of Silica Fume on Workability and Water Impermeability of Concrete F.H. Wang and S. Li	157
Effect of Silica Fume on Mechanical Properties and Carbonation Resistance of Concrete Q.L. Wang and J.C. Bao	161
<b>Effect of Silica Fume on Dry Shrinkage and Freezing-Thawing Durability of Concrete</b> F. Li and Z.P. Cui	165
A Kind of Simple Method for Mesh Generation of Concrete at Meso Level J. Wang, L.B. Qing and J.F. Guan	169
Orthogonal Test on Large Content of Solid Waste in Building Binder H.Q. Liu	173
Numerical Simulation of Bond Properties of Steel Bars in Concrete with Machine-Made Sand	
S.B. Zhao, X.X. Ding and S.M. Liu	176
Brief Analysis on Crack of Unbonded Partially Prestressed RPC Beam Q. Fu, B.F. Lv, X. Cao, L.Z. Jin and N. Deng	181
Experimental Research for Flexibility Properties of RC Beams Strengthened with Steel Wire-Polymer Mortar	
C.Y. Zhao, S.M. Huang, Q.L. Yao and Y.J. Chen	185
Calculation Method of Crack Width of Steel Fiber Reinforced High-Strength Concrete Beams under Fatigue Load D.Y. Gao and M. Zhang	190
<b>Testing Researches on Mixing Proportion of Consolidator-Mixed Pile Composite Foundation</b>	
G.Z. Zhang, D.L. Xun, F.Q. Ji and Z. Yang	196
Analysis on Load Stress of Asphalt Pavements with Different Crack States Y. Wang and Z.F. Liu	201
Chapter 2: Innovation in Civil and Hydraulic Engineering	
Research Progress of Diffusion Absorption Refrigeration Technology X.H. Ren and Y.Y. Tan	209
A Practical Technique for Generating Hexahedral Meshes X.L. Bai, B. Ma and J.Y. Li	214

Three-Dimensional Two Material Transportation Method Based on the Volume Fractions Interface Algorithm	
J.L. Wu, Z.Y. Wu, Y.P. Tong and P.R. Du	218
Numerical Simulation of Rural Brick Buildings Strengthened with CFRP under Flood Actions	
Y.J. Liu, X.T. Ma and Y.M. Sun	223
Research of Viscous-Spring Artificial Boundary in Dynamic Analysis H.Y. Zhang, L.W. Han, Z.T. Tao, L. Yao, S.P. Li and X.D. He	227
Study on Design Method for Scale and Layout of Road Passenger Station Z.C. Li, Q.X. Sun and S.B. Zhao	231
Variation Rules of Warping Effect with Respect to Parameters of Cylindrical Helical Spring Y. Hao and J.F. Guan	236
Calculation of Shear Capacity of Continuous Compound Spiral Hoop Reinforced Concrete	
Column J.F. Guan and J. Wang	240
Research on Regional Dividing Technology for Liquefaction-Induced Lateral Spreads Based on MAPGIS	244
C.C. Li, W.M. Wang, R. Sun and Y.R. Li  The Dynamic Response Analysis on Train Liquid Storage Tanks under Harmonic	244
Excitation Q.H. Zhang	248
Stability Analysis of Concrete Gravity Dam	270
Z.H. Wen and J. Zhou	252
Stress Calculation of Gravity Dam Based on Elastic Mechanics H.B. Cui, H.T. Zhu and J.C. Yue	256
Dynamic Analysis of Face Rockfill Dam Based on Finite Element Theory Y. Zhao, S.Z. Cheng and J.W. Zhang	260
3D Finite Element Analysis of Concrete Face Rockfill Dam J.W. Zhang, S.Z. Cheng, S.F. Yuan and Y. Zhao	264
Temperature Character Analysis of RCC Based on Stepwise Regression Model Y.Q. Zhao	268
Temperature Control of RCC Dam in Yongding Project X.D. Xu and J.C. Yue	272
Study on Fundamental Frequency of Runway Based on Winkler Model X.M. Zhang, L. Liang and Z. Wei	278
S-Transform Analysis on Pulsating Water Pressure Acting on the Stop Log Gate H. Huang, X.Y. Xu and J.W. Zhang	282
A Multiobjective Decision Framework for River Basin Management X.Q. Zhang, H. Gao and X. Yu	288
Finite Element Analysis of Complicated Sedimentation Basin X.Y. Zhang, X.C. Liu, S.Q. Yang and L.L. Dong	292
Study on Settling Efficiency of Sedimentation Basin of Coca Codo Sinclair Hydropower	
Station in Ecuador X.Y. Guo, S.W. Chen and D.P. Sun	298
Application of MIKE21 MODEL on Flood Routing in the Lower Yellow River from Gaocun	
to Sunkou X.L. Zhang and S.L. Guo	304
Analysis of Influence Factors of Irrigation Method in Detecting Compactness of Canal Bank Y.B. Kang, K. Huang and A. Rjap	308
Numerical Simulation of Excavation of Abutment Slope at Left Bank in Dagangshan Hydropower Station	
K. Yang, Z.C. Ma and H. Han	313
Application of High Pressure Jet Grouting Technology in Seepage Prevention of ChuLou Reservoir	
S.B. Zhang and J. Wen	317
Reservoir Operating Policies Analysis by Using Genetic Algorithm S.B. Zhang and J. Wen	321

Thermal Stress Analysis of Large Scale U-Shaped Aqueduct J.H. Zhang	325
Analysis on Axial Stresses of Crossbars on Aqueduct X.L. Bai, J.Y. Li and B. Ma	329
<b>Design Analysis of Shuangji River Drainage Aqueduct Body with Large Flow</b> G.W. Feng and Y. Gao	333
Study on Lateral Dynamic Response of Pile Foundation in Liquefiable Soil by Using FBG Method	
Y.R. Li, Y. Liang, X. Wei, Y.L. Wang and Z.Z. Cao	337
Research on Temperature Control and Cracking Prevention on Pier by Installing Expansion Reinforcing Bands during Construction H.M. Li, S.S. Li and W. Xie	341
<b>Application of BOTDA in Mass Concrete Temperature Monitoring</b> J.H. Xiong, L.J. Wang, W.Y. He and H.F. Xing	346
Australian Seaport Infrastructure Resilience to Climate Change D. Kong, S. Setunge, T.C.K. Molyneaux, G.M. Zhang and D.W. Law	350
Study on the Inwall Crack Extension and Fatigue Life Evaluation for Deep-Sea Steel Catenary Riser under Wave and Current Action B.J. Si and Q. Jin	358
Development of the Buckling Propagation Analysis System and Experiments Design of	336
Deep-Sea Pipeline	362
<b>System Identification Applications in Pavement Permittivity Back-Calculation</b> M.L. Meng, Y.C. Cai and B. Zhang	366
Calculation of Saturation Line of Groundwater under Reservoir Water Table Uniform Falling Y.Y. Zhang	371
Research on the Relationship between Effective Porosity and Ratio of Cement to Stone of Non-Sand Concrete Well Pipe C.J. Yan	378
Study on Influencing Factors of the Elderly Population Crossing Speed C. Yin and X.N. Song	382
<b>Determination Optimum Pipe Diameter Method of Tree Path Heating Pipe Network</b> M.J. Wang, W.M. Di and Y.K. Wang	385
Rural Drinking Water Security Evaluation and Simulation Based on MATLAB Digital and Vector Processing Technology H.W. Pan, B.D. Xi, H.J. Lei, Z.M. Wei, X.S. He and Y.H. Jiang	390
Analysis of the City Waterfront Landscape Design in Central Plains Economic Zone J.X. Liu and Z.Q. An	395
Orthogonal Enumeration Method for Optimum Seismic Strength of Water Supply Network S.H. He	400
Effect of Electrochemical Pretreatment and Flocculation on the Degradation of Pharmaceutical Wastewater	
X. Mi	405
Experimental Study of Ultrafiltration of Eutrophicated Source Water in Combination with Sand Filter and Biological Contact Oxidation F.Z. Li, D. Cheng and X.W. Lv	409
Research on the Effect of Gas Leaking and Gas-Supplementing Measurements of Air	707
Cushion Surge Chamber G.J. Luo, Y.S. Hu and K. Huang	414
Study on Construction Technology of Geogrid Treatment for Slope of Swelling Rock Y. Gao, T.H. Zhao and J. Bao	419
Study on Three-Dimensional Reconstruction of Macro/Meso-Structure Evolution of Expansive Soils with CT-Triaxial Apparatus X. Li, S.J. Wang and Z.H. Chen	422
The Influence of Concentration of Pore Water Solution on the Swelling Characteristics of Expansive Soils	
J.C. Jia, H. Li and Q.T. Bi	427

Study on the Impact of Long-Term Immersion on the Shear Strength of Compacted Lime Stabilized Expansive Soils Y. Dong, W.Z. He and B.T. Wang	431
Analysis on Collapsibility and Microstructure of Unsaturated Loess Using Fractal	431
Geometry F.L. Ma, M. Wang, J. Yang and X.H. Bai	435
Study on Reasonable Feature of Compaction Loess with Air Porosities J. Yang, L.H. Wang, F.L. Ma and X.H. Bai	441
<b>Theoretical Solution to the Change of Site Predominant Period Caused by Soil Softening</b> B.R. Huang, Y.Z. Wang, W.M. Wang and X.M. Yuan	447
The Finite-Element Analysis of Characteristics of Soil Slopeseepage Field Change in Continuous Rain Condition Z.M. He, W. Wu, L. Zeng and Z.X. Cai	451
Influence of Compaction Density of Soil Mass to the Seepage Build Capacity of Rain and Drainage Design Parameter F.R. Zhao, Z.L. Cai and T.W. Zhang	455
The Study on Rainfall Threshold Induced Landslides in Yucheng District by Binary Logistic Model Y.Y. Zhang	460
Application of New Soil Consolidator in Road-Construction Engineering H. Zhang, D.L. Xun, Z. Yang and F.Q. Ji	466
Study on Updating Design Pattern of Using Solar Energy Hot Water System in High-Rise Residence	
J.J. Zhang, M.B. Yu and Q. Liu	470
Application of Thermal Priority Strategy in Energy-Saving Optimization Design of Low-Cost Rural Residence M.J. Lu and Z.F. Zheng	473
Simulation Study on Solar Collector - Air Source Heat Pump Combined System for Space Heating in Cold Region Z.Q. Wang, Y. Chen and H.X. Wang	478
Analysis on Waterproof and Drainage Systems of Pit House in the West of Henan Province G.X. Wang and H.G. Li	482
The Development of Low-Carbon Economy for Realizing Urban Sustainable Development: Taking the Example of Baotou A.L. Zhang and H.Y. Zhang	486
Research on Fire Prevention and Evacuation Design of Large Sports Facilities S.W. Zhang, L. Song and Z.M. Li	490
Research of Highway Alignment Design Safety Evaluation Using Curvature Change Rate S.N. Hu	493
Cold Recycling Technology Application of Old Asphalt Pavement in Rural Road Alteration	
Engineering Z.D. Guo, J. Liu and C.B. Li  Analysis of Demonsis Lympoleus Engetisms in Lympos Traffic Flory Cycles as Systems	497
Analysis of Dynamic Impedance Functions in Urban Traffic Flow Guidance System Z.C. Li	503
Compensation Design of Highway Landscape S.N. Hu, Q.D. Fan, Z.H. Hu and X.H. Xiao	507
Chapter 3: Innovation in Architecture and Building Construction	
Critical Risks Influencing the Application of EERTs in Australian Green Office Buildings G.M. Zhang, I. Mosly, S. Setunge and X.H. Jin	513
Thinking on Architectural Design of Rural Supermarket L.J. Hao	525
Economic Thinking of Landscape Design in Residential District N. Wang and W. Sun	529
Some Points about the Local Living Environment Research H.G. Li, Y.Q. Liu and Y. Ding	532

Planning and Design of Urban Barrier Free Building Environment with Aging of Population	
L. Song, S.W. Zhang and Z.M. Li	536
On the Elements of Contemporary Architectural Styling C.H. Xu, Y. Song, S.C. Xu, Q. Feng and H. Wu	539
A Study on Architectural Style of Buildings along the Northern Foot of Qinling Mountains Taking Xi'an Garden as Example Z.T. Xiao	543
Preservation and Renewal of Huaiyu Street Historical Blocks in Xunxian County C.Z. Gao and Y.T. Song	547
A Tentative Research on Site Selection of Shanxi Buddhism Temple Architecture Y.X. Li, X.D. Zhu and C.E. Wang	551
<b>Application of Display List Group Technology in Forming of Complex Building Model</b> L.H. Li	555
<b>Study of Natural Disasters Contract Conditions Based on the FIDIC Criteria</b> Z.L. Guo and H. Zhang	558
<b>Discussion on Construction Contract Management</b> B.X. Cui	562
Partner Selection for Partnering Mode Based on Vertical Projection Method X.T. Nie and J.H. Lan	565
<b>Design and Analysis of a Light-Weight Steel Gabled Frames Structure</b> W.F. Du, Z.F. Sun, H. Zhang and F.D. Yu	572
Research on Secondary Stress for Steel-Pipe Truss under the Influence of Geometric Parameters	
H. Wang  Comparative Study on the Design Schemes of Residential Steel Structure	576
Y.C. Xu and Z.P. Tang Wind-Induced Response Analysis of Steel Tower Structure	581
C.F. Wan, J. Wang, H. Zhu, L. Huang, H. Wang and Z.D. Xu  Research on Ultimate Bearing Capacity of Single-Layer Cylinder Latticed Shells  Considering the Influence of <i>P-δ</i> Effect	585
W.F. Du, Z.Y. Zhou and P. Zhu	589
Monitoring and Test on Load Bearing Transform of Large Span Steel Truss of Archaized Tower X.K. Li, P.F. Han, Z.H. Wang and J. Liu	593
Design and Analysis of a Suspended Lattice Shell W.F. Du, F.D. Yu, Z.Y. Zhou and L.M. Zhu	599
Development and Application of the Virtual Simulation Teaching System of Steel Structure Construction	
Z.P. Tang and Y.C. Xu	603
Research Status and Development Application of Ceramsite Concrete Short Pier Shear Wall	
B. Hu, R.Y. Zheng and B.F. Zhou  Application of Improved Response Surface Method Based on Kriging Model to Structural	608
Reliability Analysis B.Y. Jia, Q.S. Yan and X.L. Yu	611
A New Bending Stiffness Measurement Technique Based on Distributed FBG Sensing Technology	
Y.L. Wang, X.M. Yuan, X.G. Cai and Y.Z. Wang	617
Fire and Post-Fire Performance of Space Grid Structures G.Y. Wang, X.Q. Wang and G.W. Liu	621
<b>Study of Building Design and Reinforcement Technology under the Mining Damage</b> Q.S. Li and T.C. Wang	625
Study on the Ductility of T-Shaped Short-Limb Shear Walls (I) D. Guo, H. Feng, Z.P. Li and J.Y. Liu	631
Study on the Property of Ductility of T-Shaped Short-Shear Walls (II) Z.P. Li, D. Guo, H. Feng and J.Y. Liu	635

Seismic Research and Development of Steel Plate Concrete Composite Shear Wall Y.B. Yang	640
Testing and Control for Strands Embedded in Annular Concrete Foundation Beam of Steel Archaize Tower	
X.K. Li, J. Liu, Z.H. Wang and P.F. Han  Free Vibration Analysis of Frame-Core Tube Structures Attached with Damped Outriggers	643
Z.H. Wang	648
Three-Spring Model for Spatial Walls L.J. Si, G.L. Chen and H.L. Wang	652
<b>Discussion on Masonry Structure Model Mechanical Property Test</b> G.L. Chen and L.J. Si	659
<b>Manufacturing Technology of High-Strength Continuous Compound Spiral Hoop</b> J.F. Guan and Q. Zhang	663
Optimal Calculation Method of Eccentric Bearing Capacity of Concrete-Filled Steel Tube	
Short Columns J.W. Zhang, X.J. Kuang, W.F. Bai and J. Wang	666
Experimental Studies on High Strength Concrete Beams Reinforced with Steel and GFRP Rebars	660
Y.H. Liu and Y. Yuan	669
Chapter 4: Innovation in Bridge and Underground Engineering	
Key Design and Construction Techniques for Collisionproof Steel Cofferdam for Large Span Cable-Stayed Bridge	677
W.Z. Li, Z.J. Feng, Z.C. Hu, D.L. Xun, J. Zeng and Q. Peng Study on Thermal and Structural Behavior of a Cable-Stayed Bridge under Potential	677
Tanker Truck Fires Y.J. Liu, B. Ning and Y. Wang	684
Rhombus Cradle System Checking Computation of Jinqinggang Bridge S.M. Liu, Z.L. Yang and H. Zhao	689
Bridge Structure Performance Evaluation Based on Dynamic Load Test Y. Zeng	694
Construction Technology of Transverse Bonded Structural Steel for Strengthening PPC Hollow Slab Bridge J.H. Chen, L.H. Bai, S.B. Zhao, X.H. Yu and C. Chen	697
Checking Computation for Bracket Structure of Jinqinggang Bridge S.M. Liu, H. Zhao and Z.L. Yang	701
Anti-Overturning Stability Numerical Analysis of Single Column Bridge	705
X.M. Zhang and B. Dong Study on Construction Process of Suspension Bridge Based on a Co-Rotational Framework	705
B.J. Wang, J.Y. Song and J.M. Lu	709
Design of Mitigation Damper with Support Flexibility for Stay Cable under Bridge Deck Excitation	71.4
S. Luo, Q.S. Yan and H.J. Liu  Dynamic Analysis of Bridge-Approach Embankment Transition Segment	714
Z.X. Li and Y.Ž. Chen	719
Simulation of Composite Strengthening Technique in Prestressed Concrete Continuous Box Beam Bridges H.B. Jiao and S.H. He	723
Full-Scale Model Test for Anchorage Zone of Pylon of Cable-Stayed Bridge	
X.L. Yu, B.Y. Jia, W.F. Wang and Q.S. Yan  Creep Effects on Simply Supported Prestressed Concrete Box Girder of High-Speed	728
Railway with Ballastless Tracks W. Fang, B. Han and S.K. Yang	733
Static Analysis of Reinforced Concrete Arch-Deck Bridge with Archaized Connective Corridors	
X.K. Li, L.X. Liu, S.M. Liu and S.B. Zhao	738

Effect of Pile-Soil Action on Seismic Resistance of Prestressed Continuous Box-Girder Bridge with Changed Sections	
F.L. Li, S.M. Zhang and S.M. Liu	743
The Research of Steel Bracket Jacking Experiment in Long Span Continuous Beam Bridge C. Zhou, Q.S. Yan, H.B. Zheng and G. Wei	748
Research on Non-Quantification Risk Factors Control and Management of Bridges during Construction	<b>7.5</b> 0
Q.F. Li, H. Fu and W.K. Gan	753
Comparison Study on Crossbeam Web Cutout of Different Shapes for Orthotropic Steel Bridge Deck L.Q. Gao, Q.H. Pu, B. Han and Z.B. Liu	758
Plastic Hinge Analysis of Seismic Performance of High Bridge Pier	750
R.H. Gao, R.L. Chen, S.G. Cao, Z. Tang, X.Q. Xiao and H.B. Hu	765
Theoretical Calculation and Parametric Analysis of Tunnel Settlements due to Neighboring Over-Length Pile Groups K. Wang	769
<b>Excavation Technology of Shield Tunneling in Mixed Ground</b>	
S.L. Xu	773
Safety Analysis on the Structure of an Existing Metro Station Impacted by the Construction of an Adjacent Building	
L.H. Ma, Q.H. Liang, Y.F. Liu and M.R. He	777
Numerical Analysis of Effect of Blasting Vibration on Adjacent Roadway in 858 Mines G.Y. Wang and J.C. Liu	783
Analysis of Plastic-Zone Radius Influenced by Mechanical Parameters in Tunnel Excavation and Support Z.M. Su and R. Liu	787
Introduction of NO-NO <sub>2</sub> -O <sub>3</sub> Recycle into Model for Air Pollutant Dispersion from Tunnel	787
Portals S.J. Miao and D.F. Fu	791
Underground Space Form Design of Large Centrifugal Shaker System and Analysis of	
Machine Foundation Vibration Y.Z. Wang, Y.L. Wang, Z.S. Chen and X.M. Yuan	795
Research of Manually Excavated Pile Support for Large Foundation Pit Z.Y. Deng	799
Analysis of Settlement Reasons and Mechanism in Immersed Tunnel G. Wei, H.J. Qiu and X.J. Wei	803
Monitoring Analysis on Tunnel Portal Shallow Burying Segment of Center Diaphragm Construction Method F. Zhou, Y.L. Xie and J.X. Lai	808
Stability Analysis of Underground Caverns by Jointed Finite Element Method	808
J.C. Wu, Y.M. Zhang and H.X. Li	814
Controlling Criterion for Differential Settlement of Widened Expressway	
H.F. Xing and H.M. Li	818
Theory Study by CGM for Moving Force Identification  Z. Chen and J.L. Han	823
Numerical Simulation by CGM for Moving Force Identification Z. Chen and J.L. Han	826
Chapter 5: Earthquake and Seismic Engineering	
Mitigation of Seismic Risks to Soft-Storey Structures Using Toggle-Brace-Damper Systems R.W.K. Chan and Z.F. Zhao	833
The Seismic Behavior of High-Strength Concrete Frame Joints T.Y. Wang, J.W. Zhang and D.Y. Gao	838
Study on Relationship of Seismic and Pseudo Response Spectrums G.L. Chen, W.F. Liu and G. Li	844
Feasibility of Vs Liquefication Evaluation Methods by Bachu Xinjiang Earthquake Data Q.Y. Zhao, R. Sun, Y.R. Li and W.M. Wang	848

<b>Study on </b> <i>In Situ</i> <b>Test Based on Survey of Bachu Earthquake</b> Z.Y. Li, W.M. Wang, Y.R. Li and L.W. Chen	852
Comparative Analysis on Liquefaction Macro-Characteristics of the Three Major Regions in Wenchuan Earthquake W.M. Wang, Z.S. Chen, X.M. Yuan and Z.Z. Cao	856
Research on Zoning Technology of the Liquefaction Seismic Settlement Based on MAPGIS X. Lu, R. Sun, Y.R. Li and L.W. Chen	860
Correlation of Site Characteristic Period with Predominant Period of Ground Acceleration by a Simplified Model	
L.W. Chen, W.M. Wang and R. Sun  Study on Anti-Seismic Reliability of Urban Water Supply System  X.J. Li and F.M. Shen	864 868
A Study on the Analysis Method of Soil Layer Seismic Response in Seasonal Frozen Site Z.S. Chen, S.J. Meng, Y.R. Li and L.W. Chen	872
Comparative Analysis of Seismic Responses of Different Layer Height Structures with Broken Stone Isolation Layers X.Z. Zhang, L.J. Miao and K.D. Tang	876
Introduction to ASCE7 Seismic Design and the Comparison with Chinese Code GB 50011-2010	881
C. Song and H.J. Zheng  Analysis of Typical Example and Genesis of Landslide Triggered by Wenchuan Earthquake in China	001
J.Y. Dong, Z.L. Li, Z.Q. Huang, J.H. Yang and G.X. Yang	886