

# Table of Contents

## Preface

<b><sup>29</sup>Si NMR Characterization of Silica Tetrahedron in the Silica Fume Simulate Hydration</b> X.J. Wang, X.Y. Wang, H.F. Zhu and C. Qian	1
<b>Investigation of Early Cement Paste with <sup>1</sup>H Low-Field NMR</b> Z.P. Sun, Q. Li, Y. Yu and P.Q. Yang	5
<b>The Application of Freezing-Melting Hysteresis in Hardened White Cement Paste</b> Z.P. Wang, T. Wang and L. Zhou	10
<b>An Experimental Study of Water in Pore System of Hardened Cement Paste by Magnetic Resonance</b> A.M. She, W. Yao and W.C. Yuan	14
<b>Quantitative Characterization of Hydration of Cement Pastes by Rietveld Phase Analysis and Thermoanalysis</b> Y.Q. Wei and W. Yao	19
<b>Kinetic Study of Portland Cement Hydration with Ground Penetrating Radar</b> W. Chen, P.L. Shen, J.X. Lu and W.R. Zhang	25
<b>Study on the Hydration Kinetics of Portland Cement</b> W. Wang, W. Yao and Y.Q. Wei	30
<b>Relationship between Internal Relative Humidity and Autogenous Shrinkage of Cement Paste with Supplementary Cementitious Materials (SCM)</b> Y. Li and Q.Q. Yan	35
<b>A Testing Device for Humidity-Control Performance of Pervious Concrete</b> J.L. Wu, X. Wu and X.F. Lv	40
<b>An Evaluation of Shrinkage Model Based upon Microstructure of Blended Cement Pastes</b> Y. Chen, W. Yao and D. Jin	44
<b>Early-Age Free Shrinkage of Mortars with Different Dosages of EVA Redispersible Powder</b> S.F. Liu and P.M. Wang	49
<b>Shrinkage of Blended Cement Pastes with Mineral Additions</b> Y. Chen, W. Yao and D. Jin	55
<b>Relative Humidity of Blended Cement Pastes in Sealed during Hydration</b> D. Jin, W. Yao and Y. Chen	60
<b>Effect of Hollow Glass Microsphere on Performance of Foam Concrete</b> Q. Wang, L.G. Qiu, Q. Yao, Z.Y. Ding and X.F. Yan	64
<b>Effects of Rubber Powder and Fly Ash on Mechanical Properties of Recycled Mortars</b> Y.F. Meng, Y.Q. Wei, D.Z. Wang and K. Gao	70
<b>Micromechanical Properties of Calcium Silicate Hydrate</b> W. Yao and L. He	75
<b>Probing Nanostructure of Calcium Silicate Hydrate by AFM and Nanoindentation</b> K. Liang, W. Yao, L.J. Chen and Q. Gao	80
<b>Study on the Unhydrated Cement Grain/C-S-H Gel Interface in Cement Paste by Use of Nano-Scratch Technique</b> Y. Mao, W. Yao and J. Xu	84
<b>Temperature Sensitive Properties of Hybrid Carbon Nanotube/Carbon Fiber Cement-Based Materials</b> J.J. Qin, W. Yao and J.Q. Zuo	89
<b>Research on Optimizing the Electrical and Mechanical Properties of Carbon Fiber Reinforced Cement</b> J. Xu and W. Yao	94
<b>Mechanical Property of Hybrid Steel Fiber Reinforced Cement-Based Composites</b> H.T. Tan, W. Yao, X.M. Song and S. Dong	99
<b>Enhancing the Thermoelectric Properties in Carbon Fiber/Cement Composites by Using Steel Slag</b> J.Q. Zuo, W. Yao and J.J. Qin	103
<b>Seismic Behaviour of RC Columns Strengthened with Steel Bar/Wire Mesh Mortar</b> Y.H. Sun, X.Y. Wu and G.J. Xiong	108

<b>Carbonation Profile of Cement Paste and Concrete Established with Micro-Hardness Analysis</b>	
W. Chen, X.X. Chen and S.Z. Zhang	115
<b>Effect of Activated Water Treatment Sludge on Carbonation of Mortar</b>	
Y. Chen	120
<b>Effect of Fly Ash on Resistance to Sulfate Attack of Cement-Based Materials</b>	
K.W. Liu, M. Deng and L.W. Mo	124
<b>Study of Durability Analysis and Evaluation Model for Existing Concrete Structure in Coastal Areas</b>	
H.Y. Yu and H. Zhang	130
<b>The Effect of Fly Ash on TSA of Cementitious Material: Based on Three Years Results</b>	
B.W. Liu, C.H. Yang, X.B. Xiang, L.W. Yu and J. Zhang	139
<b>Study of Mechanical Force on Coal Gangue Reactivity</b>	
C.S. Zhang, X.F. Liu, Q.S. Wu, Y.X. Deng and L. Li	145
<b>The Effect of Electrochemical Chloride Extraction Combining Ultrasonic on Steel-Reinforced Mortars</b>	
X.M. Xing and W. Yao	149
<b>Tentative Study on Sonoelectrochemical Chloride Extraction from Mortar</b>	
Y.Q. Chen, W. Yao and X.M. Xing	153
<b>Analysis of Bond and Anchorage Performances of Helical and Twisted Reinforcement Material</b>	
J.L. Zhang and C.L. Wang	158
<b>Research on Modification of Steady State Migration Test for Cementitious Materials</b>	
J.B. Yang, P. Zhang and L.P. Wu	166
<b>Study on Hydration Degree of Portland Cement-Slag Complex Binders</b>	
R.G. Liu and P.Y. Yan	172
<b>Study on Pore Structure Characterization of Concrete at Different Ages by Thermoporometry</b>	
Z.W. Jiang, Z.L. Deng and N. Zhang	178
<b>Determining the Contact Angle of Hardened Cement Paste Using Thin Layer Wicking Method</b>	
Q. Tian, H. Zhang, Y.J. Wang, F. Guo, T. Yao and J.P. Liu	184
<b>Solubility Behavior of the Hydration Products in the Pore Solution of Hydrated Cement Pastes</b>	
W. Yao and M.J. Wu	189
<b>Effect of Metakaolin on the Physical Properties and Setting Time of High Performance Concrete</b>	
B.M. Wang, H.N. Ma, M. Li and Y. Han	195
<b>The Effect of Curing System on Mechanical Properties of Desulphurization Gypsum-Slag Composite Binder</b>	
X.Q. Liu, J. Wang and H.G. Qin	200
<b>The Influence of Curing Temperature on the Coordination of the Expansion and Strength of High Strength Expansive Concrete</b>	
J.J. Feng, C.L. Zhou, Y. Sun and X.Q. Wang	205
<b>Preparation of MgO- and CaO-Bearing Expansive Agent Used for Cement-Based Materials</b>	
L.W. Mo, Y. Deng, A.Q. Lu and M. Deng	211
<b>Study on Compatibility of Modified the Cement-Based Composite Biomass Materials by Agent</b>	
J. Liu, C. Lin, W.H. Sun and X.M. Wang	215
<b>The Brief Analysis of Photovoltaic Insulating Glass in the Process Service</b>	
W.H. Li, C. Li, Y. Qiu and C.G. Wei	220
<b>Phosphate Bonding: A New Method for Using Large Volume of Fly Ash</b>	
Z. Ding, M. Zhang, B.Q. Dong, W. Liu and H. Lu	225
<b>The Preparation and Pozzolanic Activity of Metakaolin Admixtures</b>	
B.M. Wang, Y. Zhang and M. Li	230
<b>Influence of Steel Slag on the Workability of Concrete</b>	
J.W. Yang, Q. Wang, P.Y. Yan and B. Zhang	235
<b>Study on the Influence Factors of the Dispersion of Carbon Nanotubes in Aqueous Solution</b>	
X.Y. Liu, Y. Xu, L. Chen, X.R. Wang and M.K. Zhou	239

<b>Properties of Cement Mortars Mixed with SiO<sub>2</sub> and CaCO<sub>3</sub> Nanoparticles</b> D.Z. Wang, Y.Y. Zhang and Y.F. Meng	244
<b>Alkali Activity of Granite Aggregates and Control in the Concrete of the Three Gorges Project</b> Z.Q. Wang, C.X. Liu, Z.Y. Wen, Z. Li and L. Xiao	249
<b>Preparation of AgBr Nanowire Arrays in Porous Anodic Aluminium Oxide Template by Paired Cell Deposition</b> M.M. Cui, X.C. Yang and J.W. Hou	255
<b>Influence and Mechanisms of <i>In Situ</i> Toughening Telechelic Polymer on the Microstructure of Concrete</b> X.B. Zhu, P. Feng, J.P. Liu, B. Ding and J.X. Hong	259
<b>Research on the Application of Liquid Permeating Method to Silica Sol Stability</b> L. Li, N. Zhou, X. Cui and W.H. Huang	266
<b>Environmentally Friendly Cellular Concrete for Wall Insulation</b> Y.Q. Jiang, J. Yang and Y. Chen	271