

Table of Contents

Preface, Sponsors and Organizers

Chapter 1: Building Materials

Using of Furfural to Modify the Ordinary Portland Cement H.K. Hussain, L.G. Wei, H.A. Hamdi and D.S. Abed	3
The Use of Stress Reduces in suddenly Changed Section of Rounded Shafts S.R. Mohebpour and M. Vaghefi	9
Influence of Compressive Strength of Self-Compacting Concrete on Shear Behavior of Prestressed RC Beams J. Shen, I. Yurtdas, C. Diagana and A. Li	14
Strengthening of Concrete Beams Having Shear Zone Openings Using Orthotropic CFRP Modeling A.M. Mahmoud	19
Secondary Reinforcement in Concrete Corbel M. Rezaei, S.A. Osman and N.E. Shanmugam	24
Strength Properties of Recycled Aggregate Concrete Mixed with Polypropylene Fiber S.U. Hong, Y.T. Lee, S.H. Kim, S.K. Baek and Y.S. Cho	28
Study on the Behaviors of CFRP Confining Concrete Specimens Exposed to Fire, Acid and Alkaline Environments C.C. Lin, C.H. Liu and C.L. Tsai	32
Mechanical Properties of Concrete Added with Chicken Rachis as Reinforcement E.S.A. Wahab and S.F.C. Osmi	37

Chapter 2: Computational Mechanics and Engineering Applications

Chongqing Bridge and its Combination Bridge Z.F. Xiang and Y. Zeng	45
The Sustainable Indoor Environment Research and Design of Earth Buildings for Rural People L.B. Tan	50
Concrete Bridge Durability Design and Maintenance H. Tian, G.P. Li and A.R. Chen	55
Structural Analysis of the First Iron Bridge in the World Using the Finite Element Method C.J. Wang, G.N. Tang, I.A. Roberts and D.J. Mynors	62
Deflection Analysis of Sleeve Jointed Purlin Systems with Non-Linear Rotational Stiffness C.J. Wang, D.J. Mynors, T. Morgan and B. Cartwright	66
Application of Genetic Programming for Estimation of Soil Compaction Parameters N. Naderi, P. Roshani, M.Z. Samani and M.A. Tutunchian	70
Experimental Study on the Effect of Froude Number on Temporal Variation of Scour around a T Shaped Spur Dike in a 90 Degree Bend M. Vaghefi, M. Ghodsian and A. Adib	75
Comparing Steel Plate Shear Wall Behavior with Simple and Corrugated Plates M. Gholizadeh and Y. Yadollahi	80
Safety Evaluation of Pier under Impact of Bridge Girder Erection Machine Y.T. Zhou and K. Yan	86
Three Dimensional, Linear and Nonlinear Finite Element Modeling of FRP to Concrete Pull-Off Test M.N. Hamedani	92
Comparative Analysis of Axially Loaded Composite Columns M. Almadini, D. Kovacevic and V. Radonjanin	99

Study on the Effect of Sewage Concentration on Treatment Efficiency of Artificial Wetland of Plateau Lake	
Z. Ling, J.R. Yang, J.M. Hu, G.R. Yu and H.L. Cheng	105
Singular Perturbation Method for Solving Non-Linear Vibration of Stay Cable (I) - Theory Research	
Z.H. Ran, J.T. Qu, F. He and S. Miao	112
Singular Perturbation Method for Solving Non-Linear Vibration of Stay Cable (II) - Engineering Application	
Z.H. Ran, J.T. Qu, F. He and S. Miao	117
Double Non-Linear Mechanical Characteristics of Transmission Tower Structure Based on Model Amendment	
J.Z. Xue, X.C. Zhi and Y.Z. Chi	122
An Experimental Study on Material and Structural Properties of Structural Insulated Panels (SIPs)	
J. Yang, Z. Li and Q. Du	127
Study and Practice on the Performance of Soundproofing for Office Building Wall	
P. Cao, W.H. Xia and C.N. Liu	132
Symplectic Solutions in Singularity Problems of Anisotropic Beams	
Y.Z. Yang	136
The Finite Element Analysis on Mechanical Properties of the Meridians Stair Skeleton of Medical Exhibition Center in Taizhou City	
J.Z. Xue, Y.Z. Chi and X.C. Zhi	140
Structural Defects of Existing RC Buildings in Eskisehir Province	
A.E. Cengiz, Y. Güney, O. Kaplan, A. Topçu, Y. Özçelikörs and E. Ekin	145
Reliability Assessment of Fatigue Life of Hangers in Large-Span Suspension Bridges	
Y. Zeng and H.M. Tan	149
Maintenance Strategies of Main Cable for Large Span Suspension Bridges Considering Different Scales	
Y. Zeng and H.M. Tan	153
Fatigue Evaluation of Flat Steel Box Girders with Closed Stiffeners of Large-Span Suspension Bridges under Different Heavy Trucks	
Y. Zeng and H.M. Tan	157
Temperature Change Influence on Strands Tensile Force in Anchor-Span Suspension Bridge	
H.M. Tan, Y. Zeng and S.H. Sun	161

Chapter 3: Geotechnical and Soil Engineering

Explosive Compaction of Sand Foundation: Laboratory Test	
J.T. Qu, Z.H. Ran and S. Miao	169
Explosive Compaction of Sand Foundation: <i>In Situ</i> Trails	
J.T. Qu, Z.H. Ran and S. Miao	176
Comparison between Generated Data by Different Markov Chain Methods in the Mola Sany Station of the Karun River in Iran	
A. Adib, S. Sohldoost, M. Labibzadeh, M. Vaghefi and A. Ghanbarzadeh	183
Optimization of Released Water from the Dez Dam for Supply of Water Demands in the Downstream of Dam	
A. Adib, I. Ahmadianfar, M. Salarijazi, M. Labibzadeh and M. Vaghefi	187
Evaluation of Undrained Shear Strength of Converting Dredged Material to Agricultural Soil	
Y. Gui, J. Cao, Z.G. Song and Q. Zhang	191
Reliability Analysis of Foundation Pit by Improved Response Surface Method	
J. Zhou, J. Cao, Y. He and J. Song	197
Numerical Simulation Analysis of Groundwater of the Proposed Iron and Steel Base in Xichang	
J. Cao, Y. Gui, B.Z. Li and F. Shen	203
Drying (Consolidation) Porous Ceramic by Considering the Microscopic Pore Temperature Gradient	
Z. Harun and D. Gethin	210

The Hydraulics Similarity Criteria of Anaerobic Bio-Fluidized Bed Design X. Wang, L. Wang and Y.S. Shi	215
Workability Characteristics of Porous Concrete in Pavement Applications N. Elguemri and Y.F. Fan	218
Settlement of Foundations Located on Compacted Soil for TMM Projects O. Masoud	223

Chapter 4: Materials Science and Engineering Applications

Study on Seismic Behavior of Steel Frame with Different Brace Patterns Y. Zou, T.Q. Li, D.L. Zhang and P.F. Zhang	231
Relationships between Resonant Frequency and some Dynamic Properties of Marble and Brick Waste-Substituted Concrete M.S. Kirgiz	236
Root Biomass Characteristics of Paronychia Kurdica Boiss for Using in Soil Protection in Shanjan Rangelands, East Azerbaijan, Iran G.H. Bibalani, L. Joudi and H. Shadkani	241
Risk Matrix for Factors Affecting Time Delay in Road Construction Projects: Consultants' Perspective I. Mahamid	244
Seismic Behaviors of Suspend Dome Structure Q. Zhang, J. Cao, Z.G. Song, Y. Gui and C.W. Huang	249
Preliminary Research on Particle Size Analyses Method of the Quicklime-Stabilized Dredged Material Y. Gui, Q. Zhang, H. Wei, Q.H. Wang and H.H. Yhang	254
Analysis of Dynamic Response for Suspend-Dome Structure Q. Zhang, Y. Gui, J. Cao, Z.G. Song and C.W. Huang	261
A Model for Seismic Vulnerability Score Assignment of Road Infrastructure Using Linear Regression Technique Y. Mohammadreza, R.M. Zin and V. Mohammadreza	266
A Parametric Study of the Reinforced Concrete Slab Subjected to Dynamic Excitation S.M. Ahmed, G. Umarani and G.A. MacRae	270
Seismic Performance Assessment of an Existing Road Bridge Using Standard Pushover Analysis T.A. Roseenid, N. Premavathi and G. Umarani	278
Application and Comparison of Mathematical and Physical Models on Inspecting Slab of Stilling Basin Floor under Static and Dynamic Forces B. Mohammadzadeh, M. Bina and H. Hasounizadeh	283
Compressive Strength Estimation of Recycled Coarse Aggregate Concrete Using Ultrasonic Pulse Velocity Y.T. Lee, S.U. Hong, H.S. Jang, S.K. Baek and Y.S. Cho	288
Eight Types of HSC R.C. Yu, L. Saucedo, G. Ruiz and X.X. Zhang	293
Numerical Simulation of Random Wind-Excited Response Analysis of Henan TV Tower Y. Zeng and H.M. Tan	298
The Economics Analysis of Large-Scale Project Organization Y.H. Chen and N. Xu	303

Chapter 5: Application and Others

Design and Simulation of Transconductance with Capacitances Feedback Compensation Amplifier M.Y. Ren, C.X. Zhang, J.Y. Zhao and H. Guo	311
Analysis and Inspiration on Typical Damage Characteristic of Bridges W.X. Zhang and L. Yang	315
An Efficient Two-Factor User Authentication Framework for Wireless Sensor Networks J.Y. Zhao, H. Guo and W. Wei	320