

# Table of Contents

## Preface, Committee and Sponsors

## Chapter 1: Construction Technologies, Architecture and Urban Planning

<b>Research on Linux-Based PC Cluster System and its Application in Numerical Simulation for Shallow Buried Soft Soil Tunnel</b> J. Du, Z.R. Mei, L.L. Fu and K. Zhang	3
<b>Finite Element Analysis of High Strength Recycled Concrete Beam Flexural Properties</b> H.L. Zhang and C.C. Pei	11
<b>Strength Test Research on Cement-Soil of Peat Soil in Kunming</b> S. Gao, H.M. Zhao, J. Cao and Z.G. Song	15
<b>Urban Rain Flood Disaster Mechanism and Prevention Research</b> L.J. Xu, J.Y. Deng, C. Chen and S.S. Han	21
<b>Study on Highway Transportation Route Selection of Heavy and Oversize Cargo</b> Y.M. Zhou, C.H. Zeng and F. Xian	25
<b>Research on Civil Engineering with Comprehensive Evaluation Model of Urban Old-Age Real Estate Building Energy Saving</b> H. Liu and Y.B. Zhao	29
<b>A Novel Deployable Emergency Bridge</b> X.Y. Wu, J.J. Huang and A.P. Luo	33
<b>Study on Mechanical Performance of Deep Pile Cap Failure</b> H.L. Guo	39
<b>A Literature Review on Observation of the Pedestrian Step Forces</b> L. Xu, H.Y. Wang and Z.G. Song	43
<b>Study on Reinforcement of Artificial Boundary Pillar Using Slope-Toe-Enclosure Compound with Prestressed Cable-Bolts</b> W. Du, C.A. You and Y.Y. Li	50
<b>Numerical Study on Damage Mechanism of PRC T-Beam under Close-In Blast Loading</b> B. Yan, Y.H. Zhou, F. Liu and Z.G. Jiang	55
<b>Structure and Calibration Methods of Rainfall-Runoff Models</b> F. Guo, J.J. Ma and L.J. Zheng	65
<b>Uniaxial Spring and Multi-Axial Spring Model for Structural Nonlinear Analysis</b> Y.B. Huang, W.L. Huang, S.L. Zhang, L.G. Du and J.H. Gao	69
<b>Evaluation of Highway Traffic Safety Facilities Based on Set Pair Analysis</b> Y. Wu, J. Lu, W.Q. Zhu and H.T. Qiu	73
<b>The Research on Healthy City Planning Based on GIS</b> M.G. Liu and Z.Y. Cheng	77
<b>Comparative Study on the Effects of Infill Walls on Reinforced Concrete Frame Structures</b> H. Jin	81
<b>Research on Combination of Russian Architecture and Beidaihe City Landscape</b> A.Y. Li, L. Xu and X.Y. Guan	85
<b>Research on Architecture Design of Multi-Storey Residential in West City</b> Y. Guo	89
<b>Study on Concrete Construction Technology of High-Rise Building</b> Y. Guo	93
<b>Testing Study on Moisture Content Effect on Thermal Conductivity for Clay</b> Y. Duan, H. Jin and X.Z. Wang	97
<b>Finite Element Analysis of Reinforced Concrete Beam for Carbon Fiber-Reinforced Plastic</b> N. Huang, H. Li and P.F. Xu	101
<b>Strategy for Application of Non-Wood Fibrous Material on Roofs at Rural Areas in Cold Region</b> X.R. Wang and Y. Zhang	105

<b>Thermal Comfort Study Based on Airflow within a Passenger Compartment</b> L.P. Xiang and H.Q. Wang	109
<b>Research on the Influence of Coal Mining on Aquifer</b> P.J. Wang, H. Jin and T.J. Zhang	113
<b>Research on Cataclastic Rock Bolting Control</b> P.X. Dong, Z.Q. Yang, Q. Gao, H.Z. Ma, X.G. Wu and Z.B. Zhang	117
<b>Numerical Analysis on Drainage Parameters in a High Drainage Roadway</b> Y.S. Yan, J.Z. Zhang, H.G. Wang and Z.G. Yan	122
<b>Numerical Design of High Drainage Roadway Location in Fully Mechanized Coal Face</b> Y.S. Yan, J.Z. Zhang, Z.G. Yan and H.G. Wang	126
<b>The Analysis of Lift Transport Platform Static Strength Based on ANSYS</b> Y.F. Si, C. Chen and B.J. Liu	130

## Chapter 2: Materials Science and Chemical Technologies

<b>Multipolar Surface Plasmon Peaks in Gold Nanoshells</b> X.F. Zhang and F.S. Liu	137
<b>Comparing Diffuse Approximation and Kriging Method for Predicting the Tool Life when Milling Ultrahigh Strength Steel</b> S. Feng, Z.Q. Wang and H.Q. Xue	141
<b>Research on Fast-Growing Poplar Dyeing Technology Based on Material Properties</b> D.J. Shen and Y.F. Zhang	151
<b>Study on the Corrosion Inhibition of Extractive from <i>Jatropha curcas</i> L Seed Meal on Copper</b> J. Wang, S.H. Hu and S.J. Zhuo	156
<b>Geometric Model of CVD Mono-Crystalline Diamond Growth</b> L.Z. Zhang, F.Z. Wang and G. Tian	160
<b>The Application and Characteristics Analysis of a Variety of Plastic Material in the Stadium</b> J. Jiang	164
<b>Analysis of Mechanics of Disturbed Materials Based on Theory of Duality Disturbance</b> J.H. Gao, S.L. Zhang, W.L. Huang, Y. Zhang, S.R. Lin and G.W. Zhang	169
<b>The Research on Solar Cells Based on Improving Conversion Efficiency</b> Y.W. Tang	173
<b>Additives-Effects during Environmental Protection Methyl Sulfonic Acid Salt Bath of the Performance</b> Y. Tan	178
<b>Green Composite Scale Inhibitor in Central Air Conditioning Cooling Water</b> M.D. Li, X.D. Zuo, B. Yang, J.M. Zhao, Y.T. Chen and S.X. Guo	183

## Chapter 3: Environmental Engineering, Biofuel and Biotechnology

<b>Research on Environmental Pollutants for Health Risk Assessment</b> Z.Y. Wang, N. Cui, C.R. Liu, T.Y. Zhang and S.F. Yang	189
<b>A Design of the Environment Monitoring System</b> C.Y. Xie	195
<b>Application of Comprehensive Identification Indexes in Water Environment Evaluation of Taihu Basin</b> Y.J. Hu	199
<b>The Quantitative Research of Impact of Climate Change and Reservoir Operation on the Runoff</b> Y.J. Bi, Y. Zhao, W.H. Xiao, X.N. Zhou and S.P. Zhang	203
<b>Research on Evaluation Index System and Fuzzy Clustering Iterative Model for Local Water Conservancy Development</b> X.N. Zhou, F.X. Chai, H. Zhang and X.M. Xie	208
<b>Review on Sources and Sinks of Main GHGs in Atmosphere</b> Z.Q. Yu and Y.F. Wang	213

<b>Features of Water Function Zoning of the Surface Water in Sichuan Province</b> R.K. Cai, F.Q. Ni and Y. Deng	221
<b>Prediction of Karst Groundwater Level Based on R-Language - Taking Jinci Spring Basin as an Example</b> H.J. Shi, X. Qi and H. Jin	230
<b>Material Properties in Advances in Organic Fertilizer</b> Z.Q. Yu and F.P. Ren	235
<b>The Effects of Polysaccharide from <i>Gynostemma pentaphyllum</i> Supplementation on Exhaustive Exercise-Induced Fatigue</b> C.J. Li and A. Li	241
<b>Studies on the Protection of Aircraft Oil Tank's Microbic Erosion Based on Properties of Machinery and Biological Materials</b> Z. Wei, F.C. Wang, Y.S. Wang and H.W. Yu	245
<b>Effect of Natural Cyclodextrins on Cell Growth, Activity and Permeability of <i>Arthrobacter simplex</i></b> Q. Gao, Y.B. Shen, W. Huang and M. Wang	249
<b>UPLC-ESI-MS/MS Method for Determination of Recombinant Antihypertensive Peptide in Rat Plasma</b> Y.L. Cong, S. Li, B. Chen, H.Y. Sun, D. Liu and S.F. Cui	254
<b>The Adsorption of Heavy Metal from Aqueous Solutions onto the Porous Biomorphic-Genetic Composite of Hydroxyapatite/Carbon with Eucalyptus and Bamboo Template</b> S. Cao, B. Huang, Z.Q. Zhu and Y.N. Zhu	260
<b>A Novel Cross-Platform Architecture Design for Oil Spill Forecasting Model</b> F.X. Yao, F.J. Yu, Y. Zhao and G. Chen	265
<b>Urban Sludge and the Performance of the System of Wood Activated Carbon Research</b> Y.K. Cheng	271
<b>Performance Comparisons of Spark-Ignition Engine Fueled with Butanol/Gasoline and Ethanol/Gasoline Blends</b> R.F. Zhu, M.Y. Shi, Y.L. Wang and J.W. Tan	275
<b>Combustion Behaviors of a Compression-Ignition Engine Fueled with Biodiesel at Different Fuel Delivery Advance Angles</b> J. Zang, R.F. Zhu and D.S. Zhang	279
<b>Performance of a Compression-Ignition Engine Fueled with Diesel/Biodiesel Blends</b> R.F. Zhu, Y.L. Wang, H. Wang and Y.T. Sun	283

## Chapter 4: Control Engineering

<b>Application Research on Vehicle Steering Stability Based on ADAMS/CAR</b> B.J. Liu, C. Chen and Y.F. Si	289
<b>Design of Wheel Lifting Hydraulic System for Amphibious Vehicle</b> X.T. Li, L.Q. Xie, H.B. Wang, F.F. Zhai, H. Wang and L.J. Zhao	293
<b>Research on Electric-Fluid Mechanics with Intermittent Oscillatory of RCC Circuit</b> W.Z. Hou	297
<b>Master Control System Design for Frequency Modulation Continuous Wave Radar (FMCW)</b> L.Q. Xie, H.B. Wang, F.F. Zhai and H. Wang	303
<b>The Research of Lift Control System in Four-Point Platform Based on DSP</b> F.P. Wang, C. Chen and T.T. Zhou	307
<b>Progress in Hypersonic Inlet Flow Controls by Magnetohydrodynamic</b> S. Zhang, G. Hong, D.Y. Zhang and F.Q. Cheng	311
<b>The Research on Control System of Hydraulic Test Bench</b> W. Liu and Y.P. Wang	316

## Chapter 5: Engineering Management and Engineering Assessment

<b>Coal Enterprise Safety Management Process Based on the Process Management of Performance Excellence Model</b> J.W. An, Y. Liu and J.X. Huo	323
<b>Risk Assessment of Crowd Crushing and Tramping Accidents in Urban Rail Transit Station Based on DEA</b> Z.D. Jiao and C.H. Gan	327
<b>Study on Coordination Assessment of Fixed Facilities' Capacity in Railway Marshalling Yards</b> Z.D. Jiao and C.H. Gan	331
<b>Research on Civil Projects among the Participates in Government Investment Projects Based on Rent-Seeking Theory</b> Y.N. Wu, S.Q. Zheng and L. Tan	335
<b>Research on Construction Engineering with Data Processing in the Endowment Real Estate Financing Efficiency Evaluation</b> M. Lu and Q.B. Hao	339
<b>Data Processing in Risk Research on Non-Profit Government Investment Project of Agent Construction System Based on FATP</b> Y.N. Wu, Y.Q. Hu and K.F. Chen	343
<b>Data Processing in the Key Factors Affecting China's Endowment Real Estate Enterprises Financing</b> H. Liu and N. Zhang	349