

Table of Contents

Preface, Committees and Sponsors

Chapter 1: Material Engineering

Study on a Structure of 2,6-Pyridine Dicarboxylic Acid Gallium, $(\text{NH}_4)\text{Ga}(\text{C}_7\text{H}_3\text{NO}_4)_2$ H.X. Liu, Q. Liu, X.R. Sun, L.T. Wang, Y.C. Zhang, K.Q. Ye and H.J. Yue	3
A Study on Wear Properties of GCV Material with DLC Coating K.W. Nam and S.C. Lee	7
Adsorption of Cefradine onto Powder and Activated Carbon Prepared from Orange Peel R.X. Guo, Z.L. Wang, G.P. Li and J.Q. Chen	11
Bright Line Defects of Hot Rolled Plate for 2205 Duplex Stainless Steel H. Zhang, Y.J. Zhang, J.T. Han, Y. Dong and J.R. Hu	15
Catalytic Ozonation with Activated Carbon for Treatment of Humic Substances in Water H.S. Choi and D.S. Rhee	19
Effect of Fiber Surface Modification with Different Functional Groups Silane Agents on Mechanical Properties of Hems/Polypropylene Composites H.C. Han and X.L. Gong	23
Effect of TiB_2 on Damping Capacity and Dynamic Young's Modulus of 2219 Alloy D. Chen, C. Zhou, X.F. Li, Y.J. Zhang and N.H. Ma	27
Effects of the Mould Temperature on the Properties of Graphite/Carbon Fiber/Copper/Phenolic Resin Composites M.D. Li, Y. Lu and X. Guo	31
First-Principles and Experimental Study on Cu Doped SnO_2 Structure L.T. Shan, D.C. Ba and X.B. Han	35
Highly Solution-Processible Red Light-Emitting Conjugated Polymers Based on Benzothiadiazole B.J. Li and Q. Xu	39
Luminescence Mechanism of ZnWO_4 Nanopowder Synthesized by Microwave-Assisted Heating M.K. Tsai, Y.C. Lee, C.C. Huang, S.Y. Hu, K.K. Tiong and B.Y. Hong	44
Microstructure and Properties of 6061 Aluminum Alloy Superficially Modified by Electron Beam Alloying with 1Cr13 Stainless Steel R. Wang, M.S. Li and D.Q. Wei	48
Preparation and Characterization of Aqueous Polyurethane Polyol Used in Waterborne Two-Component Polyurethane Coating X.Y. Geng, Z.Y. Hu, F. Yang, L.J. Zhang, M.Q. Li, Y.Z. Geng and J.J. Xiao	53
Preparation and Characterization of Polyimide Foam Derived from 3,3',4,4'-Biphenylteracarboxylic Dianhydride and 4,4'- Diaminodiphenyl F. Yang, X.Y. Geng, L.J. Zhang, G. Ma and J.J. Xiao	58
Preparation and Performance Research of the PBC / PLA Biodegradable Film X.H. Gu, B.Y. Xu, P. Zeng, X.W. Zhang and X.J. Liu	62
Preparation of Monodisperse Functional Polystyrene/Silica Microsphere Composite via Suspension Polymerization Method S. Zhou, X.J. Li, Y.J. Shi and C.J. Yan	66
Rate-Dependent Constitutive Model Coupled with Temperature Softening for Open-Cell Aluminum Foam W. Zheng, B.J. Pang and Y. Chen	70
Separation Test of Ilmenite in Guizhou J.C. Ran, Q.J. Liu and Z.G. Zhang	76
Separation Test of Oxide Copper Ore in Yunnan J.C. Ran, Q.J. Liu and Z.G. Zhang	80
Structural Formability of ABO_3-Type Perovskite Compounds: Bond Valence Analysis H. Zhang, X. Zhang and J.G. Ma	84

Study on the Growth Quartz Ampoule of AgGaS₂ X.J. Wu	88
Study on a Novel Structure of Terbium Complex, C₆H₁₄O₁₉Tb₂ H.X. Liu, Q. Liu, X.W. Peng, L.T. Wang, L.K. Han, K.Q. Ye and H.J. Yue	92
Study on a Novel Structure of Terbium Complex, C₉H₂₄O₂₁Tb₂ H.X. Liu, Q. Liu, L.T. Wang, S.Q. Wang, B.Y. Huang, K.Q. Ye and H.J. Yue	96
Study on Microstructural Evolution of Binary Alloy Crystal Growth in Directional Solidification Process D.S. Chen, M. Chen and R.C. Wang	100
Synthesis, Structures, Properties and DFT Studies of a New Bicopper Complex [Cu(Hdmg)₄(Hdmg)(teda)]·6H₂O X.W. Liu, X.W. Qi and F. Liu	104
The Research Status of Self-Compensation Lubricating Composites at High Temperature Y. Han, Y.J. Wang and S.R. Wang	108
Utilization of Pineapple Leaf Fiber as Technical Fibers S.A. Yahya and Y. Yusof	112
Construction of the Macro-Mesoscopic Yield Criterion of Concrete Based on the Technique of Energy Density Supporting Function Q. Jiang, X.Z. Xia and Q. Zhang	116
Effect of Temperature on Friction and Wear Properties of the Modified PTFE Three-Layer Composites T. Xie, H. Yang, W.J. Yang and H.P. Yang	124
Influence of Thermal Effect on Electrochemical Corrosion Behavior of T2 Copper in Simulated Seawater Environment J.N. Li, G. Chen, P. Zhang, Q. Su, D. Luan and B. Guo	128
Internal Defect Measurement of Bonding Structure Based on Infrared Thermal Image L.H. Yuan, G.H. Wu and W. Wu	132
Micro-Experimentation Research on Compression Sensitivity of Carbon Fiber Concrete J. Wu and A.Q. Xu	137
Preparation and Characterization of UV Curable Hybrid System Based on Free Radical and Cationic Mechanism L.J. Zhang, C.B. Wu, F. Yang, X.Y. Geng, M.Q. Li and J.J. Xiao	141
Research on Fracture Behavior of a Cr Coating/Original Steel Substrate Material under Thermal Fatigue Loading B.Q. Yang, G.N. Chen, J. Du, X.J. Chen, W.H. Sun, H.Q. Chen, J.W. Pan and Y. Chen	146
The Effect of Ultrasound on Oxidation Desulfurization of Diesel M.Z. Sun, B. Zhang, Y.H. Wu, J. Zhu and D.Z. Zhao	150
The Effect of Ball Media with Different Diameters on Grinding Kinetics of Cassiterite-Polymetallic Sulphides J.P. Feng, X. Feng, S.J. Ma, J. Liu, W. Mo, J.L. Yang and X.J. Su	154
Tribological Characteristics of Al 356 Alloy Reinforced with Red Mud B. Geetha and K. Ganeshan	158
Influence of Ultrasonic Vibration on Metal Plastic Forming X.J. Hu, X.H. Li and Q.Y. Qin	162

Chapter 2: Modeling and Simulation

A Computable Model for PCB Assembly Optimization Based on Polychromatic Sets X. Du and G. Yu	173
Numerical Solution of Temperature Field for Stress Analysis of Plate Structures R. Čajka	177
DEM Simulation Study of Crosscutting Speed for the Cutting Header Y.J. Ji and R.K. Li	188
Simulation of Rayleigh Wave Dispersion in Dipping Layered Site Based on FLAC^{3D} L.J. Shi and G. Yang	193
Finite Element Simulation Analysis of Multi-Stands Three-Roller Cold Rolling Process for Double Metal Composite Seamless Steel Tube X.K. Wang, J.D. Ye, X. Ma, Q.Q. Tian, X. Li and Y. Bao	197

Numerical Simulation Analysis on Stability of Coal Pillar of Empty Mine Goaf in North of Shanxi Province H. Tang, Z.G. He and H.B. Lian	205
Test-Bench Design for Fiber Paying-Off Simulating B.J. Ma and B. Han	211
The Finite Element Analysis of Batching Machine Spindle Based on ANSYS X. Gu, W.J. Wang, N. Lin and D.I. Shin	216
Dynamics Simulation of Sounding Rocket Water Landing Recovery with Fluid-Structure Interaction Method W. Zhou, X. Yang and H. Yang	220
Research on the Semi-Physical Simulation Technology of High Pressure Common Rail Electronic Control System for Low-Speed Marine Diesel Engine Q.P. Wang, J.G. Yang and Y.H. Yu	226
Nonlinear Finite Element Analysis for Galloping of Iced Quad-Bundled Conductor L. Qin, Y.N. Li and X.G. Wei	232
The Establishment of Distribution Model of Inner Surface Pressure of Elbow Pipe Based on FLUENT X.Y. Lu, W. Zheng, L.L. Huang, Y. Zhou and H.L. Zhu	236
Time Series Modeling of Earthquake Ground Motions Using ARMA-GARCH Models J.H. Lin	240
Simulation of Influence of Friction Coefficient on Extrusion of TC4 Alloy C.D. Liu and Y.D. Zhang	244
Analysis of Removal Rate by Using Magnetorheological Finishing Based on Hysteresis Shear Stress Model G. Yang and C.L. Zhang	250
Thermal Fluid-Solid Coupling Numerical Simulation in Ultra-Supercritical Steam Trap S.X. Li, Q.W. Ding and J.H. Hu	255
Analysis of Thermal Radiation Models for Large Open Pool Fire on Ship Deck L.B. Ding, J.Y. Pu and K. Ren	259
The Numerical Simulation of Blasting Demolition on the Solid Pier J.P. Feng, P.M. Huang, Z. Zhu, D. Wang and W.G. Sun	263
The Research of Parallel Driving Model Based on Cognitive Analysis and Behavioral Analysis X.L. Chen and X. Li	267
Simulation and Topological Optimization of the Lifting Mechanism of a Dump Truck L.D. Yuan and X.K. Lin	271
Study of Vehicle Longitudinal Initiative Avoidance Collision System L. Zheng, H.Y.Q. Li and R.Y. Sun	275
Finite Element Analysis of Gear Pair of Main Drive Gearbox Based on Workover Treatment J.Q. Jin, L. Yu and X.R. Wang	280
Numerical Analysis of the Effect of Roadside Accumulated Water on Subgrade Temperature Field in the Freezing Region Q.M. Meng, X.S. Mao, Y.S. Fan, S.D. Ling and X. Xiao	284
Computational Models for Functionally Graded Composites Using the SMA as the Metallic Phase B.F. Liu, T. Lan, P.Z. Heng, Y.T. Liu and X.R. Liu	289
A Numerical Simulation of Diesel Engine Oxygen-Enriched Combustion Based on KIVA-3V X.S. Jia, Y.F. Liu and J.W. Yang	293
Application of Three-Parameter Model in Settlement Calculation of Immersed Tube Tunnel G. Wei and Q.W. Su	298
A SFMEA Method Based on Modeling and Simulation by Rhapsody Y.M. Wu, L. Sun and L.J. Wu	304
High Temperature Compression Deformation Behavior and Rheological Stress Model of HRB400 Y.Y. Liu, J.Z. Zang, Y. Wang and S. Hu	310
Combined Simulation Based on AMESim and Simulink for Hydraulic Cylinder Controlled by Servo Valve X.Z. Kong, J. Liang, P. Kong, L.H. Gai, Z.G. Guan and W.H. Si	316

Comparative Analysis of Static Strength of Traditional and Bionic Semi-Trailer Frame Q.F. Han, Q.B. Huang and S.D. Li	320
Coupled Thermo-Flowing 3D Steady State Model of Friction Stir Welding Process J.H. Cui, W. Xu and Z.H. Guo	325
Research on the Influence of Bending Unloading Effect on Elongation in Cold Steel Strip Tension Leveling B. Chen, H.H. Lin, R.J. Guo and J.H. Shu	330
Study of the Effects of Transient Load on Envelope Structure L. Mynarzova and M. Mynarz	335
Temperature Distribution in the Molding Process of the Stator of PCP Q.T. Li	340
Study on the Full State Function of Structural Parameters for Materials Z.H. Wei, M.S. Wang and D.L. Zhang	344
EMD Based on Time-Sequence and Window Function and its Application in Diagnosis of Machinery Faults R.Z. Luo, P. Cao, Y.H. Fu, Y.B. Huang and Q. Yang	353
Visual Design and Computational Analysis of the Hydraulic Support Based on MATLAB Y.Q. Niu, M.Z. Li, F. Ding and W. Liu	357
Thermal Analysis of Lithium Ion Batteries Using in HEV G.H. Fofana and Y.T. Zhang	362
Discussion on the Grid Densities on the Influence of the Internal Force and Displacement of Thepile Z.Y. Li and R.W. Liang	366
Nonlinear Analysis of Rotary Sealing Performance of Rubber O-Ring S.H. Chen, G.Z. Jiang, G.F. Li, L.X. Xie and W.Q. Qian	371
Static Bending Strength Analysis of the New Self-Healing Composite Gear Based on ANSYS L. Zhang, Y.M. Ma and G.Y. Nie	376
The Optimization of the Beam of High-Speed Computerized Embroidery Machine J.R. Zhou	381

Chapter 3: Manufacturing and Design Science

A Micro Analysis about the Application Problems of "Six Sigma" in Discrete Military Manufacturing Industry F. Bai, W.L. Jin and Y. Ji	387
Constructing New Product Development for the DC Cooling Fan Industry: ISO/TS16949 Procedures T.C. Chou, S.H. Wu and M.H. Shu	392
Design Method of the Skull Restoration Based on User-Centered J.W. Liu, T.M. Guan, Y. Chen and L.J. Shan	396
Design of Automatic Production Line for Electrode Defects Inspection of Li-Ion Power Battery L. Han, Y.M. Liu, W.Z. Lu and F. Xiao	400
Design on Cleaning Device for Slag of Narrow Gap Submerged Arc Welding W.M. Zhang, X.X. Li and B. Wang	404
Design Research of Steel Pipe Combination of Angle Steel Tower of XiYue 220kV Cross Section Y.Z. Ju, X.X. Fu and N.X. Zeng	408
Design of the Disc Cam Profile with Negative Radius Translating Roller Follower C.L. Qu and Y. Chang	412
Evaluating Manufacturing Processes with a Novel Approach of Making Fuzzy Judgement M.H. Shu, J.C. Huang, T.L. Nguyen, B.M. Hsu and T.H. Lam	416
Evaluation of Roundness Error Based on the Position of the Centers S.Z. Zhao and X.M. Li	420
Optimization of Sulfur-Free-Cutting Steelmaking Variables: Six Sigma-Based Approaches M.H. Shu, P.J. Chen, B.M. Hsu, T.L. Nguyen, J.H. Yeh, T.H. Lam and T.H. Lin	425
Parameters Optimization of Axial Vibration Drilling Based on the Exit Burr H.L. Wang, P.K. Zhang and Q.Y. Li	429

Parametric Design of Six Typical Semi-Outdoor Reticulated Domes X.Y. Lu, N. Hong, S.Y. Chen and Y.R. Chen	433
Shield Lining Segments Design Research Based on Characteristic Parameters L.X. Li, S. Zhang, Q.Y. Zou and Q.X. Shi	437
Simulative and Experimental Study on Electromagnetic Pump Supplying Liquid Alloys during Casting: Modeling and Effects of Design Parameters on Pump Height X.X. Dong, L.J. He, G.B. Mi and P.J. Li	441
Spiral Roll Forming Machine Design for Metal Rubber X.L. Jin, Q.Q. Liang and B.J. Ma	447
Study on Concurrent Maintainability Design Based on Pro/INTRALINK T.L. Liu and C. Zhang	452
Flexible Rope Transmission Device and Preliminary Study on its Design J. Li, H.L. Li and P. Wang	456
Lightweight Design for Lower Beam of NC Isothermal Hydraulic Press W. Wei	463
Novel Design of Manual Mechanical Rotary Table X.C. Cheng, Q.L. Du and Z.X. Cheng	467
Study on Dedicated Test Bed for the Sealing Performance of Metal Rubber Seal H. Yan, W.J. Zhang, H.Y. Jiang and Y.C. Li	471
Study on the Influences of Datum Precedence on Functional Tolerance Analysis C.L. Li, J.X. Yang and J.W. Sun	475
The Application of Reverse Engineering in Innovation Design L. Sha	479
Design and Analysis of a Magnetic QZS Vibration Isolator H. Li and J. Zhang	484
ANSYS Parametric Design of Double Layer Cylinder Reticulated Shell by the Upper and Lower Translation X.Y. Lu, X.W. Zhao, S.Y. Chen, R. Li and Q.S. Wang	489

Chapter 4: Mechanical and Dynamic Research

A Study on the Key Parameters of Slit Air Nozzle for the Coating Process of Li-Ion Power Battery L. Han, S.W. Wang, W.Z. Lu and F. Xiao	495
Aerodynamic Force of a Cantilevered Cylinder in Uniform Flow and Turbulent Boundary Layer Q.W. Wang, C. Zou and H.F. Wang	499
An Approach to Investigate Dynamic Parameters of Bearings Joint Surfaces Based on the SDOF System L.B. Wang, X.Q. Hu and X.L. Dong	504
Analysis and Application of the Impact Absorption Behavior of the Composite Tube Z.P. Zhang, G.F. Zhao, T.L. Teng and Y. Wang	510
Effect of Mixed Convective Heat Transfer on Interior Helium Temperature of High-Altitude-Cruising Airships Y.Q. Yang, Y.P. Ma and Z. Wu	516
Effect of the Mechanical Properties and Geometric Parameters on the Crack Density of the Thin Film/Substrate System under Residual Stress and Uniaxial Tensile Loading B.Q. Yang, J. Du, X.J. Chen, W.H. Sun, H.Q. Chen, J.W. Pan and Y. Chen	521
Experimental Investigation of Influence of Normal Pressure on Rotational Friction Behavior J.Y. Park, S.W. Han, K.H. Moon, K.S. Lee and H.J. Kim	525
The Impact Analysis of Tire Parameter for Tire Wear When Monorail Vehicle Curve Driving Z.X. Du, X.X. Wen and Z. Shen	529
Inertia Parameters Identification of Motor Assembly for Electric Vehicles Based on Modal Test Method L.Z. He, P. Yu, T. Zhang and R. Guo	534

Kinematics and Dynamics Analysis of Piston-Connecting Rod Mechanism of Internal Combustion Engine Z.N. Jia, C.Z. Hao, J.B. Sun and X.Y. Liu	539
Mechanical Analysis and Structural Optimization to the Training Device for Squatting H.W. Zhang and Y. Shen	543
Numerical Investigation of Static Strength for Tubular Joints Reinforced by Inner Plate D.P. Yang, Y.B. Shao, F.L. Long, G.Q. Niu, L. Zhang and J.B. Zhi	547
Research on the Dynamic Parameters Equivalent Model of Angular Contact Ball Bearings L.B. Wang, X.Q. Hu and W.P. Niu	553
Study on Engine Idling Torque and Speed Ripple Cancellation of HEV X.H. Liu and Y.T. Zhang	559
The Impact of Suspension Stiffness Parameters on the Curve through Performance of Straddle Type Monorail Vehicle Based on Sensitivity Analysis Z.X. Du, Z.H. Liang and X.X. Wen	563
Transverse Vibration Testing Research for 6.8 Grades Bolted Joint Used on Transmission Tower X.H. Dai, Y.T. Feng, X.G. Niu, H. Fan, Q. Wang and X.Y. Chang	567
Vertical Vibration Characteristics Analysis of Stand Rolls System in Six-Roll Cold Tandem Mill Y. Zhang, L. Liu, P.M. Shi and B. Liu	572
Experimental Study on the Surface Roughness of 40Cr by Ultrasonic Finishing Machining S.S. Lu, X.L. Fu and X.B. Ze	577
Life Prediction of Two Rotor Steels under Creep-Fatigue Interaction at Elevated Temperature H. Xu, W.W. Zhang and K. Maile	581
The Analysis of Processing Factors for Electro-Arc Machining M. Zhang, Q.H. Zhang, D.Z. Kong and Y. Ren	585
The Cutting Tool Wear of the Cutting Tool Part of the Cast Iron GTW 35-04 during Drilling J. Jurko	589
Analysis of Dynamic Characteristics of the Dual Ball Screw-Driven Linear Feed System in Z Direction J. Huang, Z.H. Wang and J.T. Yuan	593
Study on Application of the Mine Anti-Impact and Energy-Absorption Device X. Ma, Y.S. Pan and Y.H. Xiao	598
A Study on the Effect of Driver Model Parameters on the Performance of Driver-Vehicle-Road Closed-Loop System L.Z. Zhang, H. Guan, X. Jia, P.P. Lu and Y.S. Chen	604

Chapter 5: Mechatronics and Control Systems

A Power Optimization Algorithm for Ad Hoc Networks with Variable Rate Control X.J. Ning, H. Zhao, M.F. Yang and D. Wu	611
A Study on the Inspection Technology of the Electrode Defects of Li-Ion Power Battery Based on HALCON L. Han, Y.M. Liu, D.Y. He and F. Xiao	617
A Algorithm of Path Planning Based on Multiple Mobile Robots X.D. Tan, X. Wang and P.W. Song	621
Development of Machine Vision Positioning System of Magnetorheological Fluid (MRF) Actuator A.B. Husaini, G. Izzat, S. Zahurin and O. Rusli	625
Fiber-Optic Extrinsic Fabry-Perot Interferometer Sensors with Multi-Wavelength Intensity Demodulation N.F. Song, R.Q. Cui, Y.J. Yang and X.L. Xu	630
Forward Kinematics of Parallel Robot Based on Neuro-Fuzzy System X. Wu, Z.D. Zhou, Q.S. Ai and W. Meng	636
Improvement of Production Index for Cell Production by Mobile Robots K. Matsuda	644

New Structural Design of Coal Mine Rescue Robot S.G. Niu, X.L. Wang, X.M. Jiang and Z.Y. Hou	650
The Research of the Monitoring and Control Device for Pneumatic Rock Drilling Machine Based on Configuration Software B. Gong	654
Time Optimal Path Planning of Palletizing Robot Y.P. Xu and Y. Hong	658
Nonlinear Model-Based Control for Vacuum Altitude Simulator G. Li, B.R. Li and J.M. Du	663
Study on RBF Neural Network PID Control for Hydro-Viscous Drive System Q.R. Meng, K. Wang, D.M. Wang, J. Wang, B.C. Song, C.M. Luo, H.X. Jiang and B.Y. Yuan	668
Application of Wireless Communication Technology in the Detection and Debugging for Control System on Bullet Trains X.D. Tan, L. Du and P.W. Song	673
Research on the Technology of Two-Axis Synchronization Control Based on Fuzzy PID N. Lin, W.J. Wang, X. Gu and D.I. Shin	677
Fault Detection and Discrimination of Rotating Machinery Using Frequency Symptom Parameter and Bayesian Network H.Y. Jiang, H.Q. Wang and P. Chen	683
PLC-Based Stamp Puncher L.N. Rui and P.Q. Quan	689
Application of Nondestructive Testing in Quality Controlling of High-Density Polyethylene Silicore Plastic Duct B.Y. Gong, Y.H. Lu and J. Ren	693

Chapter 6: Information and Automation

Study on CCT Curve and Microstructure Evolution of HRB500E P. Tian, Z.Y. Zhong, R.G. Bai, X.L. Zhang, Q.L. Wang, H. Gao and J.F. Zhang	699
An Application of the Common Maintenance Time in the System Maintenance Allocation C. Lv and J.S. Yang	703
Importance Analysis Method of Fuzzy Fault Tree Based on T-S Modle and Application in Hydraulic System L.L. Zhang, R.J. Zhang and X.X. Si	707
The Monitoring System on Energy Consumption of Device Based on Wireless Network J.X. Fang and J. Zhang	712
Study on the Experiment of Ion Transport Properties in Single Area Double Vortexes Plate ESP H. Liu, M.Y. Zhou, C.W. Yi, Y.S. Du, H.J. Wang and T. Yin	717
A Link Evaluation Method Employing Statistical Means of Received Signal Strength Indicator and Link Quality Indicator for Wireless Sensor Networks X.J. Ning, H. Zhao, M.F. Yang and H.F. Chai	722
The Methods for Increasing of the Efficiency in the Intelligent Assembly Cell R. Holubek and R. Ružarovský	729
Research on Automatic Winding System of Coreless Package B.B. Gan, K. Zou and J.H. Wen	733
Leakage Detection Method for Piping Network Based on BP Neural Network T. Jin and Z.Y. Zhou	738
Research on Software Programming Automatically from Movement Sequence Based on Multi-Node System J.H. Wen, K. Zou and R.C. Shi	743
Performance Analysis of LDPC Coded SFH/BPSK in LFM Jamming J. Li, M.X. Wang, D.X. Guo and X.F. Pan	748
Research on Customized Indoor Route Recommendation H.W. Jia and F. Zhao	753
The Model of Load-Shedding Determined in Power Market Y. Cao and L.N. Tan	758

Safety Assessment of Solid Rocket Motor Waterjet Clearing System Based on Grey Analytic Hierarchy Process Z.M. Zhu, X. Gao, X.J. Wang, Q.L. Han and H. Cui	763
Dynamical Variation of Weierstrass-Mandelbrot Function in Higher Dimensional Space L. Zhang and S.T. Liu	767
Indirect Carbon Emission Measurement of Electric Vehicle in China S.J. Huang and Y.L. Ren	772
Vibration Measurements of Steel Foot-Bridges Using Mobile-Phone S.W. Yoon, K.Y. Do, J.H. Ryu and Y.K. Ju	777
DOM Products: Activation Energy Estimation and Reliability Assessment C.Y. Huang, Y.H. Lin and E. Huang	781
Immune-Based Algorithm for Power Economic Emission Dispatch C.L. Chiang	785
Application of the Minimum Cut Sets of System Fault Based on OMA T.L. Liu and C. Zhang	790

Chapter 7: Building Materials

Mechanical Properties of Fiber Reinforced Self-Compacting Concrete W.J. Long, H.X. Lin, Z.R. Chen, K.L. Zhang and W.L. Wang	797
Cheap Mix Design of the Rock-Filled Concrete Materials Q. Wu, X.H. An and M.S. Huang	802
The Theoretical Research about the Piezoelectric Materials Generating Capacity on Road L. Rui, Y.C. Xiao, J.Z. Pei and X.K. Zhao	807
Influence of Mineral Admixtures on Corrosion Potential of Reinforced Concrete at Early Stage H.H. Li, Z.H. Fan and P.P. Li	814
Research on Separation of Mixed Copper-Lead Concentrate D.F. Li, Q.J. Liu and Z.Y. Lan	818
Fine Aggregate Interference on Thermal Stability of Asphalt Mixture C.C. Zhang, G. Yang, L.J. Zhou and J.H. Wu	823
Research on the Mechanical Properties and Micro-Morphology of the Cement Stabilized Gravel with Rubber Particles R.C. Yang, K. Li, J.P. Zhu, T.K. Zhu, H.L. Zhu and H.J. Han	827
Research on Asphalt Mixture Injury Digital Image Based on Enhancement and Segmentation Processing Technology S.W. Zhang, X.N. Zhang, Z.Y. Wu and L.W. Shi	832
Research on Bonding Strength of Steel and Concrete with Different Bonding Interfaces Z.P. Chen, Y. Liang and Y.L. Chen	838
The Performance Evaluation of New Low Temperature early Strength Agent ZL-1 J.G. Wang, A.Q. Tong, Z.Z. Fan and Q.W. Liu	842
Model Research of Concrete Reinforcement Corrosion Mechanism and Corrosion Rate under the Corrosion of Chloride Ion B.H. Hao, D. Zeng, H. Li, Y.X. Cheng and Y.T. Dou	847

Chapter 8: Civil Engineering

The Dynamic Response Simulation Analysis of U-Shaped Metro Tunnel Y. Liquan, M. Yuming and L. Hongjia	857
Predicting Model of Safe Distance between Tunnel and Karst Cave Y.B. Lai, M.S. Wang and C.U. Bai	862
Stress Analysis and Strength Checking for High Pressure Gas Pipeline in the Earthquake Rupture Area W. He, Y.D. Liu and G.X. Wang	866
Study of the Lighting of Entrance/Exit Segments of Urban Tunnels and Outside-Tunnel Roads Based on Visual Efficiency Theory S.Y. Liang and C.Y. Yang	871

Seismic Behavior of RC Columns With Corner Focus Longitudinal Bars K. Song and Z.B. Li	876
Fire Resistance Performance of High-Strength Concrete Columns Reinforced with Pre-Stressed Wire Ropes H.Y. Kim, H.J. Kim, K.H. Park, B.Y. Cho and J.S. Lee	880
Reliability Index Study of Asphalt Pavement Construction Based on Analytical Hierarchy Process L. Rui, J. Li, Y.C. Xiao and J.Z. Pei	884
Comparison Analysis of the Aggregate Contact Characteristics between Skeleton-Dense and Suspended-Dense Structure Asphalt Mixture L.W. Shi, D.Y. Wang, J. Masley and S.W. Zhang	889
Influence of Damping on Seismic Strength Reduction Factors: A Study Differentiated by Ground Motion Frequency Bandwidth I.G. Craifaleanu	893
Analysis on Nonlinear Curvature Deflection for Reinforced Concrete Two-Way Slabs under Uniformly Distributed Load Y. Huang, P. Guo and Z.N. Tong	897
Tunnel Strength and Excavation Effect under Different Stress Paths Z.L. Sui, Z.G. Li, Z.J. Yang, R. Shen, X.P. Wang and W.L. Li	902
Review on Aquifer Structure Theory in Aquifer Layered Distribution Area H. Yuan	907
Analysis on the Groundwater Control for Shallow Pedestrian Tunnel in Round Gravel Layer H. Yuan	911
A Preliminary Survey of Factors Influencing Project Cost Estimating Practice in the Klang Valley of Malaysia T.C. Toh, C.S. Lim, C. Ting, K.N. Ali, G.U. Aliagha and K.C. Goh	915
Nonlinear Analysis of Bearing Capacity of Reinforced Concrete Structures Using Strip Method H.C. Tan	921
Study on Parameters of Grouting Reinforced Circle for Water-Rich and Soft Fault Fracture Zone in Tunnel Z.P. Li, S.C. Li, Q.S. Zhang, X. Zhang, D.M. Wang, M.T. Zhu and L.Z. Zhang	925
Research on Measures of Restraining the Vertical Deformation of CRTSII Ballastless Track Slab as Filling Cement Asphalt Mortar J.G. Guo, Z.C. Zhang, Q. Yuan, Z.P. Zeng and H. Xie	930
Seismic Analysis of a Water Release Integrated Structure Part II: Time History Analysis of Service Bridge Pier Structure Y. Wang, J.C. Xuan, M. Sun and B.Y. Dong	934
Seismic Analysis of a Water Release Integrated Structure Part I: Response Spectrum Analysis of Intake Tower Y. Wang, Z.T. Lin, C. Song and B.Y. Dong	938
Analysis on Consolidation and Settlement Characteristics of Composite Foundation with T-Shaped Bidirectional Soil-Cement Deep Mixing Columns P.S. Xi and B. Liu	942
Hemisphere-Shaped Iron Joint between PHC Pile and Steel Reinforced Concrete Column. Part II: Experiment Y.S. Lee, J.T. Oh and Y.K. Ju	950
Collapse Cause Analysis and Treatment Research of West Slope Tunnel H.M. Wang and H.J. Guo	954
Hemisphere-Shaped Iron Joint between PHC Pile and Steel Reinforced Concrete Column. Part I: Analysis Y.S. Lee, J.T. Oh, Y.S. Kim and Y.K. Ju	958
Analysis of Stress Deformation Characteristics of Composite Geomembrane Rock-Fill Dam with Core Wall D.Y. Ding and J.M. Ren	962
Analytical Study on Seismic Performance of Switchboard with Hybrid Spring Supports K.S. Choi, S.M. Jun, W.H. Yi and H.J. Kim	966

Supporting Design and Stability Analysis of a Subway Station's Main Body Tunneling Z.G. Li, Z.L. Sui, Q.Z. Zhang and T.J. Xu	970
Discussion of Method for Computing Temperature Load during Operation Period on High Arch Dam Z.Q. Wang and X.B. Wu	976
Test Research on Strengthening In-Service Damaged Truss with Prestressed Cable J.W. Zhang, Y.W. Meng and S.H. Zhang	980
The Investigation of the Hall Loudness Evaluation Y.S. Cai and C.Y. Zhang	984
Thermal Technical Assessment of Selected Constructions of Wooden Houses L. Kučerová, M. Černíková and B. Hrubá	988
Trenchless Repair Technology and Application of Urban Sewer System J. Li, M. Zhou, Y.N. Si and J.J. Li	992
Analyzing Method Based on the Average Power of the Input Energy into Sliding Isolation System M. Sun, Y.Z. Sun and L. Li	998
Wind Resistant Design of Low-Rise Steel Buildings Q.Y. Kang, X.S. Wu and Q.X. Li	1003
Nonlinear Static Pushover Analysis for Shear Wall Structures in SAP2000 Program Z.B. Su, T. Han and S.N. Sun	1007
A Study on the Estimation of Economic Loss Costs due to Seismic Damage of Low Rise Steel Structures S.W. Lee, W.J. Yang, W.H. Yi and H.J. Kim	1011
Advance of Research of Unbonded Flexible Risers X.J. Zhang and Z.Y. Chang	1015
Development of Energy Finite Element Analysis in Vibration Analysis of Composite Laminate Plate Structures Y. Yang, X.L. Chen and W.W. Zhang	1020
Chaotic Motion of Axial Loaded Beam Bridge Subjected to an Infinite Series of Moving Loads L.F. Du, X.W. Yang and J.J. Li	1024
Heterogeneity of Rock Corroded by Acid Mine Drainage Based on Fractal Theory L.C. Jiang, S.H. Yin and A.X. Wu	1028
Damage Identification Method for Irregular Continuous Box Girder Bridge Based on RBF Neural Network Optimized by PSO H.B. Liu, P.Y. Sun, G.J. Tan and Y.H. Wang	1034
Research on Static Performance of Composite Shear Wall with Insulation Layer X.R. Song, W. Niu, W.C. Shan, X. Zhu and Y.M. Wang	1039
Experimental Research on Hydration Heat Temperature of Concrete Box Girder in Low-Temperature Environment W.G. Sun, L.J. Liu, Q.H. Wu and J.P. Feng	1045
Experimental Study on the Effects of Water Content to Cement Soil Y.Q. Wen, X.D. Shen, C. Cui and Y.P. Cui	1051
The Determination and Performance Evaluation of Slurry System in Haita Region J.G. Wang, H.M. An, Z.Z. Fan and Q.W. Liu	1056
Nonlinear Response of C/C Composite Laminated Panels with Temperature Gradients under Guassian Pressure Waves Y.D. Sha, X.B. Jie and L. Zhu	1062
Research on Vibration Isolation and Thermal Insulation of the Polystyrene-Filled Sandwich Panel with Cross-Shaped Periodic Ribs G.S. Shi and G.L. Yu	1069
Stability Analysis and Prediction of Slope on Complex Excavated Construction Site C.L. Chen, K. He and T.L. Li	1073
The Bearing Capacity of Agglomerated Wood Joints K. Vavrusova	1077
Wind Loadings on the Water Tank at Building Roof Top with Variant Installation Conditions J.H. Chen	1081

Comparative Seismic Risk Analysis of Existing Low-Rise RC Buildings Retrofitted by Metallic Energy Dissipating Devices D.H. Shin, J.Y. Park and H.J. Kim	1085
Damage Resistance Behaviors of CCF300/5428 under Various Impact Energies M. Li, J.Y. Zhang, L.B. Zhao and B.J. Fei	1089
Experimental Research on Compression/Compression Fatigue Performance of Impacted Composite Laminates J.Y. Zhang, M. Li, H.M. Hong and B.J. Fei	1093
Key Components for RC Frame Structure during Progressive Collapse B.B. Tu and D. Zhao	1097
Model Test and Finite Element Analysis of Squeezed and Branch Pile Bared Vertical and Horizontal Loads Y.H. Li, X.J. Gao and G.H. Zhong	1101
Model Test on Negative Skin Friction for Super-Long Pile under Surcharge Load Considering Time Effect J.W. Zhang, Z.L. Wang and D.Q. Qiao	1105