

Table of Contents

Preface, Committee and Sponsors

Chapter 1: Materials Science, Chemical Materials and Chemical Technologies

Effect of Nb Content on the Impact Toughness of Coarse-Grained Heat-Affected Zone of Pipeline Steels under Large Heat Input F. Zhou, Z. Gao and K.M. Wu	3
Study on Solidification Kinetics and Crystallization Analysis of Dynamically-Vulcanized PP/EPDM Blends L. Hu, B. Yang, R. Xia, J.B. Miao, F.X. Lu, M. Cao, J.S. Qian and Y.C. Zhang	8
Occurrence and Control of Crack on Counterweight of Forklift Cast with High Manganese Pig Iron A.M. Li, Q.F. Zheng, Z.Y. Yu, R.H. Chen and Y.W. Huang	12
Controllable Preparation of Zinc Phosphate Materials with Different Morphologies and Particle Size J.J. Wang, X.H. Yang, J. Wang, Q. Tong and J.K. Liu	20
Analysis of Plastic Zone at a Crack Tip for I, II and III Mode Fracture with MY Criterion M. Guan and Z.Z. Zhong	25
Characterization of Zirconia Sizing Nozzle Modifying Addictives Prepared by Sol-Gel Method L. Zhao, Q.H. Xue and D.H. Ding	31
Study on the Hydrolysis of PET Catalyzed by Carbonates under Microwave Irradiation Z.D. Liu, X. Zhang, M.M. Wang and D. Zhang	36
The Facile Preparation and the Performance of Killing Oncomelania Snails of Zinc Oxide Nanoparticles J.Y. Ge, X.H. Yang, Y. Yang, H.H. Feng, X.Y. Hu and X.Y. Wang	40
Zein: A Novel Porogen for the Preparation of PVDF Porous Membrane H.X. Xuan and C.J. He	45
Synthesis and Properties of the New Room Temperature Ionic Liquid H.T. Xu and Y.T. Xu	49
Improved Antifouling Property of PVDF Membranes with Crosslinked PEG H.X. Xuan and C.J. He	53
Effect of the Fixation Treatment on the Staining Results of Reactive Dyes for Dyeing Bamboo C. Wang, X.J. Li, Y. Li, X.Y. Cheng and X. He	57
IPA Recycling by Hydrolysis Reaction of TDI Residue L.M. Zhang, Y.D. Hu, L.Y. Wu, X. Wang and Z.M. Wang	61
Pull-In Behavior of Carbon Nanotubes in Networks S.T. Wang, Y.L. Chen and C. Zhao	65
The Effect of TiH₂ Oxidation Treatment on Preparing Aluminum Foam Sandwiches B.N. Song, Z.Z. Zhong, S.H. Zhang, L. Hong, G.Y. Zu and G.C. Yao	70
Research on Applied Equipment in Sport Teaching Based on Fiber-Reinforced Composites L. Gao	74
Determination of Henry Constants of Azelnidipine Enantiomers on Chiralpak AD Column at Different Temperatures Y.Y. Fang, X.L. Zha, H. Li and W.F. Yu	78
Synthesis and Properties of 1-(3,5-dimethyl-4-isoxazole)-2-(2-methyl-(5-ethynyl)-3-thienyl)perfluorocyclopentene M.L. Cai, Z.Y. Tian, S.Q. Cui and S.Z. Pu	82
Synthesis and Photochromism Studies of 1-(2-methyl-3-benzofuran)-2-[2-methyl-5-naphthyl-3-thienyl]perfluorocyclopentene X.R. Dong, H.Y. Xu and S.Z. Pu	86

Synthesis and Application of 1-(2,5-dimethyl-3-thiazolyl)-2-[2-methyl-5-phenyl-(4-vinyl)-3-thiophene]perfluorocyclopentene F. Duan, G. Liu and Q. Zhang	90
Synthesis and Application of 1-[(2-methyl-3-benzothiophene)]-2-[2-methyl-5-(1,3-dioxolane)-3-thienyl]perfluorocyclopentene Y.L. Fu, L.Y. Zhou, C.B. Fan and S.Z. Pu	94
Synthesis and Properties of 1-(2-Methyl-3-benzothiophene)-2-[2-methyl-5-(3-fluoro-4-chloro)phenyl-3-thienyl]perfluorocyclopentene G.M. Liao, C.H. Zheng and S.Z. Pu	98
Synthesis and Application of 1-(2-methyl-3-benzothienyl)-2-[3-methyl-2-thienyl]perfluorocyclopentene G. Li, G. Liu and S.Z. Pu	102
Synthesis and Properties of 1-(2-methyl-3-benzothienyl)-2-[2-methyl-5-(3-trifluoromethyl)-3-thienyl]perfluorocyclopentene J.J. Liu, H.J. Jia and S.Z. Pu	106
Synthesis and Application of 1-[2-methyl-5-(4-hydroxymethylphenyl)-3-thienyl]-2-[2-methyl-5-(4-azidomethylphenyl)-3-thienyl]perfluorocyclopentene L.L. Ma, H.Y. Xu, Q. Zhang and G. Liu	110
Energy Efficiency Analysis of PET Hydrolyzed by Different Ways of Microwave Irradiation M.M. Wang, N. Liu, Z.D. Liu and D. Zhang	114
Preparation and Luminescent Property of $\text{Eu}_x\text{Y}_y(\text{TPTZ})_2(\text{POA})_6$ Complexes J. Kang, A.L. Wang, Y.R. Qu, H.B. Chu and Y.L. Zhao	118
Application of Biological Materials on Countermeasures and Development in Exercise-Induced Meniscus Injury G.X. Xu	122

Chapter 2: Processing of Natural Resources, Environmental Engineering and Construction

Study on Application of Low Velocity Non-Darcy Flow X.K. Xin, G.M. Yu and Z. Li	129
Research of Coupling Mechanism between Dynamic Damage of Fault Rock-Pillar and Gas Outburst in Front of Roadway Z.R. Wang, Y.K. Li and Z.Y. Han	134
The Study on Temporal and Spatial Distribution of Seabed Pipeline Spilt Oil's Floating Based on Energy Conservation Y.B. Li, L. Wei and X.X. Luo	139
The Physicochemical Properties and the Fate of Fly Ash along the Air Pollution Control Devices in Coal-Fired Power Plant Y. Zhang, L.L. Fu, Q. Lu, X. Cao and J.Y. Lu	144
Application of PP Model in Water Quality Evaluation of Dehuixin River Y.M. Wang, S.Y. Li, C. Han, P.C. Li and J.R. Wang	149
Analysis of Acid Rain and the Main Effect Factors in Nanchang City X.F. Yan, J.L. Wang, Y.H. Zhou and F. Liu	154
Efficient and Circulation Raw Coal Processing Technology D.J. Huang, L.M. Cao and P.H. Wang	158
Dynamic Analysis on Explosion Resistance Performance of Reinforced Concrete Wall W.S. Li, H. Yang and B. Zhang	162
Research on Rib Stiffener Distribution and Ultimate Strength of Steel Tubular Tower's K-Joint X.G. Hu, J.B. Yang and M.H. Li	166
Increase Water Resistance Decorative Coatings on the Basis of Calcareous Dry Building Mixtures V. Loganina, L.V. Makarova, R.V. Tarasov and K.A. Sergeeva	171

Chapter 3: Advanced Technologies in Machinery, Mechatronics, Automation and Control

Study on Optimizing the Queuing Theory Based on Car Diagnosis C.L. Zhang, J.L. Mao, L.X. Fu and F.H. Xiang	177
Experimental Analysis for Jet Noise Reduction of Chevron Pylon-Based Nozzles J.Y. He and Y.B. Xu	183
Research on the Steering Character for Kiloton all Terrain Crane Z.Y. Liu	187
Research on Parameter Optimization Method of ν-SVRM Forecasting Model for Crane Load Spectrum F.Y. Lu, S. Wang, G.N. Xu and Q.S. Qi	191
Research on Aqueous Foam Jamming Device for Transport Vehicle J. Huang	197
Out-of-Plane Stability Analysis of Crane Jib with Auxiliary Bracing T.F. Wang, P. Lan and N.L. Lu	201
Applied Engine Electronic Control Technology in Situation and Analysis of Experimental Teaching System J.M. Sun, Y. Yang, L.H. Gao and S.Y. Shao	206
Transient Dynamics Analysis of the Reachstacker Spreader Based on ANSYS Y.F. Shu and Y.F. Zheng	212
Design of Multi-Legged Walking Machine F.B. Meng and T. Wu	216
Stability Analysis of Latticed Shells W.B. Shi	220
Design of Mousetrap Based on Solid Works Software Y.B. Ran and T. Wu	224
Study of Jet Noise Reduction on Separated Exhaust System Using Chevron Nozzles W.R. Shao, X.H. Xu, J.Y. He and F. Wu	228
Simulation Research of Engine's Electronic Control System Based on Modular Modeling Method J.M. Sun, L.H. Gao and Y. Yang	235
The Research on Simulation Model of BF Raceway Based on Kinetic Theory of Granular Flow J. Wang, G.Q. Yang, F. Ying, J.Q. Mu, W. Gao and W.Y. Ding	239
Application of Optical Fiber Laser Sensing Technology in Signal Detection X. Wang, D.D. Hu and X.L. Wang	246
Application of Improved Hash Function in the Message Authentication and Message Integrity S.G. Jin and G.J. Wang	250
Application Analysis of Smart Sensor Node Based on Data Mining Association Technology Y. Wang and T.J. Lu	254
Study on High Specification PAC Motion Controller System Y.L. Zhao and M.Q. Wang	258
Study on GPRS Mobile Terminal System for Rural Informatization Y.L. Zhao and S.H. Zhang	262
Mechanics Analysis and Optimization of the Reachstacker Spreader Y.F. Shu and Y.F. Zheng	266
Experimental Study on Spray Characteristics of Diesel Engines and Analysis of Fuel Dripping Phenomenon Y.Q. Wu, Q. Wang, Z.S. Gao, Z.R. Zhang and L.M. Dai	271
Visualization of the near Field Microscopic Spray Structure in Diesel Engine Z.S. Gao, Q. Wang, Y.Q. Wu, Z.X. He and L.M. Dai	276
Multi-Stage Ejector Design and Numerical Simulation for Marine Gas Turbine T. Sun, B. Wan, C.J. Sun and Z.W. Ma	280
Application of Object Oriented Computer Automatic Classification in Land Use X.F. Yan, J.L. Wang, Y.H. Zhou and F. Liu	286
Preference Selection Index Method for Machine Selection in a Flexible Manufacturing Cell S.Y. Jian, S.J. Tao and X.R. Huang	290
An Automatic Modeling Method for Intersected Cross-Sections S.H. Mei, Q. Zhao, G.L. Chen and X.L. Leng	294

Segmentation and Localization of Microscopic Cell Image Z.Z. Zhong, P.J. Qi, M. Guan and B.N. Song	300
Analysis of the Antiplane Problem of Functionally Graded Coating with Generally Oriented Crack L.F. Guo, X. Li and Y.Z. Yang	305
 Chapter 4: Communication, Networks, Applied Information Technologies, Algorithms and Data Processing	
Design of Low Noise L-Band Frequency Source S. Zhao and Y.B. Yue	313
Design of the Weighted Series Feeding Microstrip Antenna Array S. Zhao and Y.Q. Liu	317
Network Security Separated Card Based on Physical Isolation Technology Optimization D.M. Zhao and K.F. Zhu	321
Online Homework Correcting Integrate System Based on ASP.NET D.M. Zhao and K.F. Zhu	325
Wireless Sensor Network Link Selection Algorithm with Bayesian Technique L.J. Luo and H.P. Ren	329
Predictive Runtime Verification of Java Programs K. Yu, Z.B. Chen and W. Dong	333
The Design and Application of Wireless Network Based on Digital Campus S.Y. Hu, S.C. Zhang and D.Z. Qin	337
An Acquisition and Display Method for Multi-View 3D Models J.C. Long, W.H. Ma and C.L. Shen	341
Development and Application of Information Technology in University Basketball Network Courses K.F. Wang	345
A Novel Information Fusion Method Based on Preference Selection Index H. Zheng	349
A Mixed Method of Storing OWL Objects in Relational Database Q. Gan and H. Wang	353
The Application Research of Information Theory in Education X.Y. Wang, W.P. Cui and J. Xu	357
Research on the Application of Learning Analytics on Information Teaching Platform of Secondary Vocational School in Big Data Era W. Tu, L.X. Gan and X.Q. Zhang	361
Applied-Information Technology Based on Data Analysis in Teaching Reform C.H. Xu and J.J. Huang	366
The Image Compression Technology Based on Wavelet Transform W.J. Zhao, M.J. Zhao and J. Pan	370
Research on the Virtualization Construction of University Data Center Server Based on VMware vSphere C.Y. Li	375
Information System Construction in Higher Vocational Education Q. Zhang	380
Network Technology Based Intercollegiate Cooperation for Effective Learning W.H. Ma	384
Applied Technology for Evaluation Index Modeling on Sports-Related Museum X.P. Song	388
Design and Development of Intelligent Logistics System Based on Data Mining and Association Rules Technology G.J. Wang and S.G. Jin	392
A Novel Method Combining Grey Target Decision Model with Close Value for Material Selection Problem F. Xia, L.W. Yang and S.G. Chao	397

A Graph-Based Image Segmentation Algorithm H.Q. Qiang, C.H. Qian and S.R. Gong	401
An Adaptive Image Segmentation Algorithm Based on AP Clustering C.H. Qian, H.Q. Qiang and S.R. Gong	405
An Effective Approach to Migrate Application to Secure Cloud X. Yang	409
The Realization of New Computing Model and System Research Related to Quantum Computer H.Y. Liu	413
Research of an Improved Genetic Algorithm for Job Shop Scheduling G.H. Zhou	417
An Application of Genetic Algorithms on the Synthesis Technique of Musical Instrument Tones K. Jiang, L.C. Shao and R. Guo	422
Using Particle Swarm Optimization Algorithm to Construction Detection and Node Management System in Wireless Sensor Network S.M. Duan and J.J. Wu	426
Method of Data Processing Based on LaBVIEW T.Z. Yang, X.Y. Wang and C.S. Wang	430
Data Processing with Mathematical Modeling for Research-Oriented Learning X.J. Gao and F. Xing	435
Cloud-Based Next-Generation Data Center Design L. Wang	439
A Computation Methods for Analysis on the Effect of Stock Market and its Application Z.X. Ma, E.Y. Zhao, X.M. Lv and Z.M. Ma	444
Research on Digital Library Based on Cloud Computing X.W. Chen	448