

Table of Contents

Preface, Committees and Sponsors

Chapter 1: Material Science and Technologies

| | |
|--|----|
| The Cause of the Problems and Solving Measures in Molten Iron Pretreatment L. Cheng | 3 |
| Analysis of Magnetic Mark Display in Magnetic Particle Testing G.M. Lin, L.X. Peng and Y.H. Li | 9 |
| Determination of Morphology and Mechanical Properties of Polyhedral Oligomeric Silsequioxane (POSS) Based on Poly(vinylidene fluoride) Matrix Y.Z. Liu, Y. Sun, F.L. Zeng and J.C. Liu | 15 |
| Computational Modelling of a Particulate Material under Blast Loading J.C. Liu, Y.Z. Liu, K. Brown and R. Brooks | 20 |
| Study on Thermal Degradation of Phenolic Resin Z.Q. Chen, Y.F. Chen and H.B. Liu | 24 |
| Research on Quantitative Metallographic Analysis for Metallic Materials of Power Grid Z.L. Dong, K.Y. Wu and Y.L. Lan | 29 |
| The Effects of FGD Gypsum on the Performance of Cement Z.Y. Yang, S. Zhao, J. Hu and Z.C. Lu | 35 |
| Polar Probe Study of Water-Organic Solvent-Macromolecule Emulsifier Aggregates Structure H.J. Zhang | 39 |
| The Effect of FGD Gypsum Heat Treatment Process on Properties of Cement Z.Y. Yang, S. Zhao, J. Hu and Z.C. Lu | 46 |
| Effect of Trace Element Strontium on Serum Indexes in the Blood of Rats with Type I Diabetic Y. Wan, R. Cheng, Z.Q. Feng, C.T. Zhao, W. Zuo and Z.H. Li | 51 |
| Effect of BaTiO₃ Addition on Mechanical Properties of BaTiO₃/Al₂O₃ Composite C.J. Xiao, H.T. Zhang, L.Y. Zhu and Z.X. Li | 57 |
| The Insulation Sheath Detection Based on X-Ray K. Gao, H. Yu, T.Q. Guo, E.J. Pang, T. Dong and Z.W. Cheng | 62 |
| Properties of Annealed Indium Tin Tantalum Oxide Films Prepared by Reactive Magnetron Sputtering B. Zhang | 70 |
| The Research and Development of Hot Stamping Forming Technology and Production Line in View of High Strength Steel Plate L. Bao and H.J. Zhang | 75 |

Chapter 2: Research and Designing in Mechanical Engineering

| | |
|--|-----|
| The Transformer Fault Diagnosis Method Based on Improved Support Vector Machine C.L. Huang | 83 |
| The Applied Research on Improved Design of Product Forms Based on Reverse Engineering Technology X.P. Hu and Y.F. Lin | 89 |
| Research on Quick Salting Duck Egg with Pulsed Pressure and Water Cycle Technology S.Q. Wang, S.C. Wang, Y.P. Zhang and R. Zhang | 94 |
| The Application of Contact Element in Finite Element Analysis Y.Q. Zhang | 100 |
| Study of Piezoelectric Vibration Damping Based on the SSDI Technology for Aircraft Panels L. Zhang, K.X. Li and X.S. Sun | 105 |

| | |
|---|-----|
| Design of a New Normally Closed Type Safety Valves for Gas Y. He, L. Ma, D.Z. Gao, X.F. Dang and L.C. Cheng | 113 |
| A Study of Solar Panel Chimney for House Ventilation S.H. Wang, C. Sheng, H.M. Chou and E.J.T. Corado | 118 |
| Angular Acceleration Measurement Experiment Study of Stepping Motor on Single Clap Operation H. Zhao | 123 |
| Optimal Launch Vehicle Configuration from Existing Solid Rocket Motors Using Genetic Algorithm F.M. Villanueva, L.S. He and D.J. Xu | 127 |
| The 3D Parametric Modeling and Simulation of SL1126 I.C.Engine L.F. Zhang, J.M. Yi and J. Yang | 132 |
| Designation of a Grating Torque Measurement Device Based on FPGA and MCU H. Zhao | 136 |
| Present Situation and Development Review of Torque Measurement H. Zhao | 141 |
| Compatibility Problem of TN and IT System in the Same Building H.G. Chen | 146 |
| Design of Milk Packaging Line Based on FluidSIM-P R.Q. Wang and Y.X. Hu | 152 |

Chapter 3: Control and Intelligent Automation

| | |
|--|-----|
| Design of Virtual Assembly Sequence Planning System Based on Double Bases Cooperation Mechanism Q. Zhang, H.F. Zhao, H.T. Wang and X.F. Diao | 159 |
| Detection of Intima-Media Thickness in Common Carotid Artery on Ultrasound Image X.W. He | 165 |
| The Application of Augmented Reality in Mobile Learning Based on Cloud Computing W.Y. Li | 172 |
| The Study of Access Mechanism for the Security of Linux C.J. Wang | 176 |
| Applied to Medical Monitoring of the Wireless Sensor Network Design and Research Y.X. Wang and Y.H. Xiu | 181 |
| Automata for Modeling Reversible Probabilistic Processes Arpit, A. Shafie and W.F. Wan Ahmad | 185 |
| The Intelligent Management System of Police Equipment Based on Internet of Things Z.Y. Xu | 191 |
| Research on GPS RAIM Algorithm Based on SIR Particle Filtering State Estimation and Smoothed Residual L. Yu | 196 |
| The Design of Information Processing in Automatic Circle-Counting System in Track Events H.J. Bai, S.H. Ren and Q.L. Meng | 204 |
| Fuzzy Relational Clustering Based on Knowledge Mesh and its Application R.Z. Yang and H.S. Yan | 209 |
| Coal Mine Safety Monitoring System Based on ZigBee and GPRS J. Cheng, D.W. Gao, J.F. Wang and D.G. Wen | 215 |
| Method of AC Servo System Based on Genetic Algorithm and Neural Network PID Control W.C. Chang and C. Chen | 221 |
| Self-Adaptive Robust Control of Joint Robots for Modeling Error P. Su and Y. Yang | 226 |
| Application of Bluetooth in Wireless Communication of CNC Manufacturing X.W. Jia and L.L. Zhang | 232 |
| Review and Expectation of Artificial Intelligent System for Wastewater Treatment L. Zhao and Q. Wu | 237 |

| | |
|--|-----|
| Development Research of the End Mills Grinding Programming System Based on MATLAB | |
| H.J. Zhang, J.G. Li and T.W. Zhang | 242 |

Chapter 4: Applied Computational Procedures and Information Technologies

| | |
|--|-----|
| Research on the Application of BOF Cost Control Software System Based on Data Clustering and Feedback Approach | |
| K. Dong and W.J. Liu | 249 |
| The Application of Computer-Aided Translation Technology in the Translation Teaching and Research | |
| Z. Li and M.T. Xia | 255 |
| Analysis of Cloud Storage and its Data Security | |
| S.L. Chen, L.H. Zhou and Z.X. Yang | 260 |
| A Genetic Algorithm-Based Energy-Efficient QoS Classification Method in Next Generation Electric Power Communication Networks | |
| Y. Xia, W.Z. Ma, M.R. Song and F.B. Meng | 266 |
| Key Technology and Existing Problem in Mobile IPv6 | |
| G.Y. Yang and L.S. Yang | 273 |
| The Research on Label Propagation Algorithm and Improvement Based on Local Information Mechanism | |
| Y.J. Deng | 279 |
| Computer-Aided Translation Technology and C-E Translation of Tourism Texts | |
| Q.S. Tao | 285 |
| The Research on 3S Technology Applications in the Field of Geography | |
| Q. Sun and L.F. Jiang | 291 |
| Sensitivity Analysis Method of Uncertainty Based on Conditional Entropy | |
| X.L. Ni, J.S. Kang, G.Y. Wang and Y.S. Bai | 296 |
| The Study of Banker's Algorithm Base on Experiment | |
| H. Wang | 303 |
| The Research on Theory and Applications of Evolutionary Game Dynamics | |
| Y. Lai and Y. Li | 309 |

Chapter 5: Related Topics

| | |
|--|-----|
| Research on Integration of Project Schedule Buffer and Cost Buffer Based on Key Chain | |
| X.M. Li | 321 |
| Study of Evolutionary Game Model between Supply Chain Enterprises Growth | |
| Y. Lai and Y. Li | 327 |
| Form Innovation Method Based on Genetic Algorithm and Product Semantics | |
| Y. Li, Y.P. Yang, D.K. Chen and S.H. Yu | 336 |