

Table of Contents

| | |
|--|----|
| Preface | v |
| Reviewers and Sponsors | vi |
| | |
| Chapter 1: Dynamics of Mechanical Systems: Models and Analysis | |
| Optimization Design on the Performance of the Shaper J.G. Dong | 3 |
| Modeling and Dynamic Research of the Pneumatic-Hydraulic Loading Simulator System H.Y. Wang, J.B. Lu, X. Dai and R. Wang | 8 |
| Test and Numerical Analysis of Natural Frequency for Tube Z.Y. Chen, Z.H. Liu and W.S. Hou | 13 |
| Damage Mechanics-Finite Element Method for Vibrational Fatigue Life Prediction of Engineering Structures with Damping L.L. Sun, W.P. Hu, M. Zhang and Q.C. Meng | 17 |
| Wind Turbine Gearbox Transmission Chain Forced Vibration Analysis Exerted by Random Actuator Z.M. Liu and Z.L. Yang | 22 |
| Vibration Characteristics Analysis of Large Dismountable Out-Moving Jaw Crusher Y. Jiang | 27 |
| Excitation Order Research in Bladed-Disk Coupling Resonance Condition Z. Qi and J.J. Wang | 31 |
| Driving Intention Based Optimal Shift Control for Automatic Transmission S. Zhu and J.H. Hu | 36 |
| Dispersion Curves Calculation for Guided Waves in Rod by Modal Analysis L.X. Zhu, Y.M. Wang, L. Zong and F.R. Sun | 44 |
| Dynamic Characteristics Analysis for Seismic Vibrator L.Q. An, F.P. Kong and Y.F. Wang | 48 |
| Finite Element Research on Damping of Viscoelastic Free Layer Damping Sheet Y.C. He, W.L. Chen, S.W. Sun and L.N. Hao | 56 |
| The Consistency between MLP Method and Modified Method of Multiple Scales for Strong Nonlinear Primary Resonance of Duffing Equation Subject to Harmonic Excitation in Complex Number Field Z. Yang, X. Li and J.J. Meng | 62 |
| Coupling Vibration of Tapered Rod S.W. Hu, H.L. Li and Y. Meng | 69 |
| Study and Test of Coupled Axial and Transverse Vibrations on Drillpipe for Rotary Drilling Rig X.X. Xu, S.J. Jiao, J.L. Cheng and J.P. Li | 73 |
| Resonance Reliability Analysis of Aeroengine Compressor Rotor Blade H.F. Gao and G.C. Bai | 79 |
| Present Status of Damping Test Techniques for Magnesium Alloys T. Tian, X.Z. Mao and L. Mi | 85 |
| Parameter Sensitivity Analysis of Gear Contact in Gear-Bearing-Rotor System Based on Romax Y. Wang, J. Wei and W. Sun | 91 |

| | |
|--|-----|
| Investigation of Crack Line Offset of Fracture Splitting Connecting Rod H.Y. Yang, S.Q. Kou, W.Q. Gao and S.H. Yang..... | 100 |
| Near-Field Noise Prediction for Landing Gear Based on Detached Eddy Simulations N. Hu, X. Hao, C. Su, W.M. Zhang and H.D. Ma | 105 |
| Fatigue Life Analysis of Auger Stem in Soft Coal Seam J. Xu, Y. Xu and J.C. Li..... | 111 |
| Research on Walking Principle of a Worm Pipe Robot F.P. Xu, Y. Zhou and Z.C. Zhao | 115 |
| Harvester Threshing Device Parameters Modular Design Based on Solidworks Y. Xu, J. Xu and J.C. Li..... | 120 |
| A New Way to Simulate the Fluid Structure Interaction between the Bioprosthetic Heart Valve and Blood: FE-SPH Method Q. Yuan and X. Ye..... | 125 |
| The Temperature Field Analysis about the Thermal Assembly Process of the Roller Sleeve of HFCG160 Roller Press J.H. Bao, Y. Wang and J. Cai..... | 131 |
| Based on ANSYS Large Diameter Metallic High-Speed Rotating Disk Modal Analysis F.L. Kong, T. He, L.B. Hang and X.Q. Ren | 136 |
| The Numerical Investigation of Cracking Areas under Nonuniform Settlements of the Construction M.L. Bartolomey, I.N. Shardakov and N.A. Trufanov | 141 |
| Simulation and Control of a Duopoly Model Y.L. Lu..... | 146 |
| Topological Optimization for Damping Structure of Cylindrical Shell Based on DIMFM Y.C. He, W.L. Chen and L.N. Hao | 152 |

Chapter 2: Machineries and Equipments for Industrial systems, Energy and Power Engineering, Automation and Control

| | |
|--|-----|
| Development of Double-Axis Double-Rest CNC Machining Center J. Wang and L. Zhang..... | 159 |
| The Hammerstein Predict Model of Control Valve Based on Least Square Support Vector Machine A.Q. Huang and Y. Wang | 164 |
| Construction of Computer Controlled Bioreactor L. Gao, Y.T. Lin, H.B. Lin, X.Y. Jia, J.Q. Lin and J.Q. Lin..... | 171 |
| Study on Detection Method for Crack in Eggs Based on Computer Vision and Support Vector Machine Neural Network J. Yang, Y. Shi, W. Zhou and Y.S. Che..... | 176 |
| Genetic Algorithm-Based Optimization of Steam Consumption of Dryer Section in Paper Machine W. Tang, Y. Zhou and W.T. Gan..... | 180 |
| Control Characteristics Analysis of Split-Drag-Rudder Z.J. Li and D.L. Ma..... | 185 |
| Research on the Relation between Automotive Air Conditioning Supply-Air Direction and Cooling Efficiency about Thermal Field of the Passenger Compartment R. Duan, J.F. Xie and H.C. Wang..... | 191 |
| A Study on the Output Characteristic of Photovoltaic Array under Partially Shaded Conditions L.T.M. Tam, N.V. Duong, N.T. Tien and N.V. Ngu | 198 |

| | |
|---|-----|
| Modelling Solar PV Behavior Using the Interpolation Approach for Climatic Conditions of Eastern India | |
| S.B. Pal, S. Bijali, S.R. Bhadra Chaudhuri and D. Mukherjee..... | 206 |
| Perormance Analysis of Distribution System with Distributed Generation, A Case Study of Nepal | |
| K.S. Sherpa, D. Bhujel and A.K. Mishra | 211 |
| The Impact of Large Scale Wind Power Integration on a Regional Power Grid - A Case Study | |
| H. Ren, D.X. Yang, D. Watts and X. Chen..... | 219 |
| Experimental Research on Direct Evaporative Cooling of Stainless Steel Filler | |
| X.W. Sheng and H. Xiang..... | 226 |
| A Case Analysis of Application of Evaporative Cooling Air Conditioning of the Communication Equipment Room in Xi'an | |
| F. Kun and H. Xiang | 231 |
| Design of Dynamic Vehicle Navigation Terminal Based on GPS/GPRS | |
| C.T. Li, X.W. Han and Y.Z. Sun | 237 |
| Key Technologies Research of MEMS Pressure Sensor for Fuze | |
| B. Jiang, X.L. Qi and Z.N. Zhao | 242 |
| Solution of Energy Supply for Deep Ocean Installations: Design and Testing of a Micro-Fluid Turbine | |
| Y.Y. Tian, Y.H. Zhang and X.J. Wang..... | 247 |
| Thermal Effect of Dual-Function Solar Collector on Building in Autumn | |
| C.L. Luo, J.H. Xiong, M. Fan, C.W. Han and L.Y. Sun | 254 |
| Multi-Stage Cascaded Quasi Z-Source Inverter System for Renewable Energy Applications | |
| K.C.R. Nisha and T.N. Basavaraj | 259 |
| The Design of Direct-Drive Wind Generation Grid Side PWM Converter Based on LCL Filter | |
| L. Sun, Y.N. Wang, C. Gu and Y.M. Liu..... | 265 |
| Numerical and Experiment Study on New Types of Magnus Blade | |
| Y.X. Yao, X.W. Wang and J.M. Wu | 271 |
| Heat Storage Performance Analysis of Solar Chimney Power Plant System | |
| H.J. Guo, J.L. Li and S.H. Huang | 276 |
| Research on the Heat Transfer Characteristics of Receiver in Designed Solar Direct Steam Generation System | |
| J.L. Du, X. Huang and D.W. Tang..... | 286 |
| Conceptual Design and Hydrodynamic Performance of a Floating Offshore Wind Turbine Cell-Spar-Buoy Support Structure | |
| H.Y. Wang, X.M. Chen, C.B. Zhao, Y.H. Tang and W. Lin | 291 |
| Design of a Small Wind Turbine to Generate Electricity in Urban and Rural Areas | |
| M.F. José Bione, A.O.L. Ferreira and L.A. Gómez-Malagón..... | 296 |
| Energy and Distribution Analysis on Engine Bench | |
| H. Chang, X.M. Yu, X. Qu, W.C. Zhang, P. Sun and W. Dong | 301 |
| The Electro-Hydraulic Synchronization Position Servo System Based on Nonlinear and Non-Gaussian Time Sequence Prediction Model | |
| L.H. Lai and F. Liu | 306 |
| Three-Ring Gear Reducer Internal Tooth Plate Processing Method in the Research and Analysis | |
| H.B. Yang and Q. Wang | 312 |
| Research on Smart Grid User Side of Intelligent Detection System for Operating Frequency of Approach Switch | |
| X.Q. Ren, T. He, L.B. Hang and F.L. Kong | 316 |

| | |
|--|-----|
| Comparing Sliding-Mode Control and PID Approaches for Vehicle Stability Control D.W. Pi, W. Dong and X.H. Wang | 321 |
| Research on Drive Mode for an Independent Eight In-Wheel Motor Drive Vehicle W.J. Liang and J.Q. Li | 327 |
| Characteristic and Affection Analysis on Air into the Cabin Process Based on Wind Tunnel H. Chang, X.M. Yu, S.J. Li, L. Liu and J.H. Lv | 333 |
| Study on a Novel Excitation Coil Used in Electromagnetic Anti-Wax Apparatus W.W. Zhang, T.T. Wang and S.C. Zhang..... | 338 |
| A Novel Control Strategy of Active Power Filter X.M. Wang, X.Y. Xiang, W.C. Liu and L. Zhang | 343 |
| Performance and Affection Analysis on Cooling Module in the Vehicle Working Conditions H. Chang, X.M. Yu, J.H. Lv, M. Zhou and G. Li | 348 |
| Study on Adaptive Distance Relay to Prevent Cascading Trips in Complex Power Grid S.L. Gu and Z.P. Wang | 353 |
| Generating Method Considering Magnetic Saturation of SRMG Using Parallel Switching Mechanism S.J. Kim, T.H. Kim, Y.H. Kim and J.W. Moon | 359 |
| Studies on the Acoustic Characteristics of the Hartmann Acoustic Generator R.S. Chen, X.H. Chen, X.J. Gao, J.B. Jia, S.P. He, Y. Zhao, T.T. Cao and Z.M. Gao | 364 |
| Interference Detection for the Stationary Internal Toroidal Gear Machining M. Hong and L.G. Yao | 369 |
| Application of Mechanical Energy Storage in Micro-Fluid Turbine Design Y.Y. Tian, X.J. Wang and G.X. Ji | 374 |
| Advanced Performance Estimation Model for Lithium-Ion Power Battery Used in Pure Electric Vehicles L.J. Li, M.M. Liu, L.N. Jr, G.H. Ye and X.B. Liu | 379 |
| Verification of Control System by Physical Simulation W.G. Yuan and Y.B. Wang..... | 389 |
| Research on the Detail Design of Aircraft Wings G.C. Liu | 394 |
| Exploration of Forecasting the State of Metal Oxide Volt-Sensitive Protectors Based on Improve Recursive Neural Networks S.D. Zhang, L. Zhou and H.P. Guo..... | 398 |
| Based on Vibration and Improved GRNN Identify Eggshell Crack J. Yang, H. Pan, Z.W. Peng and X.Y. Li | 404 |
| Study of Establishment and Operation of Salt-Gradient Solar Pond C.J. Gao, Q. Zhang, Z.L. Dong, S.Y. Guo and X.P. Huang..... | 409 |
| Irradiance and Temperature Dependence Characterization of Vacuum Glass BIPV Modules H.T. Liu, S.Y. Sang, F. Lv and Y.H. Zhai | 413 |

Chapter 3: Information Technologies Application for Manufacture, Data Processing and Computational Methods

| | |
|--|-----|
| AR Technology and its Application in Biomedical Engineering P.C. Fan and X.Y. Xu | 421 |
| Multi-Radius Density Clustering Algorithm Based on Outlier Factor Z.L. Ye, H. Cao, L.X. Jia, Y.B. Zhang and G.Q. Si..... | 427 |

| | |
|---|-----|
| Utilization of Quantization Method on Credit Risk Assessment Z. Yang | 432 |
| Typology of Online Consumers: Motivations and Clickstream Data X. Chen, S.S. Li and Y.W. Chen..... | 437 |
| Seven Factors in Evaluating Recommender System L.T. Kang and Y. Wang..... | 443 |
| A Synthesis Algorithm of Beam-Forming for Antenna Pattern M.W. Wang and B.P. Guo | 450 |
| An Approach to Group Making Problems Based on Two-Tuple Linguistic Theory J. Wei, X.J. Zhong and J. Gong | 456 |
| A Novel Clustering Routing Protocol with Community Structure Detection for Wireless Sensor Networks J.Y. Wu, X.Y. Shao and H.P. Zhu | 460 |
| Bioinfo-Kit: A Sharing Software Tool for Bioinformatics Y. Huang, J.Y. Wang, X.M. Wei and B. Hu..... | 466 |
| The Analysis of the Evolution of the Supply Chain and the Corresponding Supply Chain Contract Model J. Zhou and Y. Wang | 470 |
| Two-Dimensional Structural Topology Optimization Based on Isogeometric Analysis G.Y. Qiu, P. Hu and W. Zhou..... | 475 |
| Studies on Estimation Accuracy of Point Estimation in Up-and-Down Method D.X. Fu, R. Zhang, F. Li, Z.H. Du, H. Liu and H.L. Ma | 480 |
| Application of the Least Squares Support Vector Machine Based on Quantum Particle Swarm Optimization for Data Fitting of Small Samples H.K. Wang, J.S. Ma, L.Q. Fang, Y.F. Yang and H.P. Liu..... | 485 |
| Uncertainty Reasoning Problem Research Based on the Expert System of Production Plan C. Guo, M. Huang and X. Liang..... | 490 |
| X-Ray Testing of Weld Defect of Automatic Recognit Ion and Alarm Technology Research P.L. Zhang, Z.Q. Zhao and Y.P. Wang..... | 495 |
| A Practical Approach Based on Shape from Shading and Fast Marching for 3D Geometry Recovery under Oblique Illumination L. Governì, R. Furferi, L. Puggelli and Y. Volpe | 503 |
| Designing General p-Ary n-Point Smooth Subdivision Schemes H.C. Zheng and Q. Song..... | 510 |
| Rapid Design of Powertrain in Wheeled Combine Harvester Chassis Based on Knowledge C.L. Li, S.C. Yin, X.P. Jin, E.R. Mao, X.H. Lou and Z.H. Song..... | 516 |
| Research on Recognition of Fertilized Egg Based on Optimized LVQ by Genetic Algorithm J. Yang, C.Y. Xia, X.Y. Li, H. Pan and Y. Shi | 522 |
| Two Sharp Perturbed Midpoint Inequalities Y.X. Shi, Y.M. Tao and Y. Pan | 527 |

Chapter 4: Safety Engineering and Assessment of Reliability

| | |
|--|-----|
| Applying KDD to a Structure Health Monitoring System Based on a Real Sited Bridge: Model Reshaping Case M.L. Ma, G.L. Wang, D.M. Miao and G.J. Xian..... | 535 |
| Prediction of the Fatigue Life for Large Wind Turbine Gearbox X.H. Dong, X. Tian and Z.L. Yang..... | 539 |

| | |
|---|-----|
| Artificial Immune Systems Applied to the Analysis of Structural Integrity of a Building F. Parra dos Anjos Lima, F.R. Chavarette, S. Silva Frutuoso de Souza, A. dos Santos e Souza and M.L. Martins Lopes | 544 |
| A Novel Three-Dimensional Cellular Automaton Evacuation Model J. Hu, L. You, J. Wei, W.Q. Wu, D. Zhou and Y. Liang | 550 |
| Applied Research on Different Plume Models of Pool Fire in Hermetically Closed Room L.B. Ding, J.Y. Pu and K. Ren | 555 |
| Technical Analysis of Photovoltaic Modules with 20 Years of Tropical Weather Outdoor Exposure M.F.J. Bione, M.C. Alonso-García, M.B.A. Zamorano and F. Chenlo | 562 |
| Preliminary Study on Mine Safety Audit Evaluation Index System S.M. Wang, J. Xu and X.F. Liu | 567 |
| The Influence of Evacuation Signs on Evacuation for Bad Visibility H.T. Chen, P. Yang and R.C. Yu | 574 |
| Reliability Analysis of Deploying and Rigid Locking on Truss Element of Space Cable-Strut Deployable Articulated Mast M. Hu, D.M. Huang, W.H. Chen, Z.Q. Deng, Y.D. Han, J. Feng and Q.J. Wang | 579 |

Chapter 5: Material Engineering and Processing

| | |
|--|-----|
| Electrochemical Performance of Hard Carbon as Negative Electrode in Lithium Ion Capacitor M.R. Yuan, W.Q. Liu and Y.J. Xu | 587 |
| GC-MS Analyzing of Coal Tar of Lignite Briquette from Low Temperature Pyrolysis X.T. Cui, Y.F. Zhang, D.L. Dong and Y.Q. Zhao | 591 |
| Thermodynamic Study on the Sulfidation-Magnetic Roasting of the Hematite Type of Tin-Bearing Iron Ore B. Liao, L. Li, H. Wang and X.L. Sang | 596 |
| Associative Behaviors of a Novel Series of Amphiphilic Statistical Tripolymers X. Wu, H.H. Xiao, J.J. Wang, X.X. Xie, J.W. Lin and X.M. Rong | 603 |
| Effects of Biaxial Pre-Stretching on Microstructures and Mechanical Properties of 2024 Aluminum Alloy Thin Plates J.J. Wu, R.C. Guo, H. Li and S. Zhang | 607 |
| Characteristics of Microstructure and Microhardness of Friction Stir Welded Joints for AZ31 Magnesium Alloy S.L. Wang, H.Y. Zhang and X. Li | 612 |
| The Higher Order Crack Tip Fields for Anti-Plane Crack in Functionally Graded Piezoelectric Materials Y. Dai, X. Chong and S.M. Li | 617 |
| Comparison Studies of Criado and Coats-Redfern Methods for Co-Gasification of Rubber Seed Shell with High Density Polyethylene Mixtures B.C. Lai Fui, S. Yusup, A.A. Shoabi, P. Kannan, C. Srinivasakannan and S.A. Sulaiman | 621 |
| Application of Cationic Cassava Dregs as a Retention and Drainage Aid in Wet-End System W.J. Liu and S.B. Wu | 626 |
| Cyclic MAM Synthesis and Upconversion Photoluminescence Properties of SrMoO₄:Er³⁺/Yb³⁺ Particles S.L. Chang | 632 |
| Electrochemical Performance Study of LiFePO₄ Cathode Material with Different Carbon Coating Contents X.R. Yang, D.M. Gu, S. Gu and X.L. Sui | 637 |

| | |
|--|-----|
| Deep Removal of Methyl Mercaptan in Biogas J. Gong, Y.F. Jiao, Q.Q. Su and W.L. Mi | 641 |
| Study on the Creep Properties of Resin Concrete H.C. Shen, K. Tian and Y.H. Hu | 649 |
| A Hydrothermal Factor Calculating Approach Based on FEM for Fiber-Reinforced Composites Y. Zhang, X.T. Zheng, J. Yang and B.T. Wang | 654 |
| Study on the Failure Analysis Method of the Woven Composite Based on the Micro-Structural Character D.S. Wei, M. Shen and Y.R. Wang | 660 |
| New Approach to Synthesis of CuO/CeO₂ Catalysts for Preferential CO Oxidation S.H. Wang, L. Xu, P. Shen, C. Chen and N. Zhang | 666 |
| The Simulation and Analysis of the New Type Large Vacuum Container Flange Welding Process B.T. Liu, Y. Qi, X. Han, S.Z. Lv and G.F. Wang | 671 |
| Prediction of Residual Stress Induced Distortions in Micro-Milling of Al7050 Thin Plate O. Fergani, A. Mamedov, I. Lazoglu, J.G. Yang and S.Y. Liang | 677 |
| The Improvement of Machining Accuracy on Quartz and Glasses by Electrochemical Discharge Machining L.W. Hourng, C.I. Lin and B.G. Lee | 682 |
| Taguchi Optimization to Determine Optimal Denier of the Polyester Fibre S.W. Wang and T.L. Su | 688 |
| Finite Element Method Analysis for Marine Semi-Built-Up Crankshaft Shrinkage Fitting S.Q. Cao, S.M. Fu, Y.W. Zhu and Y.L. Han | 693 |
| The Applications of Mold Flow Analysis on Vibration Separation Technologies of Investment Casting Components P.H. Huang and Y.T. Chen | 699 |
| Pump Ability of Concrete Mixture Improvement Based on Rich Mortar Theory Testing Method G.L. Wang, M.L. Ma, D.M. Miao and H.J. Ma | 704 |

Chapter 6: Micro/Nano Technologies and Materials, Quantum Physics Applications

| | |
|---|-----|
| Study on the Ag@SiO₂ Enhanced the Luminous Intensity of the Terbium Complexes with Benzoic Acid and 1,10-phenanthroline B. Yue, Y. Li, K. Kong, H.B. Chu and Y.L. Zhao | 711 |
| Homogeneous in Distribution of InGaN/GaN Quantum Wells in High Performance GaN-Based Light-Emitting Devices H.S. Kim and S.N. Lee | 715 |
| Effect of the Sheet Thickness on the Electrochemical Performance of 2-D SnO₂ Nanomaterial as Li Ion Battery Anode Material W. Wei, W.F. Huang, Z. Yang, L. Guo and Z.Y. Wu | 720 |
| Fabrication High Aspect Ratio Nanometer Holes on the Alumina Based on Self-Organization Technology Y.G. Li, L.H. Li, S. Sugiyama and J.Q. Liu | 725 |
| Single-Polarization Double Refraction in Plasmonic Crystals: Considerations on Energy Flow C.J. Zapata-Rodríguez, D. Pastor, L.E. Martínez, M.T. Caballero and J.J. Miret | 729 |
| Generalized Theory of Thermo-Acoustic Emission from Nanocrystalline Porous Silicon Y.D. Wang, H.P. Hu and D.D. Wang | 734 |

| | |
|--|-----|
| Preparation and Photocatalytic Activity of Titanium Dioxide-Cuprous Oxide Heterostructure on Graphene | |
| J.H. Liu, X. Li and S. Gu | 739 |
| One Step Growth of Semiconductor CdS Uniform Branched Nanowire on FTO | |
| Y.R. Lu, T. Ling, X.W. Du, P.F. Yin, H. Zhang and X.Y. Chen | 744 |
| Study of MEMS Based Micropyrotechnic Igniter | |
| Y. Xue, C.J. Shi, X.M. Ren, L. Liu and R.Z. Xie | 750 |

Chapter 7: Biomaterials and Applied Biotechnologies

| | |
|---|-----|
| A Review on Biodiesel Production: Breeding Technologies of Microalgae Containing Rich Lipid | |
| C. Ma, B.F. Liu, H.Y. Ren and N.Q. Ren | 759 |
| The Anti-Influenza Activity of Cyclohexene Derivatives Studied by Topological Indices and Neural Network | |
| W.C. Zhuang, X.H. Du, C.J. Feng and J. Li | 764 |
| The Study of Oxymatrine on Apoptosis of Human Carcinoma Cell Line MGC-803 by Flow Cytometry | |
| Y.Q. Zhu, N.N. Zheng, L. Tang and X.F. Li | 770 |
| Impact of Liquid Hot Water Pretreatment on the Structural Changes of Sugarcane Bagasse Biomass for Sugar Production | |
| H.D. Zhang and S.B. Wu | 774 |
| Mungongo Seeds Oil (<i>Schinziophyton rautanenii</i>) as a Potential Source of Bio-Diesel | |
| T. Kivevele and Z.J. Huan | 780 |
| Constituent Characteristic and Biomedical Potentials of Organic Essential Oils from Leaves of Four Eucalyptus Cultivars in China | |
| Z.J. Gu, D.Q. Zhang, W. Mo, H.Y. Zhang and X.L. Zhang | 785 |
| The Changes of Ultrastructure and Proteome Induced by Repeated Eccentric Exercise on of Rat Skeletal Muscle | |
| G.J. Dong, C.X. Lv and K.F. Li | 792 |
| Antioxidant Activities of Ethanol Extracts from <i>Zanthoxylum avicennae</i> | |
| X.F. Li, N.N. Zheng, L. Tang, W.X. Zhang, Y.X. Wang, S. An and Y.Q. Zhu | 801 |
| Influence of Acute Incremental Exercise on Antioxidation-Endocrine-Immune Network of PM_{2.5} Exposed Rats | |
| F. Li and H. Shi | 805 |
| Influence of Complex Plasticizers Containing Urea and Triethanolamin on the Characteristics of SPI/PVA Films | |
| D.C. Ren, D.M. Zhao, L. Qian and Y.H. Du | 809 |
| Optimizing Experimental Variables to Enhance the Biodegradability of Polylactic Acid | |
| S.W. Wang and T.L. Su | 815 |
| Analysis on Key Points of Cultivation Techniques for Medicinal Flower and Fruit Plants | |
| H.J. Deng and Y.Z. Li | 820 |
| Determination of Antioxidant Activity <i>In Vitro</i> from <i>Hyptis rhomboidea</i> Mart. et Gal. Ethanol Extracts | |
| X.F. Li, L. Tang, N.N. Zheng, S. An, Y.X. Wang, W.X. Zhang and Y.N. Hu | 824 |

Chapter 8: Environmental Engineering and Waste Recycling

| | |
|--|-----|
| Investigation of Antibacterial Property and Photocatalytic Activity of Recyclable Ag/ZnO Composites | |
| J. Wang, X.Y. Pan, L. Peng, Y. Liu and N.J. Wang | 831 |
| Biosorption of Nickel Ions by Modified Chitosan from Aqueous Solutions | |
| W. Ma, L.L. Gao, Z.H. Cheng, R. Wang, F.J. Liu, D.M. Liu and D.C. Pan | 835 |
| A Selection Optimization Model of Water Pollution Emission Reduction Measures in Refining and Chemical Enterprises | |
| X.C. Li, J.Y. Wen, J. Long, X.Y. Du and Y. Li | 840 |
| Assessment of Embodied Carbon Emissions within the Trade between China and Main Trade Partners | |
| Y.D. Ning, X. Li and T. Ding | 845 |
| Dynamic Change and Analysis of Driving Factors of Carbon Emissions from Traffic and Transportation Energy Consumption in Jilin Province | |
| B. Gao, Q.T. Xu and Y.B. Li | 851 |
| Study on Power Generation Expansion Planning Model Based on CO₂ Emission Reduction | |
| Y. Li, C.C. Li and J.Y. Wen | 856 |
| Adsorption of Polyvinyl Acetate (PVAc) Adhesive Emulsion from Aqueous Solution by Lignin-Phenol Based Cationic Surfactant Modified Organic Kieselguhr | |
| C.P. Mao and S.B. Wu | 861 |
| The Strontium Isotopic Chemical Analysis of Geothermal Water in Guihu, Fuzhou | |
| Q. Zhang, G. Chen and C.Y. Su | 867 |
| The Research on Synthetic Method of Starch/Lactic Acid Graft Copolymer Catalyzed with Sulfuric Acid | |
| M.R. Tang, Y.M. Hu, X.B. Chen and Q.L. Wang | 874 |
| Solidification of Greenhouse Gas Carbon Dioxide | |
| W. Yin | 879 |
| Study on By-Product Synergy and Eco-Industrial Parks in China Based on American Experience | |
| G.F. Liu and Y.T. Ma | 884 |
| Study on Protection and Development in Beijing Labagoumen Natural Reserve by GIS | |
| Z.Y. Li, H. Guo, J. Wang, H.F. Bai and J.L. Shi | 889 |
| The Research of Key Factors Influencing Ecological Civilization Consciousness of College Students Based on Ant Colony Clustering Algorithm | |
| W.J. Xing, X.H. Zhang and H.W. Zhang | 894 |
| Dynamic Analysis and Prediction of Ecological Footprint in Jilin Province of China Based on Grey Prediction Model | |
| B. Gao and Q.T. Xu | 899 |
| Emission Reduction Potential Optimization Model on Refinery and Chemical Enterprises for Atmospheric Pollutants Total Amount Control | |
| X.C. Li, J.Y. Wen, J. Long, X.Y. Du and Y. Li | 904 |
| Marine SCR Technology's Development and Prospects | |
| S. Zhou and C. Zhang | 909 |
| Discussion on Ship Exhaust Gas Washing Desulfurization Technology | |
| Z.G. Wang and S. Zhou | 917 |
| Catalytic Pyrolysis of Bamboo Residues for Composite Biochar and Bamboo Oil | |
| D. Zhang, J.B. Ji, C.F. Song and S.D. Shan | 921 |

| | |
|---|-----|
| Study on the Effect of Adding Zeolite and other Bio-Adsorbance in Enhancing the Quality of the Palm Based Vermicompost Z.N. Hayawin, A.A. Astimar, R. Ridzuan, Z.B. Syirat, N. Ravi Menon and N.F. Jalani | 926 |
|---|-----|

Chapter 9: Research, Design and Providing of Manufacturing Systems, Engineering Management

| | |
|---|------|
| The Effect of Annealing Conditions and Alloying Elements on the Microstructure Stability and Mechanical Properties of Mg-Zn-Cesheets M. Aljarrah, E. Essadiqi, R.H. Fouad, M. Rababah and A. Almagableh | 937 |
| Comprehensive Evaluation System Research on Agricultural Modernization Based on Principal Component of BP Network H.W. Wang, D. Chen and J. Lv | 948 |
| A Wind Farm Capacity Credibility Calculation Method Based on Parabola Z.X. Gao, A.J. Mao, D.Z. Chen and Y.T. Song | 953 |
| Multiple Time-Scale Collaborative Optimal Dispatch Methods for Electric Vehicles and Wind Power Y. Sun, X.L. Huang, Z. Chen, H. Qiang and Q.D. Zhang | 958 |
| Research on Rural Finance Efficiency and its Determinants in China Based on 2001 Counties' Data H.M. Wen, J. Chang and J. Xue | 965 |
| Evaluation and Empirical Analysis of China's Regional "Integration of Informationization and Industrialization" L.Q. Liu and J.W. Feng | 971 |
| Tolerance Optimization for Assembly Systems Based on Quality Requirements Using State Space Model H. Li, H.P. Zhu, B.X. Liu and P.G. Li | 985 |
| Development Process of a Method, Material and Evaluation for Professional Qualification of Employees with Disabilities M.L. Miyake Okumura, O. Canciglieri Junior and T.M. de Souza | 990 |
| A Study of Process Rebuilding of Asset Life Cycle Management in Power Grid Enterprises Based on MIMS Diagnosis Model Y. Zhang and Y. Zhang | 997 |
| The Study on Electricity Price Linkage in the Market Including Energy Storage Station in Demand Side Q. Cui, X.F. Wang and X.L. Wang | 1003 |
| Research on the 330MW Double-Extraction Steam Turbine of Dynamic and Thermal Characteristics Analysis Model Y. Zhu, Q.J. Li, L.K. Zheng and Y.X. Feng | 1008 |
| Energy Efficiency Evaluation for Steam Turbine and Auxillary System Y.B. Wang, J. Liu, P. Zhu and C.B. He | 1017 |
| Fuzzy Comprehensive Evaluation on Energy-Efficiency of Plant Boiler Based on Exergy Analysis J. Liu, Y.B. Wang, C.B. He and P. Zhu | 1022 |
| An Exergy and Homeostatic Control Approach to Sustainable Grid-Connected Microgrids without Energy Storage F.F. Yanine, E.E. Sauma and F.M. Cordova | 1027 |
| Optimization of Unidirectional Material Handling System with Short-Cut K. Xia, J.T. Li and H. Kise | 1032 |

| | |
|---|------|
| Research of Innovative Risk Management in L/C Settlement - Based on Quality Control of Import Goods | |
| H. Zhou | 1037 |
| The Study of an Economic Hybrid TCSC Structure | |
| T.M. Chen, X.N. Xiao, J. Zhang and C. Luo | 1042 |
| Dynamic Analysis on Energy-Saving Effect of Distributed Cooling System in TBS | |
| T.J. Yang and Y. Li..... | 1047 |
| Thermodynamic Analysis of Minimum Extraction Ratio for Coal-Fired CHP Plants | |
| C.H. Liao, Z.G. Zhou and J.N. Zhao..... | 1052 |
| Integrated Construction Technology of Building Structures with External Thermal Insulation Board | |
| R.Q. Ma, D.M. Miao, M.L. Ma and G.L. Wang | 1057 |
| An Empirical Study of the Investment to Promote the Technological Progress of China's Industrial | |
| Y.J. Wu, S.D. Ji and L.J. Jia..... | 1061 |
| An Portfolio Optimal Attainability under Transaction Costs | |
| S.M. Xu and J.H. Liu | 1066 |
| Empirical Study on the Effect of Investment on Employment | |
| Y.P. Fan and M.Q. Fan | 1070 |
| Off-Farm Employment and Outsourcing Production Effects on the Technical Efficiency of Farm Households' Grain Production - A Case with the Data from Liaoning Province, China | |
| X.Y. Han, D. Chen, W. Shi and J. Lv | 1074 |
| A Comprehensive Evaluation Approach for Machining Operation Based on Fuzzy AHP | |
| Q. Sun, W.M. Zhang and P.Z. Li | 1079 |
| A Blackboard-Based Architecture for Modular Product Design | |
| J.S. Shay, M.P. Tsai and P.I. Shieh..... | 1084 |
| The Relief Modeling and Processing Based on ArtCAM | |
| J.J. Su, F. Lu, D.H. Zhao and Y.H. Wu..... | 1088 |
| Research of Two-Tuple Linguistic in Process of Maintenance on Risk Evaluation for Naval Vessel | |
| Y. Lu, L. Fang and J. Gong..... | 1094 |
| Design and Implementation of Robust Framework for Improvement of Productivity through Total Productive Maintenance in Textile Industry: A Research Article | |
| A. Sivakumar, R.S. Naveen, J.S. Irshad Ahamed and P. Navaneethkrishnan..... | 1099 |
| Functions of Public Service in the Sustainable Development of Regional Economy: A Case Study of Tianjin | |
| X.P. Liang..... | 1105 |
| Experimental Study on the Flow Field Distribution Law of Ultra-Low Permeability Reservoir with Inverted Nine-Spot Equilateral well Pattern | |
| Z.C. Liao, Z.M. Yang and Q.H. Xiao | 1112 |
| Keyword Index..... | 1117 |
| Author Index..... | 1125 |