

Table of Contents

Preface and Conference Organization

Chapter 1: Engineering Thermophysics

Particle Motion in the Vicinity of the Wall of Circulating Fluidized Beds J.H. Liu, S.S. Fan and D.L. Xie	3
Simulation of Supercharged Boiler Combustion Optimization Control Based on Radiant Energy Signal G.Y. Zhou, G. Su, F. Du and Z.G. Li	8
Based on the Principle of Approximate Model Established Model Test Rig Simulation of the Actual Test Bench M. Xue, Z. Ma, Y.J. Li, L.B. Yang and F. Zhu	14
Design Optimization of Convective Heat Transfer Surface of Pressurized Oxy-Fuel Coal-Fired Boiler K. Ma, W.P. Yan, F. Jin and H.X. Li	20
Investigation of Lignite Combustion Characteristics with Thermal Analysis M.Q. Liu, J.Z. Liu, Y.J. Yu, Z.H. Wang, J.H. Zhou and K.F. Cen	25
Precipitation Characteristics of Crystallization Fouling on Metal Surface from 0.5mmol/l CaCO₃ Solution at 35°C Z.G. Zhou and H. Zhang	31
Study on Thermodynamic Evaluation Index of Combined Cooling Heating and Power (CCHP) System X.W. Chen, P.Y. Zheng, Y.Z. Yuan and G.X. Chai	36
Study on the Technology of Increasing Combustion Efficiency and Decreasing NO_x Emission of Blending Coals C.Z. Wei and Y.C. Wang	41
Co-Combustion Mechanism Analysis of Oil Shale Semi-Coke and Rice Straws Blends Q. Wang, X.D. Wang, H.P. Liu and C.X. Jia	45
Process Simulation of Oil Shale Circulating Fluidized Bed Boiler Based on Aspen Plus Q. Wang, H.B. Long, H.P. Liu and Z.F. Wang	49
Effects of Hydrothermal Dewatering on Kinetics and Mechanism of Brown Coals Pyrolysis J.Z. Liu, Y.J. Yu, F.Y. Gao, Y.X. Hu, J.H. Zhou and K.F. Cen	53
Flow Characteristic of a New Type of Double-Channel Air Burner in Direct Flow Pulverized Coal Boiler J.G. Yang, H.M. Yu, L.A. Fan and H. Zhao	59
Thermodynamic Performance of an Actual Thermo-Acoustic Refrigeration Micro-Cycle T. Wang, F. Wu, J.H. Fei and M.F. Liu	64
Relationship between Heating Value and Proximate Analysis of Oil Shale Q. Wang and N. Pei	69
Numerical Study on the Premixed Combustion in Porous Media Burner J.Y. Zhang, H.S. Liu and Z.J. Xu	73
Numerical Simulation of Condenser Throat Combining with Low-Pressure Exhaust Hood for 600MW Thermal Power Unit J. Li, L. Zhang and S.P. Wang	77
The Exhaust Steam Enthalpy of Steam Turbine Cognitive Modeling Based on Simplify Evidential Regression Multi-Model S. Liu, P.H. Wang and Z.G. Su	83
The Research on Malfunction Diagnosis of Thermal Power System of Steam Turbine Based on Structure Theory Y. Wang, D.M. Ji, G.X. Chai and D. Wang	89
Combustion Experimental Study on Spouted Bed for Daqing Oil Shale Semi-Coke Q. Wang, X.Z. Kong, H.P. Liu and G.H. Xiao	95
Numerical Simulation of the Last Stage in the Nuclear Half-Speed Turbine S.L. Wang, H.H. Wu and T.H. Song	99

Study on Co-Combustion of Oil Shale Semi-Coke and Corn Stalk H.P. Liu, W.Y. Li, X.D. Wang, H. Xu, G.Y. Chen and Q. Wang	103
Co-Combustion Characteristics of Oil Shale Semi-Coke and Corn Stalk H.P. Liu, X.D. Wang, C.X. Jia, W.Z. Zhao and Q. Wang	107
Pyrolysis Characteristics of Oil Sands C.X. Jia, Q. Wang, X.Y. Zhang and Y. Wang	111
Fuel Control Technology during FCB Process of W-Shape Flame Boiler Unit W.J. Huang, X. Zhang and Z.Y. Zhang	115
Study on Factors Influencing Pulverized Coal Ignition Time X. Gou, J.X. Wu, L.S. Liu, E.Y. Wang, J.H. Zhou, J.Z. Liu and K.F. Cen	120
The Combustion Analysis of Coal under Deflagration Y.L. Duan, Q.S. You and Q.H. Zhang	126
Development of Combined Cooling and Power System with NH₃-H₂O Absorption Cycle Driven by Solar Energy C.L. Wang, Y. Liu, X.L. Lian, Q.Y. Song and J.P. Li	132
Simulation of Circulating Fluidized Bed (CFB) Boiler Oxygen-Enriched Combustion Y.P. Xu, H. Zhou and Q.Y. Jiang	139
Numerical Exploration on HCCI Combustion Characteristics under NVO Strategy Y.H. Gao, D.F. Wang, P. Cheng, H. Li and Y.K. Wang	143
Study on Gas/particle Flows in a Down-Fired Boiler with Swirl Burners: Influence of Different Outer Secondary Air Vane Angle S.B. Fan, Q.Y. Zhu, X.Y. Zhu and Z.Q. Li	149
The Analysis Research of Thermal System of Coal-Fired Power Plant and Examples of Applications J.Q. Li, D.D. Chen, H. Wang and X.F. Fu	157
Thermal Calculation on SAGD Steam Delivery System J.P. Yang, L.Q. Yang and R.Y. Lin	162

Chapter 2: Applied Thermal Engineering

Three-Dimensional Numerical Study on Thermal Performance in a Natural Draft Wet Cooling Tower S.H. Zheng, T. Jin and J.R. Fan	169
Two-Phase Flow Heat and Mass Transfer Model Construction and Experiment Study of the Fuel Evaporation Progress B.Y. Liu, J.Y. Pu and X.L. Yi	174
Flow and Heat Transfer in Microchannels of the MTPV Systems G.P. Wu and P. Lu	181
Air Preheaters Operating Situation and Analysis in Coal-Fired Generators L. Li, M. Li, B.T. Zhang and K. Qiao	186
The Stability of Evaporating Thin Liquid Film Containing Insoluble Surfactant on Heated Substrate C.X. Li, B. Lu and X.M. Ye	191
Selection of Working Fluids for Different Temperature Heat Source Organic Rankine Cycle G.L. Liu, J.L. Xu and B. Zhang	195
Investigation on the Performance of a Trombe Wall Driven by Thermal Pressure J.Q. Hou, Y.G. Lei, F. Wang and X. Wang	200
Coupled Heat Transfer Analysis of Piston Crown, Piston Rings and Cylinder Liner J. Wu, S.L. Duan, Z.H. Wu, L.D. Wei and H. Xing	204
Numerical Simulation of Temperature Field in the Cyclone Z.W. Zhang, Y. Yu, J. Leng and S.J. Zhang	208
Diagnostic Method Research on the Dirty Level of the Water Side Tube and the Tightness of Vacuum System of Condenser Y. Li and K.F. Deng	212
Numerical Simulation of Hole Shapes Effect on Film Cooling Effectiveness and Aerodynamics Loss over Flat Plate R.L. Dong, H.H. Shi, W. Chen and X.D. Zhang	216

Piston Secondary Motion Analysis Considering Head Impact Z.Y. Yang, W.Z. Zhang and Y.M. Zhang	222
Thermal Analysis of the Ideal Free-Piston Stirling Engine Model P. Yang and Y.M. Xing	228
Quantitative Characterization of 2-D Porous Channels by Using Fractal Random Walk Method X.C. Li, X.Y. Huang and X.F. Cui	234
Simulation Study on the Radiant Tube Installation Height for the Gas-Infrared Heated System D.Y. Zhang, W.D. Zhuang and K.Q. Gong	239
The Properties of Heat Transfer Research for the Vacuum Heat Pipe in the Magnetic Field Y.F. Zhang, J.J. An and Z.R. Chang	245
Abnormal Heat by Thermal Changing in a D-Pd Gas-Loading System X. Lu, H.Y. Wang, J. Tian, L.H. Jin, B.J. Shen and X.L. Zhao	253
Thermodynamic Analysis and Experimental Investigation of Internal Heat Exchanger Influence on CO₂ Trans-Critical Cycle Performance W.H. Zhang, Z. Wang, Y. Gong, X.H. Wu and Y.L. Lu	259
The Numerical Simulation of the Shell Side Flow and Heat Transfer for 600MW Steam Turbine Condenser S.P. Wang, L. Zhang and J. Li	265
Heat Transfer Investigation of the Circulating Fluidized Bed Evaporator for Concentrating Pineapple Juice Z.L. Fu, L.L. Zhang and Y.B. Shi	272
Performance Comparison between Metal Honeycomb and Ceramic Honeycomb in Continuous Waste Heat Recovery L. Ren, Y. Hu and D.H. Xia	277
Calculation Method of Attemperation Water Flow in Changing Steam Flow Condition Q. Wang and Y. Li	282
Numerical Simulation of Heat Transfer in Shell and Tube Heat Storage Fixed Vertical Fins X.L. Gao and L. Yang	286
Orthogonal Experimental Research on Sintering Cooler Transfer Performance B. Zhao, Z.M. Wen, X.H. Zhong and X.Q. Han	291
Numerical Simulation of the Liquid Flowing and Heat-Transfer outside the Tube of the Horizontal-Tube Falling Film Evaporator W.K. Hu, L. Yang and L.H. Guo	296
Control of Magnesium Alloys Two-Roll Strip Cast Cooling System Based on the Fuzzy Model Z.C. Wang, R. Bi and X. Zhao	301
Impact of Carbonate Scaling on the Efficiency of Used Geothermal Water Reinjection from Low-Middle Temperature Geothermal Fluid in Xianyang Porous Geothermal Field, NW China Z.Y. Ma, H. Yan, X. Zhou and C. Hou	307
Conduction from Longitudinal Fin of Rectangular Profile with Exponential Vary Heat Transfer Coefficient H.J. Zhang and K.F. Sun	311
Numerical Simulation Investigations of DRB-4Z Type Dual Channel Swirl Burner Outlet Flow Field C.L. Mi, X.H. Fan, G. Wei and Y.S. Zhang	315
Development of Micro Rectangular Channel Gas Cooler B.Q. He and C.L. Liao	321
Experimental Study on the Temperature Evenness of Heat Pipe Using Magnetic Nano-Fluids as the Working Medium in Permafrost Regions Y.F. Zhang, K. Han, B.L. Xu and Z.R. Chang	327

Chapter 3: Power Machinery and Engineering

Optimization Designing of Jaw Crusher Teeth Plate Shape Based on the FEM Method S.J. Li, X.H. Wan, Z.W. Dong and W.Z. Hou	333
---	-----

Effect of Injection Timing on Combustion Characteristics of a DI Diesel Engine Fuelled with <i>Pistacia chinensis</i> Bunge Seed Biodiesel	
L. Luo, B. Xu, Z.H. Ma, J. Wu and M. Li	337
Research of the Temperature Decoupling Control for a MCFC/GT Hybrid System	
F. Yang, H. Li, Y.F. Wang and H. Xue	343
Running Safety of High-Speed Train Equipped with Aerodynamic Brake under Cross Wind	
C. Tian, M.L. Wu, Y.Y. Zhu and M.T. Chen	348
An Experimental Investigation on a New Combustion System of Diesel Engine for Performance Optimization	
K.P. Qi, W.Q. Long, P.B. Dong and H. Gu	355
Drawing Engine Universal Performance Characteristics Map Method Based on MATLAB	
Z.P. Zhang and J.Z. Zhang	361
Control Strategies for Safe Diesel Particulate Filter Uncontrolled Regeneration during Idle	
D. Wang, Z.C. Liu and J. Tian	366
Research on Engine-Pump Units Adaptability in the Plateau	
J. Li, W.M. Zhang and T. Li	371
Simulation of Scavenging Process in a Two-Stroke Gasoline Engine	
C.Y. Li, D. Tang and N. Li	376
A New Skeletal Chemical Kinetic Mechanism of Ethanol Combustion for HCCI Engine Simulation	
Q. Dai and H.Y. Guan	381
Bubble Lift-Off Diameter Prediction with New Bubble Growth Model	
T.E. Zhang, W.Z. Zhang and Y.F. Cao	385
Mechanical Model of Variable Diameter and Screw Pitch for Biomass Screw Feeder	
D.Y. Tu, A.H. Xu, X. Wang and X. Chen	391
Optimization of No-Load Voltage Waveform in a Large Hydro-Generator by the Schemes which Shift the Damper Winding and Skew Stator Slots	
Y.G. Luo and Z.N. Fan	397
Numerical Simulation on the Effects of Angle of Nozzle on Combustion and Emission for Diesel Engine	
H. Chen, S.L. Wei and D. Tang	404
Prediction Research on the Failure of Steam Turbine Based on Fruit Fly Optimization Algorithm Support Vector Regression	
Z.B. Shi and Y. Miao	409
Research on Signal Simulator at Crankshaft of Motorcycle Gasoline Engine	
C.S. Wang, T.Z. Yang, H. Zhang and H.J. Zhao	414
Preliminary Research for Optimization of Gas-Steam Combined Cycle Cold-End	
X.F. Lu and X.W. Chen	422
Fault Prediction in Air-Conditioning Refrigeration System by Wavelet Transform	
J.J. Li, Z.Y. Wang and D. Zheng	428
Large Power Hydraulic Spring Driver with Integrated Valve and Cylinder Used in High Voltage Switch	
D.H. Su, M.M. Li, F. Liu and Q. Liang	432
Control Strategy and Realization of Dual Fuel Engine with Intake Premixed Methanol on Turbocharging Diesel Engine	
J.Y. Du, H.L. Li, D.P. Zhang and Y.J. Lu	436
3D Numerical Simulation and Analysis of Electrically Controlled Injection Device for Gaseous Fuel Engine	
W.Q. Ge, S.Q. Chang, L. Liu and B.B. Sun	441
Low Pressure Shaft's Bear Vibration Treatment for a Supercritical Turbine	
Z. Liu, J. Luo, J.Y. Liu, Y. Lu and Y.J. Guo	446
Analysis and Research of Force and Motion of Screw-Type Extrusion Molding Biomass	
B.H. Wen, L. Liu, S.Y. Liu, K.X. Zheng, L. Hua and S. Wang	452
Study on Reliability Test Method of Heavy Duty Vehicle Based on Proving Ground	
Y.Z. Men, H.B. Yu and X. Pan	460
The Research and Design of the Expert System of Air Compressor False Diagnosis	
G.J. Chen and J.L. Jia	464

Oil Film Properties of Three Oil Wedge Sliding Bearing and its Effect to the Rotor Stability A.P. Zhang and S.Q. Lin	469
Resistance Coefficient Research of the Train Air Supply Orifice H.Y. Wang, C.F. Li, S.T. Hu and L. Song	475
Simulation Analysis of Savonius Turbine with Self-Rotating Blades Z.P. Tang, Y.X. Yao, L. Zhou, J.M. Wu and B.W. Yu	480
Analysis of Drive Performance of Servo System for Servo Press W.Q. Lu, Y.W. Hu, H. Liu, W.M. Shi and X.D. Hu	485
Optimal Design of Preparation Parameters of Hydrous Ethanol Gasoline Fuel Based on Multi-Island Genetic Algorithm Z.B. Chen, J.M. Ni, J. Liu, J.G. He and R. Sun	493
LMS-Based Notch Filter for AMB Unbalance Compensation Control H.L. Li, Y.S. Wang and Y. Zhang	498
Study of Flow Field and Filtration Efficiency in DPF J. Hu, P. Sun, M. Zhang and D.Q. Mei	504

Chapter 4: Fluid Engineering and Machinery

Research for Application of Save Energy Piston Valve for Water Pump Balance Control J.M. Chen, L. Sun and Y.J. Cheng	511
CFD Simulation and Experiment of Scroll Expander for Organic Rankine Systems C.W. Chang, J.C. Chang, T.C. Hung and Y.S. Tseng	515
Study on Ring Gate Closure in still Water Based on ANSYS S.Q. Zhang, X.C. Hu and X.F. Li	520
Parametric Study of Cylinder Deactivation and Valve Deactivation for Unthrottled Operation A.S. Paimon, W. Jazair and S. Rajoo	525
A General Model for Thermal Conductivity and Electric Conductivity of Nanofluids W.T. Jiang	529
Numerical Calculation of Centrifugal Fan 9-19No.4A F.N. Meng, Q.L. Dong, N. Chen and Y.Q. Fan	536
Simulation of Numerical Wave Based on Fluid Volume Function J.J. Peng, Y.J. Liu, Y. Li and X.W. Sun	541
The Finite Element Analysis of the Column of Wave-Power Generating Device Y.J. Liu, X.W. Sun and B. Zheng	546
Analysis of the Operation Mode and Instability on the Low-Flowrate Running of Hot-Oil Pipeline R.G. Xiao, D.R. Yi, P.F. Yao and J.Q. Zhou	550
Effect of Liquid Velocity on Ultrasonic Propagation Characteristics in Pipeline A.P. Zhang and J.W. Hu	555
Stress Analysis of Opening and Offset Nozzle on a Cylinder Q.G. Liu, X.Q. Yu, P.Y. Peng and Y.S. Guo	560
The Influence of Gas Source Conversion on Flow and Reliability of Gas Pipe Network L. Zhao and L.X. Yu	564
The Mechanism of Mangrove Tree in Wave Energy Propagation N. Abdul Aziz, O. Inayatullah and M.Z.B. Mohamad Jusoh	568
Circulating Water Resistance Characteristics of the Thermal Power Plant Y. Li and J. Li	573
Flow Field Simulation Analysis of the Inner Stack of Coal-Fired Power Plant Z. Shi, J.G. Yang, C. Feng, J. Wu, W. Gao, Y. Li, J.H. Chen, X.W. Dai and L.L. Zhao	577
Analysis of Chamber Shape's Influencing on Axial Force in Hydrodynamic Coupling B. Sun, Y.Z. Li, Y.J. Lv and H.P. Lu	581
Design and Development of Low Subsonic Wind Tunnel for Turning Diffuser Application N. Nordin, Z.A. Abdul Karim, S. Othman and V.R. Raghavan	586
Experimental Study on Film Cooling Flow Characteristics of Turbine Stator Blade at Different Setting Angles L. Zhang, H.R. Dong and G.L. Wen	592

2D CFD Simulation of Hydrodynamics of the Dense Zone of a 65t/h High-Low Bed CFB Q. Wang, J.B. Xiao and H.P. Liu	596
Effect of Radial Compliance Mechanism on Rotor System and Bearing Load for Scroll Compressor M. Zhao, C. Li, S.R. Yu and Y. Yu	600
Numerical Analysis of the Influence of Different-Shaped Square Cylinders on Water Flow J. Gu, X.L. Wang, W. Chen, X. Qin, D.Q. Ma and J.Z. Yang	604
Design on Monitored Control System of Vessel Dynamic Cyclone Oily Water Separator W. Ren, Q. Ma and J. Lv	608
Study on Hydraulic Characteristic of Aerator with Side-Walls Sudden Enlargement in Free-Flow Spillway Tunnel H.Y. Wang, Q. Yang, G.Q. Dai and C. Liu	613
Mechanical Quadrature Methods and their Extrapolations for Axisymmetric Flow past the Torus of Anchor Ring X. Luo and J. Huang	617
Flow Resistance Characteristics Analysis of Horizontal Shrunked Pipe in Dense Phase Pneumatic Conveying Q. Liu, G.B. Duan and Z.M. Liu	621
The Analysis of Severe Accident Induced Steam Generator Tube Rupture and LERF Risk C.H. Peng and Y.H. Yang	626

Chapter 5: HVAC, Air Conditioning and Refrigeration

Automobile Air-Conditioner Control System Based on STC12C5A60S2 Single-Chip Microcontroller S.S. Xiong, L. Xie, S.K. Zhou, X.S. Ren and J. Xu	635
Automotive Air-Conditioning Control System Based on the LIN Bus S.S. Xiong, J. Xu, F.M. Zhong, L. Xie and S.K. Zhou	640
Study on Match and Running Features of Heat Multi-Level Shunt Ground Source Heat Pump System in the Hot Summer and Warm Winter Areas Y.N. Hu, B.Q. Yu, S.S. Hu and J.W. Zang	644
The Energy Consumption Calculation of the Fan Coil Chilled Water System Based on Variable Chilled Water Temperature and Flux G. Wang	651
Simulation and Analysis on Operating Characteristics of Central Exhaust System in High-Rise Residential G. Li, Y.R. Wang, G.H. Feng, M.Z. Jiang and Q. Liu	656
Experiment Study of Small Composite Desiccant Wheel Based on Ceramic C.X. Jia	665
Application of Heat Pump Water Heating System with Heat Recovery in Ammonia Refrigeration System T. Huang and D.L. Yuan	670
Performance Study of DC Compressor for Automotive Air Conditioning System N. Henry, M.H.Z. Yamani and K. Sumeru	674
Analysis on Load-Undertaking of Fan Coil Unit with Fresh Air System J. Chen and W.W. Xie	678
Influence of the Source and Sink Temperatures on the Experimental Research of a CO₂ Trans-Critical Refrigeration and Heat Pump System W.H. Zhang, Z. Wang, Y. Gong, X.H. Wu and Y.L. Lu	682
The Primary and Secondary Analysis of Uncertain Factors in Soil Thermal Properties for GSHP Y. Wang and G.M. Shen	688
Intelligent Heat Meter of Monitoring and Controlling System for Heating Supply Based on GPRS Network X.Z. Piao, Y.S. Xue, C. Gao and Y.S. Li	695
Air-Flow Distribution Simulation and Experimental Analysis of a New Testing Room for Refrigerated Display Cabinet C. Huang, F. Wang, Z.M. Wu and C. Guo	701

Key Technologies Research of Load Regulation of Central Air-Conditioning Based on the Demand Response	
Z. Ai, T.Y. Li and C.C. Song	707
Numerical Simulation on the Characteristic of a Solar Chimney	
X. Wang, Y.G. Lei, F. Wang and J.Q. Hou	712

Chapter 6: Power System and Automation

Study on Effect of Neutral Grounding Mode on Reliability of Distribution Network	
L. Dong, L. He, W.D. Li and X. Ao	719
Based on Artificial Intelligent Algorithm for Optimization of Urban Radial Distribution Network	
H. Sun	724
The Resonance Compensation Circuit Research to Wireless Power Transfer System	
Y.H. Qu, A.N. Wang, S. Lin and Y.C. Li	728
Optimal Capacity-Load-Ratio Research of the Multi-Voltage Distribution Network	
Z.K. Li, D.W. Liu, C.F. Wei and Y. Fu	733
Study on the Technical Standards of Distributed Resources Interconnection with Gird	
D.L. Chen and X.H. Xu	743
Multiple Bad Data Identification Based on Partition and Partition Re-Combination	
J.Y. Zang, C.Y. Li, W. Zhang, T.D. Yu and Y.H. Li	747
Reactive Power Optimization Problem Research Based on Node-Voltage-Based and Branch-Current-Based Hybrid Electric Power Network Equations	
G.Y. Wang, X.L. Zhang, Y. Shi, Y. Liu, C.M. Wang and T. Yi	751
Study on Characteristics of Modes Instability in Power System with Close Modes	
S.Q. Zhao and H.X. Lu	761
A Design Method of the Complementary Controller for Multi- Infeed HVDC Transmission Systems Using Singular Perturbation Theory	
C.R. He and Y.L. Liu	766
A Theory of Six-Line Transmission System's Fault Phase Selection Base on Wide Area Measurement System	
Y. Wang, S.X. Xu and D.Q. Yang	771
A Hybrid Predictive Control Strategy for the Coordinated Voltage	
H.S. Zhao, Y. Xia and N. Xue	775
IEC 61968 Standard-Based Distribution Systems Integration Solutions and Application Research	
J.X. Wu, P. Zhang and J.C. Yu	785
Design and Study of Resistance Wave Height Meter	
Y.S. Li and L.J. Yang	792
Synthetic Risk Assessment of Catastrophic Event in Power System Based on Uncertainty	
J. Feng, X.Y. Xiao and C. Ma	796
Comparative Research on Power Quality Control Technology in Distribution System	
J.B. Lv, S.X. Wang and Y. Liu	802
A Development Framework of Smart Grid Control System Based on MAS	
Y. Liu and S.X. Wang	807
Application of SVM-RBF to Prediction of Short-Term Load	
H. Zhang, S.Z. Li, L.S. Yue and Z.Y. Pian	811
A Review of Islanding Detection Method of Grid-Connected PV Power System	
X.S. Zhou, J.R. Wu and Y.J. Ma	815
Study on Optimal Mode of Distributed Generation Accessing to Distribution Network	
J.D. Duan and Y.L. Hu	819
A Review on Superconducting Magnetic Energy Storage	
X.S. Zhou, B. Lu and Y.J. Ma	825
Hybrid Electrical Storage and Power System for Household Tri-Generation Application	
X.P. Chen, Y.D. Wang, J.T. Li and A.P. Roskilly	829
New Method of Measuring the Positive Sequence Parameters of Transmission Lines under Strong Interference Condition	
Z.J. Hu, X.F. Liu, J. Yang and C.Q. Li	837

Application of Protection Model in Novel Protection Algorithm Research X.W. Du and Y. Li	842
The Research Based on Zero Sequence Energy to the Line Selection in Distribution Network S. Tian, J.P. He and Y. Zheng	846
Multi-Period Generation Scheduling Optimization Model and its Application Z.L. Zhu, W.W. Wang, Q. Li, C.H. Yan and S. Dai	850
The Application of Intelligent AC-DC Integrated Power Supply System in 500kV Switching Station L.H. Zhang, H.L. Wang, T.K. Ding, X.W. Yan, H.Q. Gan and D. Song	857
Application of DG-RBFNN in Power Flow Calculation of Distribution Network with DG Q.Q. Zhao, X. Chen, Y. Yang and J.G. Xue	862
The Application of Chaotic Particle Swarm Optimization Algorithm in Power System Load Forecasting Y.H. Zhao, X.C. Zhao and W. Cheng	866
Simulation and Analysis of Synchronous Diesel Generation System Based on PSCAD S.L. Wen, H. Lan, J. Meng, L.J. Zhang and X. Zhao	870
The Impact of Hydro-Turbine and its Governor System on Power System Low Frequency Oscillation J.G. Zhu	875
Study on the Interactive Service Architecture for Industrial User in Smart Power Consumption X.H. Xu, D.L. Chen and Y. Wen	880
The Simulation of SPWM in Voltage Source STATCOM L.S. Zeng and H.Y. Liu	887
Methods of Getting Zero Sequence Current in a Single-Phase-to-Ground Fault Y.X. Li	891
A Novel Detecting Algorithm for Harmonics and Reactive Currents under Unbalanced and Non-Sinusoidal Source Voltages X.Q. Lv, C.J. Zhang and X.F. Zhang	895
A Method of Static Security Analysis Based on Section Topology Relation J. Liu, L.L. Pan, Y.J. Yu, S.H. Feng, F. Li, X.R. Guo, F. Shi and B.Q. Tang	900
A Survey on Detecting Methods for Harmonic of Power System X.S. Zhou, G.Z. Chen and Y.J. Ma	907
Study on the Distribution Line Condition Monitoring Method Based on Real-Time Measurement Data J.W. Liang, X.T. Wang, L. Shi and J. Yang	911
Study on Protection for Islanded Micro-Grid X.L. Zhu, F. Han and J. Liu	916
Implement and Development of the Principle on Voltage Quality Control in 110kV-Substation P.R. Chen, Z. Feng and Z.P. Zhang	921
The Research of a Fast and Effective Splitting Boundary Searching Method for Power System Y.H. Han, W.L. Li, G.G. Xu and M.M. Bo	926
A Negative Sequence Directional Element for High-Voltage Line Protections X.H. Zeng, H. Song and S.Y. Tao	933
Design of Technical Support System for Dispatching and Control Integration in Adaptation to Integrated Operation System M.Y. Sun, W.J. Zhuang and Y.G. Zhang	937
Coordinated Optimization and Control Technology between Active and Reactive Power Y.P. Li, K. Wang and D. Zeng	944
Design and Implementation of Optical Fiber Line Auto Switch Protection for Power System Y.F. Jia and L.Q. Zhao	949
Based on System Delay Time to Compensate for Harmonic Current Detection Method Research X. Yao, Z.L. Yao and X.Y. Teng	953
Study on a Uniform Algorithm for Single-Phase and Three-Phase Load Flow Calculation L.J. Song, Q. Peng, X. Liu and W.H. Chen	957

Study on Protective Data Flow of Intelligent Substation Based on IEC 61850 Y. Ji and L. Gao	966
Based on the Combined Rule Power Alarm Information Intelligent Analysis Algorithm P. He, Z.J. Zhu and H.C. Jiang	971
Study on Implementation Strategy of Network Reconfiguration in Distribution System B.Z. Dong, B.Z. Liu, G.L. Guo and Y.X. Bai	976
Power Line Measurement Method Based on Vertical Baseline Stereo Camera F. Zhang, X.F. Huang, X.Z. Qu, J. Wang, J.P. Pan and D.F. Cheng	980
A New Mathematical Model to Calculate DC Transmission System's Operating Parameters R.Y. Shang, Y. Chen and C.Q. Peng	988

Chapter 6: Power System and Automation

Comprehensive Evaluation Research on Grid-Connected Wind Power Based on Fuzzy Interval Analytic Hierarchy Process Z.D. Wang, K. Li and Z.F. Liu	999
The Study of Intelligent Processing Frame to Alarms in Monitoring Center Z.J. Zhu, J. Li, J.Y. Liu and H.C. Jiang	1008
Survey of Ambient Excitation Based Power Oscillation Analysis Methods C. Liu, C.S. Li and H.Q. Li	1013
Optimal Wind&Coal Plant Capacity Distribution among the Sending&Receiving Nodes Based on Quantum PSO Algorithm Z.D. Wang, G. Liu and Z.F. Liu	1019
Research on a New Control Strategy of Multi-Energy Complementary Isolated Power System D. Huang, H. Shen, X.Y. Yang and Q.Y. Zhou	1027
Emergency Power Support and Voltage Stability Analysis of the AC/DC Hybrid Transmission System Y.X. Hong and G.Q. Bao	1033
SVC Subsection Control Strategy Considering Voltage Stability of Dynamic Load G.L. Guo, B.Z. Liu, B.Z. Dong and Y.X. Bai	1038
A Method of Real-Time Data Acquisition and Exchange in Adaptation to Integrated Dispatching Automation System F. Yu, W.J. Zhuang, Y. Wang and M.Y. Sun	1043
A Load Allocation Optimization among Turbine-Generators Based on GA-ACO T. Yan, X.M. Lin and Y.P. Zhong	1049
The Contrast between the Models' in PSD-BPA and those in PSASP C.Y. Yan, M. Wang and J.J. Lu	1055
An Integrated Protection of Micro-Grids Based on Bi-Directional Blocking Principle Y. Liu, M. Sun and G.F. Ge	1065
New Voltage Sag Frequency Evaluation Method Considering the Satisfaction Degree of Sensitive Customer J. He, X.N. Liu and L.P. Chen	1069
Study on a Method of Single – Phase Grounding Fault Locating for Hybrid Transmission Line L. Gao and H.C. Shu	1075
The Application of Fixed Circuit Breaker and ATS in 380V Equipment in Substation D. Song, Z.R. Liang, Z. Zhan and H.Q. Gan	1081
Case Study of Voltage Sag in Customer Substation Z.S. Lv and M. Tan	1085
Black-Start Subsystem Partitioning Based on Nodes Voltage H.P. Liang	1090
Research on Closed-Loop Control System Based on Image-Signal Processing of Furnace Flame R.B. Chen, J.C. Bian and F.H. Meng	1095
Study on Fault Location of Single-Phase-to-Ground for Distribution Network L. Zhang, X.Y. Yang and J.L. Ren	1101

Chapter 7: High Voltage and Insulation Technology

Research of Ageing and Life Assessment Methods of Power Transformers in Nuclear Power Plants C.F. Yang	1109
The Application of Heterogeneous Integrated Network and Security Mechanism Research in High Voltage Transmission Line Monitoring System S.H. Zhang, G.J. Gong, X.P. Ni, Y.D. Zhang and X. Fang	1116
The Finite Element Analysis of the Leakage Inductance for High Frequency Switching Mode Power Supply Transformer P. Sun and J. Huang	1122
The Partial Discharge Characteristics Study of the Insulated Copper Busbar Joint Metal Metal Protrusion Defect X.M. Hu, L.X. Liang, Z.R. Tan, L. Zhang, J.H. Li and Y.M. Li	1126
Research on Aging Characteristics and Chemical Composition of Hydrogenated Transformer Oil X.D. Ouyang, Y.H. Qian, W. Su and Y.B. Huang	1131
A New-Type Contact Structure of Vacuum Interrupters with the Saddle-Shaped Axial Magnetic Field Distribution P. Sun and C.J. Xue	1138
Partial Discharge DOA Estimation Based on Ultrasonic Array Sensor and Genetic MUSIC W. Ji, Q. Xie, C.Q. Wang, S.S. Hou and F.C. Lv	1142
UAV Based Laser Measurement for Vegetation Control at High-Voltage Transmission Lines M. Ax, S. Thamke, L. Kuhnert and K.D. Kuhnert	1147
Study of EM Wave Propagation for Transformer PD Monitoring Using FDTD Method M.J. Liu, Y.L. Li, Q.K. Zhou, N.P. Yan and J.Z. Zou	1153
On-Line Condition Monitoring for Power Transformers Based on UHF PD Measurements M.J. Liu, J.Z. Zou, Q.K. Zhou, Y.L. Li and N.P. Yan	1158
Temperature Dependence of on-Line DGA Results for Transformers through Membrane Extraction Y.L. Li and W.D. Wu	1163
A Novel Overhead Ground Wire with Winded Insulated Conductors for Ice-Melting J.Z. Lu, C. Zhao, B. Li, Z. Fang and H.X. Zhang	1168
Study of New Dampers for Application to Overhead Transmission Lines Groundwires N. Sun, S.C. Liu, Q. Yin, Y. Qi, D.Z. Cao and L.C. Zhang	1172

Chapter 8: Motor and Electrical

Structural Optimization of the GaAs-Based Resonant Tunneling Diodes B.Z. Zhang, H. Guo, J. Tang, J. Liu and J. Wang	1179
Direct Torque Control for Brushless Doubly-Fed Machine Based on Fuzzy-PI Regulator X. Peng, M.F. Li and Y.J. Li	1185
New Implementation of Position Sensorless Control Based on the AC Component of SNP for Brushless DC Motor Y. Yang, X.W. Tu and Z.X. Yu	1190
Sliding Mode Control with a New-Style Disturbance Observer for Low-Speed Permanent Magnet Synchronous Motor S.C. Chen, H.J. Li, C.W. Huang and H. Xiong	1195
Research of the Undervoltage Tripper with Overvoltage Protection Function C.C. Chi, L.F. Hu and Y. Wu	1201
Thrust Performance Analysis of Cylindrical Permanent Magnet Linear Synchronous Motor Based on Finite Element Method H. Xiong, G.W. Meng, Z.Q. Yang and L.B. Zhou	1205
Study on Main Magnetic Field in Iron Core of a Yoke-Pressing Configuration Transformer Y.L. Zhang, L. Liu, Y.H. Kang, X.K. Yan and D.X. Xie	1210

Finite Element Analysis on Eddy Current Field of a Large Inner Feedback Motor L.S. Zeng and J.L. Tong	1214
Modeling and Research on the Electromagnetic Field of UHV Autotransformer Using Finite Element Method X.K. Yan, F. Huang, Y.H. Kang and Y.L. Zhang	1217
Research on Stand-Alone PMSG Voltage Stabilizing Method Based on Series Resonance Z.H. Li, Q.Z. Zhai and W. Li	1221
3-D Finite Element Investigation of Flux Regulation Performance of a Novel Hybrid Excitation Brushless Claw-Pole Alternator D.W. Qiao, X.H. Wang and C.Q. Zhu	1226
Magnetic Field Analysis of a Complex Construction Transformer Using Direct Field-Circuit Coupling Method Y.L. Zhang, N. Zhang, Y.H. Kang, X.K. Yan and D.X. Xie	1230
Analysis of Influence to Electric Spindle Losses Caused by Carrier Ratio in Frequency Converter L.X. Zhang, M.Y. Xu and Y.H. Wu	1234
The Development of a New Full-Wave Induced Excitation Synchronous Generator B. Wei, X.H. Wang and H. Zhong	1240
Fast True RMS Algorithm Using in the High-Voltage General Inverter Z.F. Yu, B. Li, W. Wang and S.B. Qian	1244
Finite Element Analysis of Permanent Magnet Induction Generator T.S. Diao and X.H. Wang	1250
Simulation Research on the Single-Phase Operation of a Line Start Permanent Magnet Synchronous Motor Y. Pei, X.H. Wang and G. Liu	1254
The Complete Exact Linearization Control of PMSM Chaotic Motions J.H. Liang, X.C. Li, C.Y. Lin, M. Xiao and Y.N. Zhao	1259
Mathematical Model Research of Six-Phase PMSM J.Y. Su, J.B. Yang and G.J. Yang	1266
Piston Stopping Position Detecting System of Gasoline Direction Injection Engine Y.B. Dong, M.J. Li and X.J. Li	1272
Structural Amelioration of 920 Nm Optically Pumped Semiconductor Vertical External-Cavity Surface Emitting Laser (OPS-VECSEL) X.M. Liang, L.J. Wang, Y.Q. Ning and Y. Liu	1278

Chapter 9: Electrical Engineering Principles and Applications

Contrast of Two Shearing Mode for Imaging Polarimeter Z.G. Li and J. Zhang	1285
Research on Modulation Method and Characteristic Analysis of Faraday DC Optical Measurement System L. Meng, R. Dong, Q.F. Xiong and Q. Wang	1289
Arc Fault in Series Detection Technology Based on the Current Rate of Change P. Sun and Y.L. Tong	1295
Multiple CMOS Intersection Measuring System Modeling and Analysis M.J. Li, Y.B. Dong and G.L. Cheng	1299
Power Transformers Fault Diagnosis Based on Fuzzy-RBF Neural Network H.D. Duan and X. Yao	1303
The Design of Railway Wagon Anti-Theft System Based on the CC2430 L.H. Zhao, H.Z. Yang and C.B. Huo	1307
An Optimization Design Method for Differential-Based Coupling Power-Slit Device X.J. Yu, J.X. Wang, M.Y. Yao and Z.W. Yao	1311
Analysis of Power System Short-Circuit Fault and its Computer Simulation Y.R. Zhou	1318
Research on the MPPT Control Strategy Based on the Former DC Convertor C.Q. Qi, Y. Ruan and F.W. Cao	1328

Research on the Application of Transformer Vibration Model in the Detection of Turn-to-Turn Short-Circuit Fault X.T. Wu, Z.H. Yan and S.C. Ji	1332
Research on on-Load Current Method for Detecting Fault of Transformer Core Based on the Vibration Analysis Method X.T. Wu, P. Ding, Z.H. Yan and S.C. Ji	1336
A Novel MPPT Method Based on the Synthesis of Quasi-Sliding Mode Control and Dynamic Equivalent Impedance Matching Method X.J. Zhai, H.Q. Zhang, J.R. Su and J.H. Wu	1340
Circuit Model of Nonlinear Inductor with Magnetic Core Based on Duality Theory G. Yang	1344
A Research and the Application of a New Graphite Grounding R. Wang, H.C. Yang, Y. Lv, Z.Y. Xu and Y. Gao	1348
Design of Multi-Performance Monitoring and Control System for an Experimental BIPVs/BAPVs J.J. Zhang and Y.P. Zheng	1352
Design of Manchester Codec Based on FPGA D.C. Xu and J.F. Lu	1357
Power System Reactive Power Optimization Based on Improved Genetic Algorithm A.N. Su, H.Q. Deng and T.W. Xing	1361
Dual-Mode Control MPPT Algorithm Based on Improved Genetic Algorithm and Perturbation and Observation Method Y.H. Zhao, Z.G. Su and Z.H. Xu	1367
Reactive Power Optimization in Distribution Network with Wind Farm C. Li, M.Y. Chen, Y.W. Zhen, A. Fu and J.J. Li	1372
Research of Intelligent Video Surveillance System Based on the 3G Technology Y.L. Ma	1377
Distributed Generation Optimal Planning Approach Based on the Planning Platform of the Distribution Network X.F. Meng, Y.N. Wang, L.D. Wang and J. Wang	1381
Study on Electricity-Theft Criterion Based on the Unchanged Line Resistance of the Distribution Network J. Yang, H. Bao and L. Wang	1385
Nonlinear Numerical Simulation on Galloping of Twin Bundle Conductor Considering the Wake Effect X.P. Zhan, Y.D. Liu, B. Liu and K.J. Zhu	1390
Research on the Technology of Converting the Existing AC Lines to DC Lines W.Q. Yang, W. Cao, J.K. Wu and L. Chen	1394
Application of IEC61850-80-1 in Peer-to-Peer Communication between Feeder Terminal Units Q.H. Shao, X.L. Wang, B. Liu, Z.H. Yan and P. Jiang	1401
Experimental Simulation on Aerodynamic Character of D-Shaped Iced Conductor X.M. Li, K.J. Zhu and B. Liu	1405
Current Situation of Research on the Application of the Piezoelectric Energy Harvesting Circuit S.S. Zhu, X.P. Qian and Y.H. Zhou	1410
Simulation of Electric Power Fluctuate Affect Transformer Substation Bus Voltage Wave by PSASP H.L. Xu, X.H. Li, Y.L. Cao, X. Yao, Y. Kang and X.S. Li	1416
Hardware Design of a New Instrument to Control the Heat Pulse and Measure the Temperature of Stratum C.X. Feng, Z.S. Liu and X. Cui	1422
Discriminating Measurement of Temperature and Strain by Using Long Period Grating's Spectra Z.P. Yuan	1427
Interharmonic Analysis Using MDL and TLS-ESPRIT P.S. Gao, G.Y. Fan, L. Guo and C.H. Wang	1433
The SCR Protection Circuit Evaluation in HV DEMOS Devices S.L. Chen and C.C. Tseng	1438

Chapter 10: Power Electronics and Power Drives

Research on Digital Control of Tension Servo System Based on PLC C. Chen and G.W. Hu	1445
Simulation of Two AC Motor Coiling Tension Control System C. Chen	1449
The Research of Infrared Thermometric Techniques of Electric Equipment Z. Tang, L. Chen and H.Y. Cui	1453
MPPT Control for Current Source Converter Based PMSG Wind Energy Conversion System J.Y. Bao, W.B. Bao and J. Gong	1460
Fast and Effective Power Modeling for SRAM Compiler Q. Song, S.B. Tan and C.Y. Peng	1465
RETRACTED: Enabling Virtual Machines and Scatter/Gather I/O Using ShernCod X. Yao, Y.Y. Li and M.C. Wang	1471
Rolling Mill AGC Control System Design Based on Auto Disturbance Rejection Controller G.R. Zhang, Y. Xu and Y. Yang	1477
Impacts of TCSC and FSC on the Power-Angle Z. Duan, H. Bao and H. Shen	1484
Comparative Study on Control Strategies of Parallel Hybrid Active Power Filters D.G. Liu, Z.K. Shuai, A. Luo, C.M. Tu and Y. Cheng	1489
Numerical Simulation of a New Adjustable Mixer X. Nie, L.X. Ding, D.G. Yang, L.B. Chen and H.C. Pan	1498
The Optimization to Control System of Desulfurization in Furnace of 300MW CFB Boiler X.J. Kong, J.Y. Bai and L.H. Liu	1509
Stability Analysis of Grid-Connected Inverter in Weak Grid Systems X. Chen, C.Y. Gong and L. Cheng	1514
A Generic PWM Scheme Be Used for CSC T.B. Cao and M.L. Chen	1519
Design and Analysis of 2-Stage Pipelining High-Performance SRAM Q.L. Liu, M. Liu, X.L. Wu and S.B. Tan	1524
Selective Harmonic Elimination PWM Method Applied to Three-Level Photovoltaic NPC Inverter C.G. Hu, S.S. Liu, Y. Yuan and H.Z. Chen	1530
A SVPWM Method Based on Z-Source Three-Level Inverter K.Q. Qu, Q.Q. Niu, F. Qian and J.B. Zhao	1534
Investigation and Improvement of Self-Oscillating Electronic Ballast for Local Fluorescent Emergency Light M.F. Hamid, N. Hashim and A.F. Abidin	1539
Laser Cleaning of Neutral Attenuator Plate Based on Low Power Laser Diode X.J. Gan, Y. Chen and L. Li	1547
Implementation and Design of High PSRR Low Dropout Regulator M.C. Lee, M.C. Hsieh and C.J. Hu	1553
Comparative Analysis of the Control Rod Drive System W.W. Han, W.S. Han and Q. Guo	1558
Design of Process Controller Based on PCI Interface and CPLD Technology Y.S. Li and Y. Sun	1562
Based on ARM Embedded Remote Data Acquisition System Q. Liu, G.H. Fu, X.G. Lian and J. Wang	1566
Research on Ripples Reduction of Flux Linkage and Torque for DTC Y.P. Liu, R. Li and Z.C. Zhang	1570
Highly Heat-Dissipating and High-Voltage SOI-LDMOS Power Device X.M. Yang, Y. Cai and T.Q. Li	1574
Research on Control Strategy for the Three-Phase Grid-Connected Inverter C.Q. Qi, Y. Ruan and F.W. Cao	1578

Study on Real-Time Detection for Referential Current of Parallel Generalized Active Power Filter	
H.L. Xie, G.Y. Liu, H.B. Gu and Q. Zheng	1583
The Design of Active Power Filter Based on Power Line Carrier Communication	
J.Y. Lin, T. Zhao and G.Q. Liu	1587
The Design of Automobile Collision Avoidance System Based on ARM	
Y. Yao, J.L. Jia and G.J. Chen	1591
The Slip Frequency Control Based on Fuzzy Adaptive PID Algorithm	
Z. Wang, S.C. Wang, X. Chen, Y. Li and Y.Y. Jiang	1595
Research on Calculation Method of Jumper Conductor in Overhead Power Transmission Line	
H.J. Niu, J.C. Wang, Y.M. Dong, L.X. Zhou and X.M. Li	1600
Development on Rehabilitation Instrument of Genu Varus or Valgum Based on Biomechanics	
H.Z. Li, J. Lu, N.N. Liu and X. Zhang	1606
A Paralleled Integrated Control Device of Squirrel-Cage Induction Wind Generator LVRT	
S.S. Xiao and Z.D. Yin	1610
Research on the Control System of the Orthopedic Rehabilitation Bed to Cure Genu Varus or Valgum	
J. Lu, H.Z. Li, G.Q. Li and X. Zhang	1614
Investigation of the Soft-Switched Electron Load	
Y.L. Liu and J.Y. Gao	1618
The Research on Ant Colony Algorithm-Neural Networks Model in Fault Diagnosis of Asynchronous Motor	
J.T. Cheng, L. Ai and S.K. Xu	1625
Single Defect in Finite one Dimensional Photonic Crystals	
G. Xu and Y. Sun	1629

Chapter 11: Smart Grid Technologies

Improved Immune Clonal Selection Algorithm and its Application in Power Network Planning	
Q. Liu and T.Y. Li	1635
Research on Power Consumption Model Directing at the Intelligent Residential Quarters	
Y. Shao and H.L. Li	1641
Discussion on Security Protection Technology of Smart Distribution Grid	
C. Liu, B. Li, Q.C. Chen and J.Y. Lin	1646
A Matrix Method for Describing the Power Transmission of Electric Network	
Z.H. Hao and H. Bao	1651
Research of the Maintenance Scheduling Optimization Considering the Grid Risk	
L. Dong, J. Wu, T.J. Pu and H.M. Zhou	1656
Protection Scheme for DC Microgrid Distribution System	
L.H. Deng, Z.X. Wang and J.M. Duan	1661
Application Research on TD-LTE Technology in Communication System of Power Distribution and Utilization Network	
B. Wang, F.J. Sun, M. Yang, X.Z. Li and L.K. Zeng	1666
Application of Power IoT in Intelligent Community	
M. Yang, F.J. Sun, B. Wang, X.Z. Li and Y. Zhen	1672
A Dual-Processor Based Coordinator for Micro-Grid Control and Protection	
D.L. Nan, X.F. Le and P.P. Kang	1677
Research on the Power Balanced Scheduling Model and Methods for the Intelligent Community	
L.J. Li and X. Li	1685
Improved DC-Link Voltage Control for Double-Fed Induction Generator during Grid Fault	
D.Y. Xie, Y.P. Wang and L. Wang	1689
Distributed Network Power Flow of Distributed Generation	
Q. Yang, M.C. Liu, Y. Chen and Y.X. Bai	1693

The Development of Load Transfer Decision Assistant System for Regional Power Grid K. Zhao, D.Y. Men, Y.P. Jia, Y.S. Lang and Z.M. Ma	1700
Study on Classification of Information to Realize Grid Intelligent W.L. Li, J. Liu and W. Tian	1706
Data Storage Strategy of Electric Energy Metering Production and Dispatching Platform under Intensification Mode X.S. Huang, Y. Shao, Y. Wen and L. Zhang	1710
Reflections on Driving Force, Connotation and Technical Area of Smart Grid X.W. Du, Y. Li and T. Li	1716
Overview on Micro-Grid Technology X.S. Zhou, B. Shang and Y.J. Ma	1720
Design and Application of New Merging Unit Based on Dual CPU Y. Han, L.H. Mu and W. Zhuang	1724
Scheme for on-Line Monitoring System of Converter Transformer L. Shi, L.H. Mu, X.F. Xu and X.M. Liu	1729
Broken Steel Wire Rope Inspection Based on RBF Neural Network Z. Chen and Y.M. Liu	1734
Bi-Objective Power Dispatch on Micro-Grid System Using Improved Genetic Algorithms F.H. Hu, J.Z. Zhang, B.L. Ma and L.L. Liu	1738
Present Situation of Research on Microgrid and the Necessity of Developing DC Microgrid G.F. Ge, M. Sun and Y. Liu	1744
A Modified Proportional Fair Scheduling Algorithm for the Electric Power Wireless Private Network J.P. Cao, J.M. Liu, S.M. Zhu and D.Q. Gao	1749
Frequency Control Based on Multi-Agent System in Islanded Microgrid B.L. Liu, X.L. Huang and J. Li	1754
The Design of an Independent Power Supply Applied to the Isolated Island Y.C. Chen and Z.X. Wang	1759
The Use of Distributed Energy Storage System in Smart Power Distribution and Utilization Park Y.Y. Xi and Y.F. Yang	1766
Survey of Wind Power and Integration Smart Grid Technologies T.W. Xing, H. Shen, J. Ding, L. Dong, J.H. Han and Y.T. Song	1771
The Application of Ucosφ Out of Step Criterion to the East China Power Grid H.M. Fu, D.Z. Gu, C.J. Chen and X. Yang	1778
A New Calibration Method for Digital Power Metering System H.L. Hu, Q. Li, H. Li and D.Y. Li	1784
Internet of Things Based Auxiliary Control System for Smart Substation J.H. Wang, X.Z. Li, R.T. Lu and F.J. Sun	1790
Optimal Option Analysis of Distributed Generation Equipments Y.P. Zhang, Q.R. Liu and Y.J. Ruan	1796
The Review of Demand Response Programs in Smart Grid Y.Y. Zhang, R. Ma and Z.H. Xu	1800
A Practical Method for 10kV Overhead Line Fault Detection and Location Based on Real-Time Online Wave-Recording Devices Q. Zhong, R. Li, Z.X. Cai, N.H. Yu and C.J. Li	1804
Analysis of Rogowski Coil with Passive Compensation H. Li, H.L. Hu, Q.Z. Xiong and C.Y. Yang	1809
Review on Grid Connection Technologies of DFIG X.S. Zhou, S.Y. Li and Y.J. Ma	1816
Microgrid Fault Analysis Based on Multiple Distributed Generations X.S. Ye, L. Zhou and X.S. Tang	1820
An Application of Heuristic-Search Based Tree Model in Fault Analysis of Distribution Network C.Q. Wang, J. Li, Q.B. Wang and S. Hu	1827
A Fault Line Detection Method Based on Wavelet Packet Analysis in Distribution Network L. Li	1833

Modeling and Simulation of Microgrid with Small Hydropower and Wind Generator on Island Operation Mode Y.W. Zheng, M.Y. Chen, C. Li, R.L. Xu and X. Xu	1841
New Application of Fibre Optical Current Transformer in Smart Retrofit Substation Y.J. Li, Y. Ma and W.L. Wang	1846
Scheme of Intelligent Building Based on Distributed Generation and Micro-Grid J.L. Liu, G. Yang, H.H. Wang and W. Min	1851
The Research of Subspan Oscillation and Configuration of Spacer for Transmission Line Y.X. Di, K.J. Zhu and C.L. Liu	1855
Leading the Smart Grid Revolution with UHV D. Song, Y.X. Cao and Z.R. Liang	1862
Analysis of ACCC Applied in the Capacity Expansion Reformation of Electric Transmission Lines in East China Power Grid Y. Du, W. Cao and X.H. Zhang	1866
Based on the EMD and PSO-BP Neural Network of Short-Term Load Forecasting F. Sha, F. Zhu, S.N. Guo and J.T. Gao	1872
Economic Dispatch of the Microgrid with Electric Vehicles Z. Yang, Y.B. Zhang, S.F. Tong and G.Q. Weng	1876
The Applications of Wireless Sensor Network in Smart Substation Y. Li, Y.Y. Zhang, D.Q. Gao and J.P. Cao	1881
A Meta-Model of the CIM Update Process for Smart Grid Information Integration Y.M. Lu, D. Liu and W.P. Yu	1885
Power System Wide-Area Situation Awareness W. Luo and W.J. Zhuang	1890
The Research on Preventing Mal-Operation Algorithms in Distribution Network Y.W. Zheng, L. Ma, Y. Wu and Z.Q. Feng	1895
Optimal Allocation of Distributed Generation in Micro-Grid Based on the Theory of Life Cycle Cost Y.X. Liu, Y. Liu, Y.S. Du, R.Q. Wang and W. Huang	1903
Application of Virtual Visualization in Smart Power Distribution System Z.G. Liu and S.X. Wang	1908

Chapter 12: Power System Management

Power Demand Side Management Based on the Sensitivity Analysis W. Xiong and S.W. Su	1915
District Energy Development: Optimal Selection of CCHP System Scheme Z.Y. Shao and H.L. Wang	1919
Discussion and Realization on Quality Management Methods of Steam Turbine Unit Installation in Tianjin SDIC Jinneng Power Plant D.Y. Jia, Q.N. Zhang and Z.C. Liu	1924
The Economy and Environmental Benefit of the Microgrid T.Y. Qu	1928
The Coordination Relationship Analysis of Demand Response and Orderly Power Consumption in the Smart Grid L. Chen, K. Huang, L. Huang and J. Song	1933
Technical and Economic Analysis of Promoting the Application of ACCC in China L. Li, W. Chen and J.C. Wan	1939
Application of Public Geographic Data in Power Engineering Survey and Design J.Y. Jiang, L. Yu and X.G. Gao	1945
Fire Statistic and Prevention Measures for Cables in Power Plant W. Huang, C. Zhou and X.Q. Wang	1949
Study on some Issues of Micro-Grid Commercial Promotion F. Yuan and A. Xin	1953
Study on Key Problems at Power System Black Start P.Y. Guo, J.B. Yang, C.Z. Li and T. Yuan	1958

Medium and Long-Term Load Forecast Based on PSO-LS-SVR X.T. Pan, F. Qian and X. Jin	1962
The Equilibrium Model of Electricity Market with Consideration of the Pumped Storage GenCo J.L. Yang, H.Q. Lu and F.D. Shi	1966
Research on Integrated Management Method for Intelligent Community C.G. Zhang and C. Jiang	1973
Research and Application of SNMPv3 Security Mechanism in Electricity Network Management System Y.Y. Hou, W.Z. Wang and B.T. Wang	1979
Application of Critical Chain Project Scheduling Theory in Power Plant Electrical Equipment Maintenance L. Dong, X.K. Zhao, W.P. Zhou and Q. Lv	1985
The Environmental Benefits-Considered Cost Characteristics of Distributed Generation Analysis X.F. Ma, L.Z. Zhang, H.J. Cui and D. Xu	1990