1. Record Nr. UNINA9910847070803321 Autore Yang Qingxin **Titolo** The Proceedings of the 18th Annual Conference of China Electrotechnical Society [[electronic resource]]: Volume II / / edited by Qingxin Yang, Zewen Li, An Luo Singapore:,: Springer Nature Singapore:,: Imprint: Springer,, 2024 Pubbl/distr/stampa **ISBN** 981-9714-28-1 Edizione [1st ed. 2024.] Descrizione fisica 1 online resource (866 pages) Collana Lecture Notes in Electrical Engineering, , 1876-1119; ; 1179 Altri autori (Persone) LiZewen LuoAn Disciplina 621.3 Soggetti Electrical engineering **Electronics** Electric power production Electronic circuits **Electrical and Electronic Engineering** Electronics and Microelectronics, Instrumentation **Electrical Power Engineering Electronic Circuits and Systems** Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Intro -- Contents -- Distributed Network Reconfiguration Under the Background of High Proportion of Distributed Generation -- 1 Introduction -- 2 A Distribution Network Reconfiguration Model Based on Chance Constraints -- 2.1 Objective Function -- 2.2 Constraint -- 3 Model Transformation -- 4 Case Studies and Analysis -- 4.1 Analysis of Network Reconfiguration Under Deterministic Conditions -- 4.2 Analysis of Network Reconfiguration Under Chance Constraints -- 5 Conclusion -- References -- Characteristics of UHF and Pressure Changes Under Insulation Defects in Oil-Paper Insulation Bushing -- 1

Introduction -- 2 Test Method -- 2.1 Defect Simulation -- 2.2 Test Procedure -- 2.3 Test Procedure -- 3 Test Results -- 3.1 Defect Development Law Under Short-Term Pressure -- 3.2 Defect Development Law Under Long-Term Pressure -- 4 Summary -- References -- Dynamic Capacity Enlargement Calculation Model

for Double-Circuit Trench Cable Based on Typical System Links -- 1 Introduction -- 2 Physical Model and Calculation Method -- 2.1 Physical Model -- 2.2 Transient Temperature Calculation of Double-Circuit Trench Cable Based on System Typical Links -- 2.3 Calculation of Dynamic Capacity Enlargement of Double-Circuit Trench Cable -- 3 Results and Discussion -- 3.1 Transfer Function Parameters of the System -- 3.2 Step Load-Time Curves for the Double-Circuit Trench Cable -- 4 Conclusion -- References -- Greedy Algorithm Based Load Optimization of Peak and Valley Electricity Prices for Smart Communities -- 1 Introduction -- 2 Intelligent Community Charging Framework -- 2.1 Load Classification -- 2.2 Intelligent Community Charging Framework -- 2.3 Distribution Characteristics of Electric Vehicle Charging -- 3 Optimized Model Building -- 3.1 Algorithm Optimization Process -- 3.2 Intelligent Community Load Curve -- 4 Experimental Analysis -- 4.1 Basic Information. 4.2 Example Results -- 5 Conclusion -- References -- Fault Analysis and Corrosion at the Lead Seal of High-Voltage Cable Joint -- 1 Introduction -- 2 Analysis of Faulty Cables -- 2.1 A Brief Description of the Faulty Cables -- 2.2 Analysis of Breakdown Accidents -- 3 Electrochemical Corrosion of Lead Seal -- 3.1 Electrochemical Test for Each Structure at the Lead Seal -- 3.2 Diagnosis Method for Water Inlet Defects of Cable Joints -- 4 Conclusion -- References -- Short Fault Current Zero Point Drift and Phase-Controlled Interruption Strategy in Three-Phase Power Transmission Lines -- 1 Theoretical Analysis of the Three-Phase Line Breaking Process After the Short-Circuit Current Enters the Steady State -- 1.1 Study on Three-Phase Short-Circuit Fault Breaking of Isolated Neutral System -- 1.2 Study on Three-Phase Short-Circuit Fault Breaking of Directly Earthed Neutral System -- 2 Theoretical Analysis of Three-Phase Line Breaking When the Short-Circuit Current Does not Enter the Steady State -- 3 Simulation Verification -- 3.1 Simulation Analysis of Isolated Neutral System System -- 3.2 Simulation Analysis of Directly Earthed Neutral System -- 4 Conclusion -- References -- Optical Detection of Corona Discharge Based on SiPM at DC Voltage -- 1 Introduction -- 2 Experimental Description -- 2.1 SiPM Signal Processing Circuit -- 2.2 Measuring Circuit -- 3 Experiment Results -- 3.1 Corona Discharge Waveform at DC Voltage -- 3.2 Frequency Domain Analysis of Corona Discharge -- 3.3 Corona Discharge Waveform at AC Voltage -- 4 Conclusions -- References -- Analysis and Optimization of Vibration Reduction Structure for Bridge Cable Engineering -- 1 Introduction -- 2 Analysis of Factors Influencing Vibration Reduction of Bridge Cables --2.1 Influence of Support Spacing on Cable Vibration Reduction. 2.2 Influence of Support Stiffness on Cable Vibration Reduction -- 2.3 Influence of Damping on Cable Damping -- 3 Conclusion -- References -- PMSM Harmonic Current Suppression Based on Fuzzy PR Controller -- 1 Introduction -- 2 Harmonic Analysis of PMSM -- 3 Control Strategy Analysis and Design -- 3.1 PR Control and Its Parameter Influence Analysis -- 3.2 Theoretical Analysis and Existing Problems of Harmonic Suppression -- 3.3 Design of Fuzzy Proportional Resonant Controller -- 4 Verification and Analysis -- 5 Conclusions --References -- Fault Analysis of 30 kV Cable on Electric Locomotive -- 1 Introduction -- 2 Fault and Test Design -- 3 Test and Analysis -- 3.1 Physical and Mechanical Performance Test -- 3.2 Partial Discharge Test -- 3.3 DSC Test of Insulation and Sheath Materials -- 3.4 Temperature Rise and Simulated Grounding Circulation Test -- 4 Conclusion -- 5 Proposal -- References -- An Adaptive Mesh Method for Multi Physical Field Coupling of Electromagnetic Rail Launcher -- 1 Introduction -- 2 Mathematical Physical Model of the Sliding Electric Contact Problem --

2.1 Basic Theory of Electromagnetic and Thermal Fields -- 2.2 Interface Processing Based on Split Nodes -- 3 Result Analysis of Constant Mesh Model and Adaptive Mesh Model -- 4 Numerical Analysis of C-Type Armature Under Multi-field Coupling -- 5 Conclusions -- References -- Research on Temperature of Dry Hollow Reactor Based on Multiphysics Simulation -- 1 Introduction -- 2 Theory of Physical Field of Air-Core Reactor -- 2.1 Magnetic Field Calculation of the Power Reactor -- 2.2 Fluid-Temperature Field Calculation -- 3 Multi-physics Field Coupling Simulation Calculation of Dry-Type Air-Core Reactor --3.1 Simulation Model -- 3.2 Reactor Material Parameters -- 4 Simulation Result Analysis -- 4.1 Analysis of Magnetic Field Simulation Results. 4.2 Analysis of Fluid-Temperature Coupling Results -- 5 Conclusion --References -- Research on Eigenvalue of Excitation Signal in Nondestructive Testing of Power Transformer Core -- 1 Introduction -- 2 Simulation Study and Hardware Detection System Construction --3 MBN Signal Feature Extraction Methods -- 3.1 MBN Signal Amplification Filtering and Wavelet Denoising -- 3.2 Feature Extraction -- 4 The Influence of Excitation Signals on the Characteristics of MBN Signals in the Iron Core -- 4.1 The Impact of Excitation Signal Waveform on the MBN Signals of the Transformer Core -- 4.2 The Influence of Excitation Signal Frequency on the MBN Signals of the Transformer Core -- 4.3 The Influence of Excitation Signal Amplitude on the MBN Signal of the Transformer Core -- 5 Conclusion -- References -- Key Technology Research on Quality Control of Valve-Side Dry Bushings of Domestic UHV Converter -- 1 Introduction -- 2 Quality Control Requirements for the Design Stage of the Side Bushing of High-End Rheological Valve -- 2.1 Structural Composition of the Side Sleeve of ±800 kV UHV Rheological Valve -- 2.2 Key Field Strength Control Requirements for the Side Bushing of High-End Rheological Valve -- 2.3 Analysis of Thermal Field Distribution Law of Side Bushing of High-End Rheological Valve -- 3 Quality Control Requirements for the Production Process of High-End Rheological Valve Side Bushing -- 3.1 Pre-processing -- 3.2 Roll -- 3.3 Casting and Curing -- 3.4 Turning -- 4 Conclusion -- References -- 8kW Nonmagnetic RF Power Amplifier of 5T Human Body Magnetic Resonance --1 Introduction -- 2 Methods -- 2.1 Complete Design of the Machine --2.2 Realization of Non-magnetic Planar Baroclinic and High Power --2.3 Realization of Dual Directional Coupler -- 2.4 Analog Negative Feedback Loop Design -- 3 Experimental Validation and Results. 3.1 Testing of Non-magnetic Planar Baluns and Power Combiner -- 3.2 Measurement of Dual Directional Couplers -- 3.3 Gain Nonlinearity Correction Test -- 3.4 Overall System Test Results -- 4 Conclusions --References -- Flashover Characteristics of the Interface of SF6-Epoxy Resin Impregnated Paper with Particles Contamination -- 1 Introduction -- 2 Surface Flashover Experimental Platform -- 3 Flashover Characteristics of Epoxy Resin with Particles Attached on the Surface -- 3.1 Flashover Characteristics of Metal Particles Attached to the Surface -- 3.2 Flashover Characteristics of Nonmetallic Particles Attached to the Surface -- 4 Analysis and Discussion -- 5 Conclusion -- References -- Long-Term Voltage Withstand Characteristics of the Interface of SF6-epoxy Resin Impregnated Paper Under AC/DC Superimposed Voltage and DC Voltage -- 1 Introduction -- 2 Valve Side Bushing Flashover Experimental Platform -- 2.1 AC/DC Superimposed Voltage Experimental Platform -- 2.2 The Method of Voltage Application in Short-Time/long-Term Experiment -- 3 The Surface Flashover Characteristics of the Simulated Bushing -- 3.1 The Short-Time Flashover Characteristics of SF6-Epoxy Gas-Solid Interface

-- 3.2 The Research of the Long-Term Flashover Characteristics -- 4
Analysis on Flashover Mechanism of the Valve Side of Bushing -- 5
Conclusion -- References -- An Adaptive Test Frequency Selection
Method for Power Cable Defect FDR Detection -- 1 Introduction -- 2
Principle -- 3 Methodology -- 4 Results -- 4.1 Prototype -- 4.2
Experiment -- 5 Conclusion -- References -- Research
and Demonstration Verification of Flexible Interconnection Operation
Control and Fault Defense Strategies for Microgrid Groups Based
on Multiflow Fusion -- 1 Introduction -- 2 Digital Transformation
and Multi- flow Integration of Distribution Network.
2.1 Demand for Digital Transformation of Distribution Network.

Sommario/riassunto

This book gathers outstanding papers presented at the 18th Annual Conference of China Electrotechnical Society, organized by China Electrotechnical Society (CES), held in Nanchang, China, from September 15 to 17, 2023. It covers topics such as electrical technology, power systems, electromagnetic emission technology, and electrical equipment. It introduces the innovative solutions that combine ideas from multiple disciplines. The book is very much helpful and useful for the researchers, engineers, practitioners, research students, and interested readers.