

ISSN 0258 - 8013
CODEN ZDGXER

中国电机工程学报

中国电机工程学报

半月刊

第 41 卷 第 5 期

Proceedings of the CSEE

SEMIMONTHLY

Vol.41 No.5

第四十一卷 第五期 2021 年 3 月

P

Proceedings of the CSEE

Vol.41 No.5 March 2021



3月

2021

2021-03-05 出版

ISSN 0258-8013



9 770258 801216



05>



中国电机工程学会主办
THE CHINESE SOCIETY FOR ELECTRICAL ENGINEERING



目 次

(论文电子版 <http://www.pcsee.org/CN/column/home.shtml>)

“高性能绝缘电介质”专题特约主编寄语 李建英, 尹毅, 陈庆国 (1525)

· 高性能绝缘电介质 ·

聚合物基复合薄膜的高温储能性能研究进展 张天栋, 杨连印, 张昌海, 迟庆国 (1526)
基于时频域反射法的高温超导电缆故障定位研究 王瑶瑶, 姚周飞, 谢伟, 吴建东, 韩云武, 尹毅, 赵刚 (1540)
宽频带油纸绝缘介电响应的全过程谱图提取和定量分析

..... 谢佳成, 董明, 于泊宁, 范文杰, 胡一卓, 徐广昊, 汪可 (1547)
热脉冲法数据处理的反问题求解研究 黄陈昱, 郑飞虎, 张治文 (1557)

冲击电压下不同温度油中空间电荷迁移对电场分布影响

..... 苑清, 齐波, 李成榕, 高春嘉, 赵晓林, 张书琦, 徐征宇 (1565)
UV-A 辐射对外绝缘用液态硅橡胶和高温硫化硅橡胶的影响及其机理

..... 林荧, 刘育豪, 武康宁, 王黎明, 丁立健 (1575)
考虑微观特性的 ZnO 压敏电阻计算模拟模型 孟鹏飞, 刘政, 曹伟, 杜传报, 周凯, 胡军 (1588)

· 快报与评论 ·

智慧城市综合能源系统数字孪生技术及应用 王成山, 董博, 于浩, 吴建中, 严晋跃, 李鹏 (1597)

· 智能电网 ·

基于动态相量法的直流系统暂态响应实时快速仿真计算方法 王宾, 李志中, 董新洲 (1608)

电气节点源流瞬时功率与周期能量分配关系分析 于继来, 张婷, 盛玉和, 张伟, 王松岩, 郭钰锋 (1618)

基于路 - 电耦合网络的电动汽车需求响应技术 袁泉, 汤奕 (1627)

基于自稳/致稳性的路径级数展开方法及其在含多样化电力电子装备电力系统稳定性分析中的应用

..... 张美清, 袁小明, 胡家兵 (1637)

基于自适应扩散核密度估计的时序相关概率最优潮流计算方法 李国庆, 陆为华, 边竟, 孙银锋 (1655)

考虑气电联合需求响应的气电综合能源配网系统协调优化运行 刘天琪, 张琪, 何川 (1664)

基于变分模态分解法的 MMC 半桥串联结构微电网微源功率协调控制 薛晟, 王兴贵, 李晓英 (1677)

· 可再生能源并网技术 ·

并网变换器的暂态同步稳定性研究综述 张宇, 蔡旭, 张琛, 吕敬, 李岩 (1687)

基于多尺度数学形态学和高低频能量比值的海上风电场内部瞬态过电压特征分析

..... 古一灿, 唐文虎, 辛妍丽, 周九江, 吴青华 (1702)

直驱风力发电场与 LCC-HVDC 次同步交互作用的扰动传递路径及阻尼特性分析

..... 高本锋, 刘毅, 李蕴红, 赵峰, 邵冰冰, 赵书强 (1713)

· 电力市场 ·

国内外促进可再生能源消纳的电力现货市场发展综述与思考

..... 樊宇琦, 丁涛, 孙瑜歌, 贺元康, 王彩霞, 王永庆, 陈天恩, 刘健 (1729)

区块链在分布式电力交易中的研究领域及现状分析

..... 裴凤雀, 崔锦瑞, 董晨景, 王海超, 江海龙, 何川, 李永波, 童一飞, 杨雯, 范明海, 丁坤 (1752)

· 发电 ·

基于信息物理融合的间接空冷机组冷端系统运行优化

..... 李承周, 王宁玲, 高舒潭, 苏永健, 郭洪远, 杨志平, 李晓恩, 杨勇平 (1771)

火力发电干湿联合冷却系统性能实验研究 杨鹤, 卫慧敏, 陈林, 杨立军, 杜小泽 (1783)

汽轮机转子半锥形涡动的密封汽流激振及动力特性 司和勇, 曹丽华, 李盼, 陈东超 (1795)

一种新型化学链制氢与 SOFC 集成的能量系统 张秦玮, 张筱松, 邓美隆 (1804)

· 电力电子与电力传动 ·

输出并联型双有源全桥变换器控制技术研究综述 孙志峰, 肖嵒, 王勤 (1811)

级联 H 桥型电力电子变压器的闭锁状态等效建模方法 丁江萍, 高晨祥, 许建中, 赵成勇 (1831)

考虑变换器损耗特性的小步长实时仿真方法 苏杭, 徐晋, 汪可友, 许鹏, 吴盼 (1840)

一种编解码器模型的锂离子电池健康状态估算 刘昊天, 王萍, 程泽 (1851)

基于拓扑组合的交错并联耦合电感高增益 DC-DC 变换器 丁杰, 高双, 赵世伟, 尹华杰 (1860)

· 电机与电器 ·

共直流母线开绕组电机系统零序电流抑制技术综述 王伟, 蒋奕昕, 王政, 花为, 程明 (1871)

基于编码器信号的低转速行星齿轮箱故障诊断技术 欧曙东, 赵明, 周涛, 樊红卫 (1885)

电磁层析成像技术在刹车盘缺陷检测中的应用 岳远里, 刘泽, 武建利, 苗宇, 刘向龙, 崔玉鹏 (1894)

单对极质数槽绕线式旋变绕组配合的磁势精度 范良志, 杨晓峰, 肖志权, 胡峰, 周向阳, 王芳 (1903)

· 英文概述见论文电子版 ·

**PROCEEDINGS OF THE CHINESE SOCIETY FOR
ELECTRICAL ENGINEERING**
(PROCEEDINGS OF THE CSEE)

Vol.41 No.5 (Ser. 664)

Mar. 5, 2021

CONTENTS

(Electronic Journals <http://www.pcsee.org/EN/column/current.shtml>)

- Foreword From the Guest Editor in Chief of Special Columns for "Advanced Insulating Dielectrics" LI Jianying, YIN Yi, CHEN Qingguo (1525)
- Advanced Insulating Dielectrics ·**
- Research Progress on High Temperature Energy Storage Performance of Polymer-based Composite Dielectric Films ZHANG Tiandong, YANG Lianyin, ZHANG Changhai, CHI Qingguo (1526)
- Research on Fault Location of High Temperature Superconducting Cable Based on Time-frequency Domain Reflectometry WANG Yaoyao, YAO Zhoufei, XIE Wei, WU Jiandong*, HAN Yunwu, YIN Yi, ZHAO Gang (1540)
- Spectra Extraction and Quantitative Analysis for All Independent Dielectric Processes of Oil-paper Insulation in Broad Frequency Band XIE Jiacheng, DONG Ming, YU Boning, FAN Wenjie, HU Yizhuo, XU Guanghao, WANG Ke (1547)
- Research on Inverse Problem Solution for Thermal Pulse Method Data Analysis HUANG Chenyu, ZHENG Feihu, ZHANG Yewen (1557)
- Effect of Space Charge Migration on Electric Field Distribution at Different Temperature in Oil Under Impulse Voltage YUAN Qing, QI Bo, LI Chengrong, GAO Chunjia, ZHAO Xiaolin, ZHANG Shuqi, XU Zhengyu (1565)
- Influence of UV-A Radiation on Liquid Silicone Rubber and High Temperature Vulcanized Silicone Rubber for Outdoor Insulation and Its Mechanism..... LIN Ying, LIU Yuhao, WU Kangning, WANG Liming, DING Lijian (1575)
- The Calculation Model for ZnO Varistor Considering Micro-characteristics MENG Pengfei, LIU Zheng, CAO Wei, DU Chuanbao, ZHOU Kai, HU Jun (1588)
- Letters and Reviews ·**
- Digital Twin Technology and Its Application in the Integrated Energy System of Smart City WANG Chengshan, DONG Bo, YU Hao, WU Jianzhong, YAN Jinyue, LI Peng (1597)
- Smart Grid ·**
- Real-time Rapid Simulation Method for Transient Response of LCC-HVDC Based on Dynamic Phasor Method WANG Bin, LI Zhizhong, DONG Xinzhou (1608)
- Analyses of Instantaneous Power and Periodic Energy for Source-flow Relationship of Electrical Node YU Jilai, ZHANG Ting, SHENG Yuhe, ZHANG Wei, WANG Songyan, GUO Yufeng (1618)
- Electric Vehicle Demand Response Technology Based on Traffic-grid Coupling Networks..... YUAN Quan, TANG Yi (1627)
- Path Series Expansion Method Based on Self-/En-Stabilizing Properties and Its Application in the Stability Analysis of Power Systems With Diversified Power Electronic Devices ZHANG Meiqing, YUAN Xiaoming, HU Jiabing (1637)
- Probabilistic Optimal Power Flow Considering Correlation and Time Series Based on Adaptive Diffusion Kernel Density Estimation LI Guoqing, LU Weihua, BIAN Jing, SUN Yinfeng (1655)
- Coordinated Optimal Operation of Electricity and Natural Gas Distribution System Considering Integrated Electricity-gas Demand Response LIU Tianqi, ZHANG Qi, HE Chuan (1664)
- Microsource Power Coordination Control of MMC-MG via Variational Mode Decomposition XUE Sheng, WANG Xinggui, LI Xiaoying (1677)
- Grid Integration of Renewable Energy Resources ·**
- Transient Synchronization Stability Analysis of Voltage Source Converters: A Review ZHANG Yu, CAI Xu, ZHANG Chen, LYU Jing, LI Yan (1687)
- Feature Analysis for Transient Overvoltage in Offshore Wind Farm Based on High and Low Frequency Energy Rate Using Multi-scale Mathematical Morphology GU Yican, TANG Wenhui, XIN Yanli, ZHOU Jiujiang, WU Qinghua (1702)
- Analysis on Disturbance Transfer Path and Damping Characteristics of Sub-synchronous Interaction Between D-PMSG-based Wind Farm and LCC-HVDC..... GAO Benfeng, LIU Yi, LI Yunhong, ZHAO Feng, SHAO Bingbing, ZHAO Shuqiang (1713)
- Electricity Market ·**
- Review and Cogitation for Worldwide Spot Market Development to Promote Renewable Energy Accommodation FAN Yuqi, DING Tao, SUN Yuge, HE Yuankang, WANG Caixia, WANG Yongqing, CHEN Tian'en, LIU Jian (1729)
- The Research Field and Current State-of-art of Blockchain in Distributed Power Trading PEI Fengque, CUI Jinrui, DONG Chenjing, WANG Haichao, JIANG Hailong, HE Chuan, LI Yongbo, TONG Yifei, YANG Wen, YUAN Minghai, DING Kun (1752)
- Power Generation ·**
- CPS-based Operation Optimization Study of Indirect Air-cooling Unit Cold End System Under Summer Conditions LI Chengzhou, WANG Ningling, GAO Shutian, SU Yongjian, GUO Hongyuan, YANG Zhiping, LI Xiao'en, YANG Yongping (1771)
- Experimental Study on Performance of Hybrid Cooling System for Thermal Power Generation YANG He, WEI Huimin, CHEN Lin, YANG Lijun, DU Xiaoze (1783)
- Steam Flow Excited Vibration and Dynamic Characteristics of Semi-conical Whirl Turbine Rotor SI Heyong, CAO Lihua, LI Pan, CHEN Dongchao (1795)
- A Novel System Integrating Chemical-looping Hydrogen Generation and Solid Oxide Fuel Cell ZHANG Qinwei, ZHANG Xiaosong, DENG Meilong (1804)
- Power Electronics and Drives ·**
- Review Research on Control Technology of Output Parallel Dual-active-bridge-converters..... SUN Zhifeng, XIAO Lan, WANG Qin (1811)
- Research on Equivalent Modeling Method of Cascaded H-bridge Based PET Under Blocking State DING Jiangping, GAO Chenxiang, XU Jianzhong, ZHAO Chengyong (1831)
- Small Time-step Real-time Simulation Method Considering Converter Loss Characteristics SU Hang, XU Jin, WANG Keyou, XU Peng, WU Pan (1840)
- A Novel Method Based on Encoder-decoder Framework for Li-ion Battery State of Health Estimation LIU Haotian, WANG Ping, CHENG Ze (1851)
- A High Step-up DC-DC Converter With Interleaved and Coupled Inductor Based on Topology Combination DING Jie, GAO Shuang, ZHAO Shiwei, YIN Huajie (1860)
- Electric Machines and Apparatus ·**
- Overview of Zero-sequence Current Suppression Technology for Open-end Winding Motor System With Common DC-Bus WANG Wei, JIANG Yixin, WANG Zheng, HUA Wei, CHENG Ming (1871)
- Fault Diagnosis Technology for Low-speed Planetary Gearbox Based on Encoder Signals OU Shudong, ZHAO Ming, ZHOU Tao, FAN Hongwei (1885)
- Brake Disk Defect Detection Using Electromagnetic Tomography YUE Yuanli, LIU Ze, WU Jianli, MIAO Yu, LIU Xianglong, CUI Yupeng (1894)
- Magnetic Field Precision of Single Pole Wound Resolver by Prime Number Slotted Sinusoidal Winding Combination FAN Liangzhi, YANG Xiaofeng, XIAO Zhiqian, HU Feng, ZHOU Xiangyang, WANG Fang (1903)
- For Extended Summaries, Please See the Electronic Journals ·**