



ISSN 1000-6753

CN 11-2188/TM

半月刊

SEMIMONTHLY

# 电工技术学报

TRANSACTIONS OF  
CHINA ELECTROTECHNICAL SOCIETY



中国电工技术学会主办

2019年 第14期

第34卷 Vol.34 No.14

ISSN 1000-6753



# 电工技术学报

2019年 第34卷 第14期

## 目 次

### 电工理论与新技术

- 2855 双线圈轴向压缩式管件电磁胀形电磁力分布规律与管件成形性能研究  
.....邱立 杨新森 常鹏 熊奇 苏攀
- 2863 电-流-传质场作用下的换流阀冷却系统均压电极垢层动态沉积特性研究  
.....贺婷婷 高兵 杨帆 宋小宁 程一杰等
- 2874 互补对称式 LCC 谐振网络的电场耦合式无线电能传输系统参数优化  
.....苏玉刚 吴学颖 赵鱼名 卿晓东 唐春森

### 电机与电器

- 2884 间接矩阵变换器-异步电机调速系统的优化模型预测控制 .....梅杨 王梁 黄伟超
- 2894 航天用无接触式锁定机构的解析分析与结构对比.....李勇飞 孙剑飞 李勇 王骞 王宝超
- 2901 一种串联型故障电弧数学模型.....刘艳丽 郭凤仪 李磊 王智勇 王喜利
- 2913 光伏直流电弧电磁辐射特性分析与测量方法 .....王尧 张彦风 牛峰 赵双乐 李奎

### 电力电子

- 2922 单相升降压型五电平逆变器拓扑及控制 .....杨国良 张玉娜 陈泰余 贾艳晓 方一鸣
- 2936 一种快速动态响应低电压纹波功率因数校正变换器的控制策略 .....任小永 白雷 惠琦 吴羽 李坤奇
- 2946 基于模型前馈的双有源全桥 DC-DC 变换器电流应力优化方法 .....安峰 杨柯欣 王嵩 罗书聪 冯晓云
- 2957 模块化多电平变流器子模块电压分组检测中过电压防护策略 .....罗德荣 贺锐智 黄守道 张志刚 候维杨
- 2970 级联 H 桥整流器稳定运行区域和直流侧电压平衡策略的调节能力分析 .....王昕 王琛琛 顾长彬
- 2980 混合模块化直流固态变压器 II: 动态特性及快速响应控制 .....付超 高振 孙玉巍 武承杰
- 2990 级联型电力电子变压器直流电压二次纹波抑制策略 .....涂春鸣 肖凡 袁靖兵 周达

### 电力系统分析与应用

- 3004 基于运行可靠性理论的高可靠性供电路径搜索方法 .....刘满君 程林 黄道姗 叶小晖 徐振华
- 3012 利用多因素降维的配电网区段定位完全解析模型 .....王秋杰 金涛 申涛 朱绍杰 刘随阳
- 3025 异步互联电网柔性直流输电紧急功率支援与动态区域控制偏差协调控制策略  
.....陈鹏远 黎灿兵 周斌 傅一苇 余锐
- 3035 适用于动态电压恢复器的最小能量柔性切换控制策略 .....涂春鸣 孙勇 郭祺 姜飞 张丽
- 3046 多约束下光储系统的灵活虚拟惯性控制方法 .....孟建辉 彭嘉琳 王毅 宋美琪 郭禹
- 3059 振荡浮子式波浪能转换装置的全电气化模拟研究 .....方红伟 宋如楠 姜茹 胡玉洁

### 高电压与绝缘

- 3066 不同电极面型的两间隙气体开关电场优化设计 .....王宇 姚伟博 刘巧珏 张永民 邱爱慈
- 3074 振荡操作冲击电压下绝缘子气隙缺陷局部放电特性研究 .....张崇兴 任明 周洁睿 董明 阙波
- 3084 SF<sub>6</sub>/N<sub>2</sub> 混合气体中直流叠加雷电冲击复合电压作用下绝缘子闪络特性  
.....王渊 马国明 周宏扬 路士杰 李成榕

# TRANSACTIONS OF CHINA ELECTROTECHNICAL SOCIETY

2019 Vol.34 No.14

## Contents

- 2855 Electromagnetic Force Distribution and Forming Performance in Electromagnetic Tube Expansion Process with Two Coils ..... Qiu Li Yang Xinsen Chang Peng Xiong Qi Su Pan
- 2863 The Dynamic Deposition Behavior of Grading Electrode in Converter Valve Cooling System Considering Electro-Velocity-Mass Transfer Field ..... He Tingting Gao Bing Yang Fan Song Xiaoning Cheng Yijie et al
- 2874 Parameter Optimization of Electric-Field Coupled Wireless Power Transfer System with Complementary Symmetric LCC Resonant Network ..... Su Yugang Wu Xueying Zhao Yuming Qing Xiaodong Tang Chunsen
- 2884 An Optimized Model Predictive Control Method for the Induction Motor Drives Fed by an Indirect Matrix Converter ..... Mei Yang Wang Liang Huang Weichao
- 2894 Theoretical Analysis and Structural Comparison of Contactless Locking Mechanisms Used in Aerospace ..... Li Yongfei Sun Jianfei Li Yong Wang Qian Wang Baochao
- 2901 A Kind of Series Fault Arc Mathematical Model ..... Liu Yanli Guo Fengyi Li Lei Wang Zhiyong Wang Xili
- 2913 Characterization and Measurement Method of DC Arc Electromagnetic Radiation for Photovoltaic Systems ..... Wang Yao Zhang Yanfeng Niu Feng Zhao Shuangle Li Kui
- 2922 Topology and Control Strategy of a Single-Phase Buck-Boost Five-Level Inverter ..... Yang Guoliang Zhang Yuna Chen Taiyu Jia Yanxiao Fang Yiming
- 2936 Control Strategy of Power Factor Correction Converter for Fast Dynamic Response and Low Output Voltage Ripple ..... Ren Xiaoyong Bai Lei Hui Qi Wu Yu Li Kunqi
- 2946 Current Stress Optimized Scheme with Model-Based Feedforward for Dual-Active-Bridge DC-DC Converters ..... An Feng Yang Kexin Wang Song Luo Shucong Feng Xiaoyun
- 2957 Over-Voltage Protection Strategy for Sub-Module of Modular Multilevel Converter with Reduced Sensors ..... Luo Derong He Ruizhi Huang Shoudao Zhang Zhigang Hou Weiyang
- 2970 Analysis about Steady-State Operating Region and Regulation Capacity of Voltage Balance Strategy for Cascaded H-Bridge Rectifier ..... Wang Xin Wang Chenchen Gu Changbin
- 2980 Hybrid Modular Direct Current Solid State Transformer II: Dynamic Characteristic and Rapid Response Control ..... Fu Chao Gao Zhen Sun Yuwei Wu Chengjie
- 2990 DC Ripple Voltage Suppression Strategy for Cascaded Power Electronic Transformer ..... Tu Chunming Xiao Fan Yuan Jingbin Zhou Da
- 3004 The High Reliability Supply Path Searching Method Based on the Operational Reliability Theory ..... Liu Manjun Cheng Lin Huang Daoshan Ye Xiaohui Xu Zhenhua
- 3012 A Complete Analytic Model of Section Location in Distribution Network Based on Multi-Factor Dimensionality Deduction ..... Wang Qiujie Jin Tao Shen Tao Zhu Shaojie Liu Suiyang
- 3025 VSC-HVDC Emergency Power Support and Dynamic Area Control Error Coordinated Control Strategy for Improving the Stability of Asynchronous Interconnected Power Grids ..... Chen Pengyuan Li Canbing Zhou Bin Fu Yiwei Yu Rui
- 3035 The Minimum Energy Soft-Switching Control Strategy for Dynamic Voltage Restorer ..... Tu Chunming Sun Yong Guo Qi Jiang Fei Zhang Li
- 3046 Multi-Constrained Flexible Virtual Inertial Control Method for Photovoltaic Energy Storage System ..... Meng Jianhui Peng Jialin Wang Yi Song Meiqi Guo Yu
- 3059 An Oscillating Buoy Type Wave Energy Converter with All-Electrical Analogue Method ..... Fang Hongwei Song Runan Jiang Ru Hu Yujie
- 3066 Optimization Design of Two Gap Gas Switch Electric Field with Different Electrode Profiles ..... Wang Yu Yao Weibo Liu Qiaojue Zhang Yongmin Qiu Aici
- 3074 Analysis for Partial Discharges Behavior in SF<sub>6</sub> Gas Filled Void in Gas Insulated Switchgear under Oscillating Switching Impulses ..... Zhang Chongxing Ren Ming Zhou Jierui Dong Ming Que Bo
- 3084 Flashover Characteristics of Spacers in SF<sub>6</sub>/N<sub>2</sub>-Filled under Composite Voltage of DC and Lightning Impulse ..... Wang Yuan Ma Guoming Zhou Hongyang Lu Shijie Li Chengrong