



# 中国电机工程学报

ZHONGGUO DIANJI GONGCHENG XUEBAO

第39卷

第11期(总第622期)

2019年6月5日



## 目 次

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

### · 大型交直流混联电网运行控制和保护 ·

- 大型交直流混联电网安全运行面临的问题与挑战 ..... 董新洲, 汤涌, 卜广全, 沈沉, 宋国兵, 等 (3107)  
交直流混联电网 LCC-HVDC 换流器建模方法综述 ..... 贺杨烊, 郑晓冬, 邵能灵, 侯俊贤, 徐晋, 等 (3119)  
适用于电磁暂态高效仿真的变流器分段广义状态空间平均模型 ..... 王磊, 邓新昌, 侯俊贤, 穆世霞, 等 (3130)  
含 VSC-MTDC 的交直流系统潮流算法 ..... 周涛, 陈中, 戴中坚, 孙可慧, 刘艺 (3140)  
以维持重要负荷供电为目标的交直流系统自适应解列方法研究 ..... 马丁, 唐可翻, 乔煌煌, 沈沉 (3149)  
逆变侧交流系统不对称故障引发 HVDC 系统连续换相失败的机理及抑制策略研究

- ..... 曾亮, 李永丽, 张云柯, 孙广宇, 宋金钊, 杨子荷, 等 (3159)  
利用波前广义 Logistic 函数拟合的直流输电线路快速保护原理 ..... 张晨浩, 宋国兵, 董新洲, 杨黎明 (3168)  
配合主网调度的配电网分布式电源主动控制策略 ..... 杨振铨, 项基, 李艳君 (3176)  
含高密度光伏电源的受端电网暂态电压有理分式拟合分析 ..... 赖全怡, 陈民权, 李尚远, 康卓然, 等 (3186)  
基于联络线功率轨迹特征的暂态功角稳定性分析 ..... 吴雪莲, 刘福锁, 李兆伟, 李威 (3194)  
柔性直流电网行波保护解析分析与整定计算 ..... 王艳婷, 范新凯, 张保会 (3201)  
基于特征谐波测量阻抗的 HVDC 接地极线路保护新原理 ..... 孙沛瑶, 林圣, 刘磊, 何正友, 李小鹏 (3212)  
直流电网组合式故障限流装置及其运行策略研究 ..... 官二勇, 董新洲, 王豪 (3222)  
故障行波全波形时-频特性分析 ..... 邓丰, 曾祥君, 李泽文, 唐欣, 吴雄, 祖亚瑞, 梅龙军 (3231)

### · 高电压与放电等离子体 ·

- 雷电先导下行过程特高压直流线路电晕向流注放电转化的仿真研究 ..... 夏德智, 贺恒鑫, 陈彬彬, 等 (3243)  
附着金属体染污绝缘表面局部电弧特性研究 ..... 王羽, 牟霖, 王万昆, 王维, 裴欢, 文习山, 蓝磊 (3253)  
冲击电压下方形谐振环频率选择超材料蒙皮的沿面放电长度影响因素研究

- ..... 赵玉顺, 崔宇豪, 陈维江, 于吉选, 高俊福 (3262)  
真空灭弧室零区剩磁补偿装置及效果 ..... 葛国伟, 张鹏浩, 程显, 杨培远, 王华清 (3272)  
大气压 CO/Ar 混合气体射频放电光学特性研究 ..... 张凯, 张帅, 高远, 孙昊, 严萍, 邵涛 (3280)

### · 发电 ·

- 预处理工艺对生物质成型燃料理化特性的影响研究 ..... 曹忠耀, 张守玉, 吴顺延, 王才威, 黄小河, 等 (3288)  
脱硫废水旋转雾化及其干燥蒸发特性试验研究 ..... 陈武, 王凯亮, 罗天翔, 白璐, 王晓培, 杨林军 (3295)  
喷射点位及温度对超低排放电厂活性炭吸附脱汞的影响 ..... 王家伟, 张永生, 张翼, 顾永正, 刘钊, 等 (3303)  
600MW 超临界 W 火焰锅炉垂直水冷壁壁温分布特性及偏差控制 ..... 吕当振, 周延华, 刘帅, 等 (3312)

### · 电力电子与电力传动 ·

- 基于噪声平衡原理的反激变换器 CM 传导噪声抵消方法研究 ..... 董光冬, 张方华 (3320)  
基于 CLLC-CL 补偿拓扑的电场式移动供电系统研究 ..... 李明轩, 李乔, 陈阳, 李伟华, 麦瑞坤 (3328)  
多重交错并联开路电路故障检测 ..... 杨俊杰, 刘思扬, 孙旭, 杨其宇, 徐维超 (3336)  
一种无变压器无漏电流的集成升压光伏逆变器 ..... 胡雪峰, 张玉勃, 高本宝, 谭国东 (3344)

- 一种无电解电容三相 Zeta 整流器 ..... 王立乔, 秦栎雯, 朱文通 (3352)

### · 电机与电器 ·

- 基于改进转矩模型的异步电机转子时间常数在线辨识算法 ..... 张兴, 张雨薇, 曹朋朋, 杨淑英 (3363)  
定子电流矢量定向下 PMSM 转矩脉动抑制方法 ..... 余洋, 从乐瑶, 田夏, 卢健斌, 谢仁杰, 米增强 (3372)  
基于内模的圆筒永磁直线电机滑模速度控制 ..... 周华伟, 于晓东, 刘国海, 高猛虎, 周城 (3382)

### · 英文概述见论文电子版

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

Vol.39 No.11 (Ser. 622)

Jun. 5, 2019

**CONTENTS**

**• Large AC/DC Hybrid Power Grid Operation Control and Protection •**

- Confronting Problem and Challenge of Large Scale AC-DC Hybrid Power Grid Operation ..... DONG Xinzhou, TANG Yong, BU Guangquan, SHEN Chen, SONG Guobing, et al (3107)  
A Review of Modeling Methods for LCC-HVDC Converter in AC/DC Hybrid Power Grid ..... HE Yangyang, ZHENG Xiaodong, TAI Nengling, HOU Junxian, XU Jin, et al (3119)  
A Piecewise Generalized State Space Model of Power Converters for Electromagnetic Transient Efficient Simulation ..... WANG Lei, DENG Xinchang, HOU Junxian, MU Shixia, et al (3130)  
An AC/DC System Power Flow Algorithm With VSC-MTDC ..... ZHOU Tao, CHEN Zhong, DAI Zhongjian, SUN Kehui, LIU Yi (3140)  
Adaptive Islanding Control Method Applied to AC/DC Power Systems Aiming at Maintaining the Power Supply of Crucial Loads ..... MA Ding, TANG Kexuan, QIAO Huanghuang, SHEN Chen (3149)  
Research on Mechanism and Control Strategy of Continuous Commutation Failures in HVDC System Caused by Asymmetrical Fault in Inverter-Side AC System ..... ZENG Liang, LI Yongli, ZHANG Yunke, SUN Guangyu, SONG Jinzhao, YANG Zihe, et al (3159)  
Principle of High Speed Protection for DC Transmission Line Using Wave Front Generalized Logistic Function Fitting ..... ZHANG Chenhao, SONG Guobing, DONG Xinzhou, YANG Liming (3168)  
Active Control Strategy of Distributed Generations for Utility Grid Cooperation in Distribution Network ..... YANG Zhenquan, XIANG Ji, LI Yanjun (3176)  
Transient Voltage Analysis for Receiving Power System With High PV Penetration Based on Rational Fraction Fitting Method ..... LAI Quanyi, CHEN Minquan, LI Shangyuan, KANG Zhuoran, et al (3186)  
Analysis of Transient Power Angle Stability Based on the Characteristics of Power Trajectory ..... WU Xuelian, LIU Fusuo, LI Zhaowei, LI Wei (3194)  
The Analytical Analysis and Protection Setting of Traveling Wave Protection in VSC-HVDC Grid ..... WANG Yanting, FAN Xinkai, ZHANG Baohui (3201)  
A New Principle of HVDC Ground Electrode Line Protection Based on Characteristic Harmonic Measured Impedance ..... SUN Peiyao, LIN Sheng, LIU Lei, HE Zhengyou, LI Xiaopeng (3212)  
Study of Combined Fault Current Limiting Equipment and Operation Strategy for DC Grid ..... GUAN Eryong, DONG Xinzhou, WANG Hao (3222)  
Research on Characteristics of Traveling Wave Full-waveform in the Time and Frequency Domains ..... DENG Feng, ZENG Xiangjun, LI Zewen, TANG Xin, WU Xiong, ZU Yarui, MEI Longjun (3231)

**• High Voltage and Discharge Plasma •**

- Study on the Transition from Glow Corona to Streamer Discharge of the UHVDC Overhead Transmission Line During the Downward Leader Descending Process ..... XIA Dezhi, HE Hengxin, CHEN Shanshan, et al (3243)  
Research on Characteristics of Partial Electric Arc on Contaminated Insulating Surface Attached With Floating Potential Metal ..... WANG Yu, MU Lin, WANG Wankun, WANG Wei, PEI Huan, WEN Xishan, LAN Lei (3253)  
Analysis of Factors Affecting the Length of Surface Discharge on Skins of Square Ring Resonator Frequency Selective Metamaterial Under Impulse Voltage ..... ZHAO Yushun, CUI Yuhsao, CHEN Weijiang, YU Jixuan, GAO Junfu (3262)  
The Device and Effect of the Magnetic Field Compensation in Vacuum Interrupters at Current-zero ..... GE Guowei, ZHANG Penghao, CHENG Xian, YANG Peiyuan, WANG Huaqing (3272)  
Study on the Optical Characteristics of CO/Ar Radio-frequency Discharge at Atmospheric Pressure ..... ZHANG Kai, ZHANG Shuai, GAO Yuan, SUN Hao, YAN Ping, SHAO Tao (3280)

**• Power Generation •**

- Effect of Pretreatment Processes on the Physical and Combustion Properties of Briquette Prepared From Biomass Waste ..... CAO Zhongyao, ZHANG Shouyu, WU Shunyan, WANG Caiwei, HUANG Xiaohe, et al (3288)  
Study on Rotating Spray Atomization and Drying Evaporation Characteristics of Desulfurization Wastewater ..... CHEN Wu, WANG Kailiang, LUO Tianxiang, BAI Lu, WANG Xiaobei, YANG Linjun (3295)  
Effects of Temperature and Residence Time on Mercury Control Using Activated Carbon Injection in Ultra-low Emission Coal-fired Power Plant ..... WANG Jiawei, ZHANG Yongsheng, ZHANG Yi, GU Yongzheng, LIU Zhao, et al (3303)

- Study on Distribution Characteristics and Deviation Control of Vertical Membrane Waterwall Temperature of a 600MW Subcritical Down-fired Boiler ..... LU Dangzhen, ZHOU Yanhua, LIU Shuai, et al (3312)

**• Power Electronics and Drives •**

- Research on Common Mode Conducted Noise Cancellation Method in Flyback Converter With Noise Balance Principle ..... DONG Guangdong, ZHANG Fanghua (3320)  
Study on a CLLC-CL Compensated Dynamic Power Supply System Based on Capacitive Power Transfer ..... LI Mingxuan, LI Qiao, CHEN Yang, LI Weihua, MAI Ruikun (3328)  
Multi-phase Interleaved Converter Open Circuit Fault Diagnosis ..... YANG Junjie, LIU Siyang, SUN Xu, YANG Qiyu, XU Weichao (3336)  
A Transformerless Integrated Boost Photovoltaic Inverter Without Leakage Currents ..... HU Xuefeng, ZHANG Yubo, GAO Benbao, TAN Guodong (3344)  
A Three Phase Zeta Rectifier With Non-electrolytic Capacitor ..... WANG Liqiao, QIN Liwen, ZHU Wentong (3352)

**• Electric Machines and Apparatus •**

- Improved Torque Model for Online Rotor Time Constant Estimation in Induction Motor Drives ..... ZHANG Xing, ZHANG Yuwei, CAO Pengpeng, YANG Shuying (3363)  
Torque Ripple Suppression of PMSM Based on Stator Current Vector Orientation ..... YU Yang, CONG Leyao, TIAN Xia, LU Jianbin, XIE Renjie, MI Zengqiang (3372)  
Sliding Mode Speed Control for Tubular Permanent Magnet Linear Motors Based on the Internal Model ..... ZHOU Huawei, YU Xiaodong, LIU Guohai, GAO Menghu, ZHOU Cheng (3382)

**• For Extended Summaries, Please See the Electronic Journals.**