ISSN 1000-6753 CN 11-2188/TM 半月刊 SEMIMONTHLY

# 电工技术学根

## TRANSACTIONS OF CHINA ELECTROTECHNICAL SOCIETY



中国电工技术学会主办

2018年 第16期

第 33 卷 Vol.33 No.16

ISSN 1000-6753



### 电工技术学报

2018年 第33卷 第16期

#### 目 次

#### 模块化多电平换流技术及其应用专题(特约主编:徐殿国 教授 李彬彬 副教授) 3661 模块化多电平换流技术及其应用专题特约主编寄语 鹏 3663 模块化多电平换流器单传感器电容电压平衡控制策略 …………………………… 岳雨霏 徐千鸣 安 郭 3677 基于 LCC 和双钳位 MMC 混联高压直流输电的实验 …… 李建国 刘文华 王久和 李 慧 宋 强 基于 RTDS 的模块化多电平换流器闭锁状态仿真建模方法 ······· 王洁聪 刘崇茹 徐东旭 谢国超 毅 基于桥臂能量预测的模块化多电平换流器子模块故障优化容错控制策略 3697 张 静 顾亚旗 陈争光 3707 模块化多电平换流器子模块故障特性分析与解耦控制策略 ……… 范志华 苗世洪 刘子文 晁凯云 康祎龙 3719 网压不平衡下环流注入对模块化多电平换流器的影响分析 ……… 施恩泽 吴学智 李金科 荆 龙 姜久春 3732 输入串联输出并联双有源全桥 DC-DC 变换器多模块优化功率平衡控制方法 ………安 杨柯欣 3743 基于模块化多电平变流器的统一电能质量调节器工程实验装置研究 郭世枭 高亚静 张 波 3756 应用于模块化多电平变频器的电容电压脉动抑制技术综述 ……… 王 泽 张 凯 陈济民 廖凯文 刘万勋 王景坤 徐殿国 3782 一种基于改进模块化多电平换流器的中压风电系统及其控制方法 ……………… 关维德 黄守道 黄小庆 3792 模块化多电平变流器型中压直流牵引供电系统控制方法研究 ……葛银波 胡海涛 何正友 高仕斌 3802 基于模块化多电平换流器的电动汽车集群与智能电网集成系统参数优化设计 丁 勇 张榴晨 3811 基于模块化多电平直流变换器的储能系统分布式能量均衡控制策略 高钰阁 段建东 葛兴来 刘瑨琪 程 红 电力系统 肖湘宁 3855 微网稳定运行与模式平滑切换综合控制策略……………………………许 胜 声 武 赵剑锋 3868 基于近邻传播聚类和遗传优化的非侵入式负荷分解方法 …… 徐青山 娄藕蝶 郑爱霞 刘瑜俊 3879 基于最小二乘支持向量机和小波神经网络的电力线通信信道噪声建模研究 刘军雨 高电压技术 3889 基于碰撞动力学的绝缘子粗糙表面污秽颗粒积聚模型及验证 ……张东东 张志劲 蒸兴良 胡建林 刘小欢 3897 环氧树脂纳米复合材料界面及其对电性能影响分析………… 吴子剑 王 晨 张明艳 3906 电热老化对干式变压器中环氧树脂特性的影响 …………………………… 王有元 干施又 徐海鹰 电机与电器 3917 基于全局非线性积分滑模的永磁交流伺服系统研究 …… 张立伟 魏 维 3925 一种消除权重系数三矢量模型预测转矩控制 ………………… 徐艳平 李朊朊 张保程

#### TRANSACTIONS OF CHINA ELECTROTECHNICAL SOCIETY

2018 Vol.33 No.16

#### Contents

3003	Capacitor Voltages Balancing Control Strategy with Single Sensor Measurement for Modular Multilevel Converter
	Yue Yufei Xu Qianming Luo An Guo Peng
3677	Experiment of Hybrid High Voltage Direct Current Transmission based on LCC and Clamp Double Sub Module MMC
	Li Jianguo Liu Wenhua Wang Jiuhe Li Hui Song Qiang
3686	Simulation Method of Modular Multilevel Converter Blocking State Based on RTDS
	Wang Jiecong Liu Chongru Xu Dongxu Xie Guochao Zhu Yi
3697	Sub-Module Fault Tolerant Optimal Control Strategy of Modular Multilevel Converter Based on Estimation of Bridge Energy
	Hao Liangliang Zhang Jing Gu Yaqi Chen Zhengguang Xiong Fei
3707	Modular Multilevel Converter Sub-Module Fault Characteristics Analysis and Decoupling Control Strategy
	Fan Zhihua Miao Shihong Liu Zhiwen Chao Kaiyun Kang Yilong
3719	Analysis of the Impact on Modular Multilevel Converter with Circulating Current Injection under Unbalanced Grid Voltage
	Shi Enze Wu Xuezhi Jing Long Jiang Jiuchun Li Jingke
3732	Multi-Module Optimized Power Balance Control Scheme of the Input-Series-Output-Parallel Operated
	Dual-Active-Bridge DC-DC Converters An Feng Wang Song Yang Kexin
3743	Research of Unified Power Quality Conditioner Engineering Experiment Device based on Modular Multilevel Converter
	Yang Yongchun Xiao Xiangning Guo Shixiao Gao Yajing Zhang Bo
3756	A Summary of Capacitor Voltage Ripple Suppression Techniques Applied to Modular Multilevel Converters for
	AC Motor Drives Wang Ze Zhang Kai Chen Jimin Liao Kaiwen Liu Wanxun
3772	A Hybrid Modular Multilevel High-Voltage Converter and Its Control Method
	Zhou Shaoze Li Binbin Wang Jingkun Xu Dianguo
3782	A Medium-Voltage Wind Power Generation System Based on Improved Modular Multilevel Converter and Its Control Scheme
	Guan Weide Huang Shoudao Huang Xiaoqing
3792	Research on Control Strategy of Modular Multilevel Converter based Medium-Voltage Direct Current
	Traction Power Supply System
3802	Parameters Optimization Design for MMC-Based EV Fleet Integrated into Smart Grid
	Mao Meiqin Chen Qiang Ding Yong Chang Liuchen
3811	Distributed Energy Balancing Control Strategy for Energy Storage System Based on Modular Multilevel DC-DC Converter
	Bi Kaitao Sun Li An Quntao Duan Jiandong Gao Yuge
3822	Residual-Changing-Rate Based Open-Circuit Fault Diagnosis for A Single-Phase Cascaded H-Bridge Rectifier
	Xie Dong Ge Xinglai
3835	Research on Modulation Strategy and Balance Control for DC-Link Voltages in Triple Line-Voltage Cascaded
	VIENNA Converter Zou Jia Wang Cong Cheng Hong Liu Jinqi
3845	Secondary Frequency Control Including Delay Compensation in Microgrids Based on Virtual Synchronous Generator
	Chen Meng Xiao Xiangning Luo Chao
3855	An Integrated Control Strategy of the Stabilization Operation and Mode Smooth Transfer for Microgrids
	Xu Sheng Cao Wu Zhao Jianfeng
3868	A Non-Intrusive Load Decomposition Method Based on Affinity Propagation and Genetic Algorithm Optimization
	Xu Qingshan Lou Oudie Zheng Aixia Liu Yujun
3879	Noise Modeling for Power Line Communication Channel Using the LS-SVM and Wavelet Neural Networks
	Zhang Hui Lu Wenbing Zhao Xiongwen Li Liang Liu Junyu
3889	Modeling of Pollution Particle Accumulating on Insulator Rough Surface Basing on Collision Dynamic and Its Verification
	Zhang Dongdong Zhang Zhijin Jiang Xingliang Hu Jianlin Liu Xiaohuan
3897	Interface of Epoxy Resin Composites, and Its Influence on Electrical Performance
	Wu Zijian Wang Chen Zhang Mingyan Pei Xin Jiang Peng
3906	The Effect of Electrothermal Aging on the Properties of Epoxy Resin in Dry-Type Transformer
	Wang Youyuan Liu Yu Wang Shiyou Xu Haiying
3917	Study on Permanent Magnet Synchronous Motor Servo System Based on Total Sliding Mode Control Approach with
	Nonlinear Integrator Zhang Liwei Wei Wei Wei Zhang Chao Liu Hui Xiu Sanmu
3925	Three-Vector Based Model Predictive Torque Control of Eliminating Weighting Factor
	Xu Yanping Li Yuanyuan Zhang Baocheng Zhou Qin