

ISSN 1003-8930  
CODEN DXJZAA

# Proceedings of the CSU-EPSA

A Publication of the Chinese Society of Universities for  
Electric Power System and its Automation

# 电力系统及其 自动化学报

1  
2018

第30卷 第1期

Vol. 30 No.1

ISSN 1003-8930



天津大学 主办

# 电力系统及其自动化学报

## 全国高等学校电力系统及其自动化学术年会刊物

第30卷 第1期(总168期)

2018年1月

### 目 次

#### 学术论文

- 基于系统动力学的智能配电网可持续发展能力评估 ..... 魏 炜,高 涵,朱 洁,等(1)  
考虑峰谷电价的串联结构光储型多微网经济运行 ..... 杨 莹,许志荣,袁昊哲,等(8)  
考虑双重市场的含风电电力系统双层随机优化调度 ..... 周任军,孙嘉赣,张 浩,等(15)  
基于幅频特性的储能系统参与调频的效果评价方法 ..... 陈 良,李欣然,黄际元,等(22)  
计及需求响应的并网型微电网协同优化策略 ..... 孙丛丛,王致杰,江秀臣,等(30)  
光伏并网集成滤波电抗分裂变压器 ..... 罗隆福,胡志勇,王姿雅,等(38)  
Hadoop数据存储分析技术在风电并网系统中的应用 ..... 韩平平,张祥民,丁 明,等(43)  
调峰补偿热电机组及风电消纳能力的优化模型 ..... 郑权国,陈彦秀,周任军,等(51)  
低谐波畸变的快速主动移频式孤岛检测方法 ..... 邹培源,黄 纯,白振宇,等(58)  
DC-DC变换器新型趋近律滑模控制 ..... 刘彦呈,古龙瑞,张勤进(64)  
“源-网-荷”相协调的主动配电网经济调度 ..... 廖剑波,李振坤,符 杨(69)  
基于瞬时对称分量变换的单相电压暂降检测 ..... 李希年,庞清乐,孙 静(76)  
低压电力线载波通信的系统化测试方法 ..... 崔迎宾,张卫欣,单增礼,等(81)  
考虑电动汽车充电和需求侧响应的光伏微电网多目标优化调度 ..... 禹威威,刘世林,陈其工,等(88)  
基于动态调节的MMC故障子模块替换策略 ..... 荣 飞,陈盼庆,黄守道,等(98)  
直流制式下多分裂式机车变压器用作电抗器时等效电感计算 ..... 魏 兵,李晓松,徐江平,等(104)  
混合储能对电力电子变压器中的应用 ..... 米根锁,魏宏斌(109)  
考虑分布式发电波动性的有源配电网故障恢复策略 ..... 张 磐,唐 萍,丁 一,等(115)  
虚拟磁链定向的三相电压型PWM整流器模型预测直接功率控制 ..... 姬小豪,陈星弢,蒋伟毅,等(121)  
光储微电网并网模式协调控制策略 ..... 刘迎澍,王翠敏(127)  
重复控制下指定次谐波电流控制方法 ..... 蒋美娜,马晓春,孙占龙,等(133)  
IEC61850过程层技术在火电厂厂用电系统中的应用方案 ..... 侯 炜,刘永生,张灵凌,等(139)  
基于一致性算法的独立直流微电网分层协调控制策略 ..... 朱承治,俞红生,周开河,等(144)

期刊基本参数:CN 12-1251/TM\*1989\*m\*A4\*150\*zh\*P\* ¥ 10.00\*700\*23\*2018-01

# Proceedings of the CSU-EPSA

Vol. 30 No.1 (Sum 168)

January 2018

## Contents

### Theoretical Research

Evaluation on Sustainable Development Capability of Smart Distribution Network Based on System Dynamics .....	WEI Wei, GAO Han, ZHU Jie, et al ( 1 )
Economical Operation of PV-ESS Multi-microgrid with Series Structure Considering Time-sharing Price .....	YANG Ping, XU Zhirong, YUAN Haozhe, et al ( 8 )
Bi-level Stochastic Programming and Dispatch of Wind Integrated Power System Considering Dual Market .....	ZHOU Renjun, SUN Jiagan, ZHANG Hao, et al (15)
Effect Evaluation Method for Energy Storage System Participating in Frequency Regulation Based on Amplitude-frequency Characteristics.....	CHEN Liang, LI Xinran, HUANG Jiyuan, et al (22)
Coordinated Optimization Strategy for Grid-connected Microgrid Considering Demand Response .....	SUN Congcong, WANG Zhijie, JIANG Xiuchen, et al (30)
Integrated Filtering Reactor Spilt Transformer in Photovoltaic Grid .....	LUO Longfu, HU Zhiyong, WANG Ziya, et al (38)
Application of Data Storage and Analysis Technology of Hadoop to Wind Power Grid-connected System .....	HAN Pingping, ZHANG Xiangmin, DING Ming, et al (43)
Optimization Model for CHP Unit with Peak Load Compensation and Wind Power Accommodation Capacity .....	ZHENG Quanguo, CHEN Yanxiu, ZHOU Renjun, et al (51)
Fast Active Frequency Drift Islanding Detection Method with Lower Total Harmonic Distortion .....	ZOU Peiyuan, HUANG Chun, BAI Zhenyu, et al (58)
Sliding Mode Control of DC-DC Converter Based on Novel Reaching Law .....	LIU Yancheng, GU Longrui, ZHANG Qinjin (64)
Economic Scheduling of Active Distribution Network Considering the Coordination of Resources , Network and Loads .....	LIAO Jianbo, LI Zhenkun, FU Yang (69)
Detection of Single-phase Voltage Sag Based on Instantaneous Symmetrical Component Transform .....	LI Xinian, PANG Qingle, SUN Jing (76)
Systematic Test Method Based on Low-voltage Power Line Carrier Communication .....	CUI Yingbin, ZHANG Weixin, SHAN Zengli, et al (81)
Multi-objective Optimization Scheduling for PV Microgrid Considering Electric Vehicle Charging and Demand Response .....	YU Weiwei, LIU Shilin, CHEN Qigong, et al (88)
Fault Sub-module Replacement Strategy for Modular Multilevel Converter Based on Dynamic Regulation .....	RONG Fei, CHEN Panqing, HUANG Shoudao, et al (98)
Calculation of Equivalent Inductance for Locomotive Transformer of Multi-split Type in DC System .....	WEI Bing, LI Xiaosong, XU Jiangping, et al (104)
Application of Hybrid Energy Storage to Power Electronic Transformer .....	MI Gensuo, WEI Hongbin (109)
Service Restoration Strategy Considering the Volatility of Distribution Generations for Active Distribution Network .....	ZHANG Pan, TANG Ping, DING Yi, et al (115)
Virtual Flux Based Model Predictive Direct Power Control for Three-phase Voltage Sourced PWM Rectifier .....	JI Xiaohao, CHEN Xingtao, JIANG Weiyi, et al (121)
Coordinated Control Strategy for Micro-grid with Photovoltaic and Energy Storage Units in Grid Connected Operation .....	LIU Yingshu, WANG Cuimin, et al (127)
Control Method for Selective Harmonic Current Under Repetitive Control .....	JIANG Meina, MA Xiaochun, SUN Zhanlong, et al (133)
Application Scheme of IEC61850 Process Layer Technology in Auxiliary Power System of Thermal Power Plant .....	HOU Wei, LIU Yongsheng, ZHANG Lingling, et al (139)
Consensus-based Hierarchical Coordinated Control for Autonomous DC Microgrid .....	ZHU Chengzhi, YU Hongsheng, ZHOU Kaihe, et al (144)