**《电力工程技术》**

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**第5期**

**特殊场景下XLPE电缆运行检测新技术专题**

[1] 长段电缆中局部放电脉冲信号的传输特性及耦合研究

高旭泽， 段然， 任明， 等. 长段电缆中局部放电脉冲信号的传输特性及耦合研究[J]. 电力工程技术, 2020, 39(5):2-9.

GAO Xuze, DUAN Ran, REN Ming, et al. Transmission characteristics and coupling of partial discharge pulse signals in long cables [J]. Electric Power Engineering Technology, 2020,39(5):2-9.

[2] 基于超低频介损的XLPE电缆绝缘受潮检测判据研究

马楠， 李晋贤， 周海， 等. 基于超低频介损的XLPE电缆绝缘受潮检测判据研究[J]. 电力工程技术, 2020, 39(5):10-15.

MA Nan, LI Jinxian, ZHOU Hai, et al. Detection criterion of XLPE cable insulation based on very low frequency dielectric loss [J]. Electric Power Engineering Technology, 2020,39(5):10-15.

[3] 电缆绝缘层老化对接头界面压力的影响研究

包淑珍， 邓红雷， 韩卓展， 等. 电缆绝缘层老化对接头界面压力的影响研究[J]. 电力工程技术, 2020, 39(5):16-22.

BAO Shuzhen, DENG Honglei, HAN Zhuozhan, et al. The influence of aging cable insulation on the interface pressure of cable joint [J]. Electric Power Engineering Technology, 2020, 39(5): 16-22.

[4] 施工缺陷对超导电缆中间接头内电场分布的影响

党卫军， 孙奇珍， 薛艺为， 等. 施工缺陷对超导电缆中间接头内电场分布的影响[J]. 电力工程技术, 2020, 39(5):23-29.

DANG Weijun, SUN Qizhen, XUE Yiwei, et al. Influence of construction defects on electric field distribution of superconducting cable intermediate joints [J]. Electric Power Engineering Technology, 2020, 39(5): 23-29.

[5] 110 kV插拔式GIS电缆终端轴向传热分析

许鹏飞， 杨帆 ， 刘刚， 等. 110 kV插拔式GIS电缆终端轴向传热分析[J]. 电力工程技术, 2020, 39(5):30-35.

XU Pengfei, YANG Fan, LIU Gang, et al. Assessment on axial heat transfer of 110 kV plug-in GIS cable terminal [J]. Electric Power Engineering Technology, 2020, 39(5): 30-35.

[6] 基于EMD和Teager能量算子的电缆局部放电辨识

刘波， 孟祥震， 迟鹏， 等. 基于EMD和Teager能量算子的电缆局部放电辨识[J]. 电力工程技术, 2020, 39(5):36-42.

LIU Bo, MENG Xiangzhen, CHI Peng, et al. Cable partial discharge identification based on EMD and Teager energy operator [J]. Electric Power Engineering Technology, 2020, 39(5): 36-42.

[7] 基于Kohonen网络的典型绝缘缺陷局部放电模式识别

江杰波， 陈珂， 施永贵， 等. 基于Kohonen网络的典型绝缘缺陷局部放电模式识别[J]. 电力工程技术, 2020, 39(5):43-48.

JIANG Jiebo, CHEN Ke, SHI Yonggui, et al. Partial discharge recognition of typical insulation defect based on Kohonen network [J]. Electric Power Engineering Technology, 2020, 39(5): 43-48.

**专论与综述**

[1] 输电线路故障行波保护综述

李泽文， 唐迪， 夏翊翔， 等. 输电线路故障行波保护综述[J]. 电力工程技术, 2020, 39(5):49-58.

LI Zewen, TANG Di, XIA Yixiang, et al. A summary of fault traveling wave protection for transmission lines [J]. Electric Power Engineering Technology, 2020,39(5):49-58.

[2] 适用高比例新能源系统广域消纳的输电技术研究综述

刘增训， 游沛羽， 周勤勇. 适用高比例新能源系统广域消纳的输电技术研究综述[J]. 电力工程技术, 2020, 39(5):59-70.

LIU Zengxun, YOU Peiyu, ZHOU Qinyong. Transmission technologies adapting to power systems with widely-consumed high-proportion renewable energy [J]. Electric Power Engineering Technology, 2020,39(5):59-70.

[3] 电化学储能系统参与调峰调频政策综述与补偿机制探究

张志， 邵尹池， 伦涛， 等. 电化学储能系统参与调峰调频政策综述与补偿机制探究[J]. 电力工程技术, 2020, 39(5):71-77，84.

ZHANG Zhi, SHAO Yinchi, LUN Tao, et al. Review on the policies and compensation mechanism of BESS participation in the auxiliary service of frequency and peak modulation [J]. Electric Power Engineering Technology, 2020,39(5): 71-77，84.

**电网运行与控制**

[1] 基于最小二乘法的线路录波数据同步及故障测距

赵阳， 肖仕武， 焦邵麟， 等. 基于最小二乘法的线路录波数据同步及故障测距[J]. 电力工程技术, 2020, 39(5):78-84.

ZHAN Yang, XIAO Shiwu, JIAO Shaolin, et al. Synchronization of line fault recording data and fault location based on least square method [J]. Electric Power Engineering Technology, 2020,39(5):78-84.

[2] UPFC接入对线路变化量方向元件的影响

黄涛， 赵青春， 谢华， 等. UPFC接入对线路变化量方向元件的影响[J]. 电力工程技术, 2020, 39(5):85-91.

HUANG Tao, ZHAO Qingchun, XIE Hua, et al. Impact of UPFC on transmission line variation direction elements [J]. Electric Power Engineering Technology, 2020,39(5):85-91.

[3] 特高压直流分层接入方式下阀组在线投入策略研究

谷相宏， 邓凯， 施琳，等. 特高压直流分层接入方式下阀组在线投入策略研究[J]. 电力工程技术, 2020, 39(5):92-98.

GU Xianghong, DENG Kai, SHI Lin, et al. Online deblocking strategies of valve group for UHVDC system under hierarchical connection mode [J]. Electric Power Engineering Technology, 2020,39(5):92-98.

[4] 分时电价背景下综合能源需求响应优化建模

马骏超， 黄弘扬， 楼伯良， 等. 分时电价背景下综合能源需求响应优化建模[J]. 电力工程技术, 2020, 39(5):99-106.

MA Junchao, HUANG Hongyang, LOU Boliang, et al. Optimal modeling of integrated energy demand response under time-shared electricity price [J]. Electric Power Engineering Technology, 2020,39(5): 99-106.

**配网与微网**

[1] 基于网络等值的直流配用电系统可靠性评估方法研究

张军六， 王金浩， 常潇， 等. 基于网络等值的直流配用电系统可靠性评估方法研究[J]. 电力工程技术, 2020, 39(5):107-112.

ZHANG Junliu, WANG Jinhao, CHANG Xiao, et al. Reliability evaluation of DC distribution system based on reliability network equivalent [J]. Electric Power Engineering Technology, 2020,39(5): 107-112.

[2] 考虑分布式电源影响的配电网源荷储分层协调控制

程维杰， 颜云松， 康明才， 等. 考虑分布式电源影响的配电网源荷储分层协调控制[J]. 电力工程技术, 2020, 39(5):113-119.

CHEN Weijie, YAN Yunsong, KANG Mingcai, et al. Generation-load-storage layered coordinated control of distribution networkconsidering the influence of distributed generation [J]. Electric Power Engineering Technology, 2020,39(5): 113-119.

[3] 基于EKF算法的分布式光伏发电异常数据排查技术

左松林， 陈伟， 付真斌，等. 基于EKF算法的分布式光伏发电异常数据排查技术[J]. 电力工程技术, 2020, 39(5):120-125.

ZUO Songlin, CHEN Wei, FU Zhenbin, et al. Abnormal data inspection technology of photovoltaic power generation based on EKF algorithm [J]. Electric Power Engineering Technology, 2020,39(5): 120-125.

**高电压技术**

[1] 热机联合应力对油浸纸板绝缘及机械特性影响研究

刘志华， 崔彦捷， 汲胜昌， 等. 热机联合应力对油浸纸板绝缘及机械特性影响研究[J]. 电力工程技术, 2020, 39(5):126-132.

LIU Zhihua, CUI Yanjie, JI Shengchang, et al. Influence of thermo-mechanical combined stress on insulation and mechanical characteristics of oil-impregnated paperboard [J]. Electric Power Engineering Technology, 2020,39(5): 126-132.

[2] 基于BP神经网络的输电线路雷击故障预测

吴琛， 苏明昕， 谢云云， 等. 基于BP神经网络的输电线路雷击故障预测[J]. 电力工程技术, 2020, 39(5):133-139.

WU Chen, SU Mingxin, XIE Yunyun, et al. BP neutral network based lightning fault prediction of transmission lines[J]. Electric Power Engineering Technology, 2020,39(5): 133-139.

[3] 雁门关直流接地极附近地表电位分布研究

孙志鹏， 蔡新景， 魏建， 等. 雁门关直流接地极附近地表电位分布研究[J]. 电力工程技术, 2020, 39(5):140-145.

SUN Zhipeng, CAI Xinjing, WEI Jian, et al. Surface potential distribution near DC grounding electrode of Yanmenguan [J]. Electric Power Engineering Technology, 2020,39(5): 140-145.

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[1] 基于SVR残差修正的光伏发电功率预测模型

刘家庆， 张弘鹏， 郭希海，等. 基于SVR残差修正的光伏发电功率预测模型[J]. 电力工程技术, 2020, 39(5):146-151.

LIU Jiaqing, ZHANG Hongpeng, GUO Xihai, et al. Prediction model of photovoltaic power generation based on SVR residual correction [J]. Electric Power Engineering Technology, 2020,39(5): 146-151.

[2] 基于Copula函数的风电时序联合出力典型场景生成

汤向华， 李秋实， 侯丽钢， 等. 基于Copula函数的风电时序联合出力典型场景生成[J]. 电力工程技术, 2020, 39(5):152-161，168.

TANG Xianghua, LI Qiushi, HOU Ligang, et al. Generation of typical sequential joint output scenarios of wind power basedon Copula function [J]. Electric Power Engineering Technology, 2020,39(5): 152-161，168.

[3] 基于RBF神经网络的智能负载控制策略研究

叶泰然， 王婷， 吕捷， 等. 基于RBF神经网络的智能负载控制策略研究[J]. 电力工程技术, 2020, 39(5):162-168.

YE Tairan, WANG Ting, LYU Jie, et al. Intelligent load control strategy based on RBF neural network [J]. Electric Power Engineering Technology, 2020,39(5): 162-168.

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[1] 新型双降压式模块化多电平直流变压器

吕丹， 孙毅超， 郭勐葳， 等. 新型双降压式模块化多电平直流变压器[J]. 电力工程技术, 2020, 39(5):169-177.

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[2] 变压器用片式散热器散热性能数值模拟及试验研究

徐天光， 王永庆， 朱超， 等. 变压器用片式散热器散热性能数值模拟及试验研究[J]. 电力工程技术, 2020, 39(5):178-184.

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[3] 基于TCAD的脉冲作用下晶闸管反向恢复特性仿真研究

陈炫宇， 陶风波， 徐阳， 等. 基于TCAD的脉冲作用下晶闸管反向恢复特性仿真研究[J]. 电力工程技术, 2020, 39(5):185-190.

CHEN Xuanyu, TAO Fengbo, XU Yang, et al. Reverse recovery characteristics of high voltage thyristor induced by voltage pulse based on TCAD [J]. Electric Power Engineering Technology, 2020,39(5): 185-190.

**技术探讨**

[1] 基于深度学习的发电站制冷水管焊缝图像检测

王立辉， 秦成帅， 杨贤彪， 等. 基于深度学习的发电站制冷水管焊缝图像检测[J]. 电力工程技术, 2020, 39(5):191-196.

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[2] 基于电流分布系数的母差保护非故障相饱和判别

王风光， 李力， 吕航， 等. 基于电流分布系数的母差保护非故障相饱和判别[J]. 电力工程技术, 2020, 39(5):197-203.

WANG Fengguang, LI Li, LYU Hang, et al. Non-fault phase saturation discrimination for busbar differential protection based on current distribution coefficient [J]. Electric Power Engineering Technology, 2020,39(5): 197-203.

[3] 基于电流序分量的多源配电网故障定位方法

苑吉河， 张曦， 黄虎， 等. 基于电流序分量的多源配电网故障定位方法[J]. 电力工程技术, 2020, 39(5):204-210.

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[4] 分布式电源接入的配电系统多类型无功源出力优化方法

郭清元， 莫超， 吴杰康， 等. 分布式电源接入的配电系统多类型无功源出力优化方法[J]. 电力工程技术, 2020, 39(5):211-219.

GUO Qingyuan, MO Chao, WU Jiekang, et al. Multi-type reactive power output optimization method of distribution system with distributed generations [J]. Electric Power Engineering Technology, 2020,39(5): 211-219.

**第4期**

**电力电子变压器研发与控制关键技术专题**

[1] 基于共载波调制的功率复合型模块化多电平固态变压器

孙毅超， 丁楠木， 王琦. 基于共载波调制的功率复合型模块化多电平固态变压器[J]. 电力工程技术, 2020, 39(4):2-8.

SUN Yichao, DING Nanmu, WANG Qi. Power integrated modular multilevel solid-state transformer with common carrier modulation [J]. Electric Power Engineering Technology, 2020,39(4):2-8.

[2] 多电平直流链电力电子变压器控制策略研究

张哲， 许崇福， 王弋飞， 等. 多电平直流链电力电子变压器控制策略研究[J]. 电力工程技术, 2020, 39(4):9-15.

ZHANG Zhe, XU Chongfu, WANG Yifei, et al. Control strategies for the multi-level DC-link power electronic transformer [J]. Electric Power Engineering Technology, 2020,39(4):9-15.

[3] 配网直流变压器双极短路故障穿越方法

张中锋， 谢晔源， 杨晨， 等. 配网直流变压器双极短路故障穿越方法[J]. 电力工程技术, 2020, 39(4):16-21,41.

ZHANG Zhongfeng, XIE Yeyuan, YANG Chen, et al. Bipolar short-circuit fault ride-through method of DC transformer [J]. Electric Power Engineering Technology, 2020,39(4):16-21,41.

[4] 电力电子变压器直流端口传感器位置选取方法

张宸宇， 袁宇波， 袁晓冬， 等. 电力电子变压器直流端口传感器位置选取方法[J]. 电力工程技术, 2020, 39(4):22-27.

ZHANG Chenyu , YUAN Yubo, YUAN Xiaodong, et al. Selection of DC port sensor position for power electronic transformer [J]. Electric Power Engineering Technology, 2020,39(4):22-27.

[5] 适用于直流配电网母线保护的改进方法

曾先锋， 王文龙， 刘永生， 等. 适用于直流配电网母线保护的改进方法[J]. 电力工程技术, 2020, 39(4):28-33.

ZENG Xianfeng, WANG Wenlong, LIU Yongsheng, et al. Improved method for busbar protection in DC distribution network [J]. Electric Power Engineering Technology, 2020, 39(4): 28-33.

**专论与综述**

[1] 英国“8·9”大停电事故振荡事件分析及思考

樊陈， 姚建国， 张琦兵， 等. 英国“8·9”大停电事故振荡事件分析及思考[J]. 电力工程技术, 2020, 39(4):34-41.

FAN Chen, YAO Jianguo, ZHANG Qibin, et al. Reflection and analysis for oscillation of the blackout event of 9 August 2019 in UK [J]. Electric Power Engineering Technology, 2020,39(4):34-41.

[2] 应对UHVDC送端电网新能源大规模脱网的频率紧急控制

霍超， 李兆伟， 柯贤波， 等. 应对UHVDC送端电网新能源大规模脱网的频率紧急控制[J]. 电力工程技术, 2020, 39(4):42-47,60.

HUO Chao, LI Zhaowei, KE Xianbo, et al. Emergency frequency control for large-scale disconnection of renewable energy in the UHVDC sending grid [J]. Electric Power Engineering Technology, 2020,39(4):42-47,60.

[3] 基于电池储能的MMC-HVDC系统的建模与仿真

刘耀， 吴佳玮， 赵小令， 等. 基于电池储能的MMC-HVDC系统的建模与仿真[J]. 电力工程技术, 2020, 39(4):48-54.

LIU Yao, WU Jiawei, ZHAO Xiaoling, et al. Modeling and simulation of battery energy storage system based on MMC-HVDC [J]. Electric Power Engineering Technology, 2020,39(4):48-54.

**电网运行与控制**

[1] 基于多新息最小二乘算法的电力线路参数辨识

原康康， 卫志农， 段方维， 等. 基于多新息最小二乘算法的电力线路参数辨识[J]. 电力工程技术, 2020, 39(4):55-60.

YUAN Kangkang, WEI Zhinong, DUAN Fangwei, et al. Power line parameter identification based on multi-innovation least square algorithm [J]. Electric Power Engineering Technology, 2020,39(4):55-60.

[2] 考虑风机一次调频的风电高占比电网机组组合

郭树锋， 李威， 胡珊珊， 等. 考虑风机一次调频的风电高占比电网机组组合[J]. 电力工程技术, 2020, 39(4):61-67.

GUO Shufeng, LI Wei, HU Shanshan, et al. PUnit commitment considering the primary frequency regulation of wind turbine in grids with a high proportion of wind power [J]. Electric Power Engineering Technology, 2020,39(4):61-67.

[3] 基于正序电压变化量的故障电压暂降源定位算法

戴锋， 刘贞瑶， 李丹奇， 等. 基于正序电压变化量的故障电压暂降源定位算法[J]. 电力工程技术, 2020, 39(4):68-76.

DAI Feng, LIU Zhenyao, LI Danqi, et al. Fault source location method for distribution network based on positive sequence voltage [J]. Electric Power Engineering Technology, 2020,39(4):68-76.

[4] 含风电场的输电网运营效率评估

党存禄， 李永强， 杨海兰， 等. 含风电场的输电网运营效率评估[J]. 电力工程技术, 2020, 39(4):77-86.

DANG Cunlu, LI Yongqiang , YANG Hailan, et al. Efficiency evaluation of transmission grids with wind farms [J]. Electric Power Engineering Technology, 2020,39(4):77-86.

[5] 基于高比例可再生能源的废矿抽蓄电站优化配置研究

滕松， 刘毅， 钟睿， 等. 基于高比例可再生能源的废矿抽蓄电站优化配置研究[J]. 电力工程技术, 2020, 39(4):87-95,103.

TENG Song, LIU Yi, ZHONG Rui, et al. Optimal configuration of abandoned mine pumped storage power station based on high proportion of renewable energy [J]. Electric Power Engineering Technology, 2020,39(4):87-95,103.

**智能配网与微网**

[1] 分时电价下企业光储系统的容量配置及优化运行

郝思鹏， 张前， 周宇， 等. 分时电价下企业光储系统的容量配置及优化运行[J]. 电力工程技术, 2020, 39(4):96-103.

HAO Sipeng,ZHANG Qian,ZHOU Yu, et al. Capacity configuration and optimal operation of enterprise optical storage system under time-shared price [J]. Electric Power Engineering Technology, 2020,39(4):96-103.

[2] 基于ε-松弛的主动配电网有功-无功协调调度求解方法

邓振立， 张涛， 李荣， 等. 基于ε-松弛的主动配电网有功-无功协调调度求解方法[J]. 电力工程技术, 2020, 39(4):104-111.

DENG Zhenli, ZHANG Tao, LI Rong, et al. Active-reactive coordination scheduling method for active distribution network based on ε- relaxation [J]. Electric Power Engineering Technology, 2020,39(4):104-111.

[3] 考虑用户便捷性和配网接纳能力的EV充电站选址定容

徐荆州， 葛磊蛟， 杨昌海， 等. 考虑用户便捷性和配网接纳能力的EV充电站选址定容[J]. 电力工程技术, 2020, 39(4):112-119,142.

XU Jingzhou, GE leijiao, YANG Changhai, et al. Location and capacity selection method of EV charging stations considering transportation convenience and distribution network capacity [J]. Electric Power Engineering Technology, 2020,39(4):112-119,142.

**高电压技术**

[1] 换流变用有载分接开关振动信号预处理方法研究

张知先， 高拓宇， 雷嘉丽. 换流变用有载分接开关振动信号预处理方法研究[J]. 电力工程技术, 2020, 39(4):120-126.

ZHANG Zhixian, GAO Tuoyu, LEI Jiali. Vibration signal preprocessing method of OLTC for converter transformer [J]. Electric Power Engineering Technology, 2020,39(4):120-126.

[2] 双回线GIL感应电流快速释放装置控制策略研究

王玉龙， 徐渊， 赵青春，等. 双回线GIL感应电流快速释放装置控制策略研究[J]. 电力工程技术, 2020, 39(4):127-133.

WANG Yulong, XU Yuan , ZHAO Qingchun, et al. Control strategy of inductive current rapid release device for GIL with double-circuit lines [J]. Electric Power Engineering Technology, 2020,39(4):127-133.

[3] 绝缘纸中空间电荷效应的模拟研究

冀章， 李长云. 绝缘纸中空间电荷效应的模拟研究[J]. 电力工程技术, 2020, 39(4):134-142.

JI Zhang, LI Changyun. Simulation of space charge effect in insulating paper [J]. Electric Power Engineering Technology, 2020,39(4):134-142.

[4] 支撑式管母线安装温度对其安全温变范围影响研究

李信， 张锐， 洪海程， 等. 支撑式管母线安装温度对其安全温变范围影响研究[J]. 电力工程技术, 2020, 39(4):143-149.

LI Xin, ZHANG Rui, HONG Haicheng, et al. Influence of installation temperature on the safe temperature variation range of supporting tube bus [J]. Electric Power Engineering Technology, 2020,39(4):143-149.

**智能电网技术**

[1] LoRaWAN中的公平数据速率分配和传输功率控制

林浩男， 王海， 郭雅娟， 等. LoRaWAN中的公平数据速率分配和传输功率控制[J]. 电力工程技术, 2020, 39(4):150-156.

LIN Haonan, WANG Hai, GUO Yajuan, et al. Fair data rate allocation and transmission power control in LoRaWAN [J]. Electric Power Engineering Technology, 2020,39(4):150-156.

[2] 基于典型间隔模板的智能变电站虚端子自动连接方法

李嘉， 饶丹， 李耕， 等. 基于典型间隔模板的智能变电站虚端子自动连接方法[J]. 电力工程技术, 2020, 39(4):157-163.

LI Jia, RAO Dan, LI Geng, et al. Automatic connection method of virtual terminator in smart substation based on typical bay template [J]. Electric Power Engineering Technology, 2020,39(4):157-163.

[3] 基于预测模型的发电厂异常数据辨识方法

高骞， 张浩天， 汤奕. 基于预测模型的发电厂异常数据辨识方法[J]. 电力工程技术, 2020, 39(4):164-170.

GAO Qian, ZHANG Haotian, TANG Yi. Abnormal data analysis method of power plant data based on forecast model [J]. Electric Power Engineering Technology, 2020,39(4):164-170.

**电机与电器**

[1] 隔离型链式储能系统优化设计研究

叶海涵， 陈武. 隔离型链式储能系统优化设计研究[J]. 电力工程技术, 2020, 39(4):171-179.

YE Haihan, CHEN Wu. Optimization design of isolated cascaded energy storage system [J]. Electric Power Engineering Technology, 2020,39(4):171-159.

[2] 主动干预型消弧装置的附加电阻故障选相方法

王鹏， 张贺军， 徐凯， 等. 主动干预型消弧装置的附加电阻故障选相方法[J]. 电力工程技术, 2020, 39(4):180-186.

WANG Peng, ZHANG Hejun, XU Kai, et al. Additional resistance based fault phase identification method suitable for active interference arc suppression device [J]. Electric Power Engineering Technology, 2020,39(4):180-186.

[3] 电子式电流互感器误差模型及误差状态预测方法

胡琛， 张竹， 杨爱超 ， 等. 电子式电流互感器误差模型及误差状态预测方法[J]. 电力工程技术, 2020, 39(4):187-193.

HU Chen, ZHANG Zhu, YANG Aichao, et al. Error model and forecasting method for electronic current transformers [J]. Electric Power Engineering Technology, 2020,39(4):187-193.

[4] 换流变压器交流消磁及验证装置的研究

刘志远， 于晓军， 邹洪森， 等 换流变压器交流消磁及验证装置的研究[J]. 电力工程技术, 2020, 39(4):194-200.

LIU Zhiyuan, YU Xiaojun, ZOU Hongsen, et al. AC degaussing and verification device of converter transformer [J]. Electric Power Engineering Technology, 2020,39(4):194-200.

**技术探讨**

[1] 基于役龄回退分析的电力设备检修决策方法研究

张炜， 王佳琳， 张镱议， 等. 基于役龄回退分析的电力设备检修决策方法研究[J]. 电力工程技术, 2020, 39(4):201-206.

ZHANG Wei, WANG Jialin, ZHANG Yiyi, et al. The equipment maintenance decision method based on the analysis of the age reduction[J]. Electric Power Engineering Technology, 2020,39(4):201-206.

[2] 模块化多电平换流阀子模块旁路方案设计

段军， 谢晔源， 朱铭炼， 等. 模块化多电平换流阀子模块旁路方案设计[J]. 电力工程技术, 2020, 39(4):207-213.

DUAN Jun, XIE Yeyuan, ZHU Minglian, et al. Bypass scheme design for value sub-module of modular multi-level converter [J]. Electric Power Engineering Technology, 2020,39(4):207-213.

[3] 凝汽器罗茨水环真空泵抽气系统控制与仿真

王骏， 朱灵瑜， 吴正勇，等. 凝汽器罗茨水环真空泵抽气系统控制与仿真[J]. 电力工程技术, 2020, 39(4):214-219.

DWANG Jun, ZHU Lingyu, WU Zhengyong, et al. Control and simulation of Roots water-ring vacuum pump extraction system for condenser [J]. Electric Power Engineering Technology, 2020,39(4):214-219.

**第3期**

**高渗透率新能源电网规划与调控关键技术专题**

[1] 大规模新能源经张北柔直孤岛送出的虚拟频率研究

郭贤珊， 王晖， 卜广全， 等. 大规模新能源经张北柔直孤岛送出的虚拟频率研究[J]. 电力工程技术, 2020, 39(3):2-7.

GUO Xianshan, WANG Hui, BU Guangquan, et al. Virtual frequency control of islanded large-scale renewable energy power system delivered by Zhangbei VSC-HVDC [J]. Electric Power Engineering Technology, 2020,39(3):2-7.

[2] 带频率-电压死区的VSC-HVDC系统一次调频控制策略

徐晓颖， 吴继平， 滕贤亮，等. 带频率-电压死区的VSC-HVDC系统一次调频控制策略[J]. 电力工程技术, 2020, 39(3):8-14.

XU Xiaoying, WU Jiping, TENG Xianliang, et al. Primary frequency modulation control strategy for VSC-HVDC system with frequency-voltage dead zone [J]. Electric Power Engineering Technology, 2020,39(3):8-14.

[3] 风光火打捆多直流弱送端电网安全稳定防御系统研究

韩悌， 李碧君， 张振宇， 等. 风光火打捆多直流弱送端电网安全稳定防御系统研究[J]. 电力工程技术, 2020, 39(3):15-22.

HAN Ti, LI Bijun, ZHANG Zhenyu, et al. Security and stability defense system for power grid with wind-photovoltaic-thermal power bundling and multi-DC weak sending-end [J]. Electric Power Engineering Technology, 2020,39(3):15-22.

[4] 考虑风电接入的电网静态电压安全域计算

周刚， 肖斐， 艾芊， 等. 考虑风电接入的电网静态电压安全域计算[J]. 电力工程技术, 2020, 39(3):23-29.

ZHOU Gang, XIAO Fei, AI Qian, et al. Calculation of power grid static voltage security region considering wind power integration [J]. Electric Power Engineering Technology, 2020,39(3):23-29.

[5] 风电场经VSC-HVDC并网故障穿越协调控制策略

鲁裕婷， 赵天乐， 都洪基.风电场经VSC-HVDC并网故障穿越协调控制策略[J]. 电力工程技术, 2020, 39(3):30-35.

LU Yuting, ZHAO Tianle, DU Hongji. A coordination control strategy of integrated wind farm low voltage ride-through based on VSC-HVDC [J]. Electric Power Engineering Technology, 2020,39(3):30-35.

[6] 综合多类型措施的频率紧急协调优化控制研究

常海军， 陈春萌， 刘福锁， 等. 综合多类型措施的频率紧急协调优化控制研究[J]. 电力工程技术, 2020, 39(3):36-42.

CHANG Haijun, CHEN Chunmeng, LIU Fusuo, et al. Coordinated optimization method for frequency safety emergency control strategy with multi-type control measures [J]. Electric Power Engineering Technology, 2020,39(3):36-42.

[7] 基于改进粒子群算法的风机频率控制研究

游广增， 杭志， 陈凯， 等. 基于改进粒子群算法的风机频率控制研究[J]. 电力工程技术, 2020, 39(3):43-50.

YOU Guangzeng, HANG Zhi, CHEN Kai, et al. Wind turbine generator frequency control based on improved particle swarm optimization [J]. Electric Power Engineering Technology, 2020,39(3):43-50.

**专论与综述**

[1] SASDN时滞不确定性分析的顶层设计

葛磊蛟， 马滕肖， 陈文广， 等. SASDN时滞不确定性分析的顶层设计[J]. 电力工程技术, 2020, 39(3):51-57.

GE Leijiao, MA Tengxiao, CHEN Wenguang, et al. A top-level design for time-delay uncertainty analysis of situational awareness in smart distribution network [J]. Electric Power Engineering Technology, 2020,39(3):51-57.

[2] 电网山火灾害特征及风险预警技术

周恩泽， 胡思雨， 张录军， 等. 电网山火灾害特征及风险预警技术[J]. 电力工程技术, 2020, 39(3):58-64.

ZHOU Enze, HU Siyu, ZHANG Lujun, et al. Characteristics and risk warning technology of wildfire disaster in power grid [J]. Electric Power Engineering Technology, 2020,39(3):58-64.

[3] 基于能源脑模型的二次能源优化一次能源探讨

苑舜. 基于能源脑模型的二次能源优化一次能源探讨[J]. 电力工程技术, 2020, 39(3):65-70.

YUAN Shun. Exploration of the secondary energy optimizing the primary energy based on the energy-brain model [J]. Electric Power Engineering Technology, 2020,39(3):65-70.

**电网运行与控制**

[1] 基于PSCAD的特高压直流输电系统建模与仿真分析

许多， 吴峰， 史林军， 等. 基于PSCAD的特高压直流输电系统建模与仿真分析[J]. 电力工程技术, 2020, 39(3):71-77.

XU Duo, WU Feng , SHI Linjun , et al. Modeling and simulation analysis of UHVDC transmission system based on PSCAD [J]. Electric Power Engineering Technology, 2020,39(3):71-77，98.

[2] 考虑风光预测精度特性的多时间尺度机组组合方法

舒国栋， 贺平平， 马瑞. 考虑风光预测精度特性的多时间尺度机组组合方法[J]. 电力工程技术, 2020, 39(3):78-83.

SHU Guodong, HE Pingping, MA Rui. Multi-time scale unit combination method considering precision characteristics of wind power and solar power forecasting [J]. Electric Power Engineering Technology, 2020,39(3):78-83.

[3] 基于树木生长算法的含UPFC的最优潮流计算

欧阳晨， 卫志农， 孙国强. 基于树木生长算法的含UPFC的最优潮流计算[J]. 电力工程技术, 2020, 39(3):84-91.

OUYANG Chen, WEI Zhinong, SUN Guoqiang. Optimal power flow with UPFC based on tree growth algorithm [J]. Electric Power Engineering Technology, 2020,39(3):84-91.

[4] 基于特征选择与TCED的UHVDC输电线路故障判定方法

丁津津， 汤汉松， 高博， 等. 基于特征选择与TCED的UHVDC输电线路故障判定方法[J]. 电力工程技术, 2020, 39(3):92-98.

DING Jinjin, TANG Hansong, GAO Bo, et al. Fault diagnosis method of UHVDC transmission line based on feature selection and TCED [J]. Electric Power Engineering Technology, 2020,39(3):92-98.

[5] 抑制直流连续换相失败的直流电流指令值优化策略

王勇， 尹纯亚， 石岩， 等. 抑制直流连续换相失败的直流电流指令值优化策略[J]. 电力工程技术, 2020, 39(3):99-106.

WANG Yong, YIN Chunya, SHI Yan, et al. Optimization strategy of DC currentorder value to restrain DC continuous commutation failure [J]. Electric Power Engineering Technology, 2020,39(3):99-106.

**智能配网与微网**

[1] 提高APF谐波补偿能力的全局快速Terminal滑模控制

崔浩， 舒朝君， 朱英伟， 等. 提高APF谐波补偿能力的全局快速Terminal滑模控制[J]. 电力工程技术, 2020, 39(3):107-113.

CUI Hao, SHU Chaojun, ZHU Yingwei, et al. Global fast terminal sliding mode control for improving APF harmonic compensation capability [J]. Electric Power Engineering Technology, 2020,39(3):107-113.

[2] 基于电流相位估计的三相不平衡条件下配变损耗计算

孙志鹏， 陶顺. 基于电流相位估计的三相不平衡条件下配变损耗计算[J]. 电力工程技术, 2020, 39(3):114-119.

SUN Zhipeng, TAO Shun. Calculation of distribution loss under three-phase unbalancebased on current phase estimation [J]. Electric Power Engineering Technology, 2020,39(3):114-119.

[3] 含风电和电动汽车的VPP现货市场投标鲁棒优化模型

宋艺航， 王秀丽， 匡熠， 等. 含风电和电动汽车的VPP现货市场投标鲁棒优化模型[J]. 电力工程技术, 2020, 39(3):120-127.

SONG Yihang, WANG Xiuli, KUANG Yi, et al. Spot market bidding strategy for virtual power plants with wind power and electric vehicles [J]. Electric Power Engineering Technology, 2020,39(3):120-127.

[4] 考虑储能SOC的微网接口变流器VSG协同控制

杜健， 王德顺， 冯鑫振， 等. 考虑储能SOC的微网接口变流器VSG协同控制[J]. 电力工程技术, 2020, 39(3):128-135.

DU Jian, WANG Deshun, FENG Xinzhen, et al. VSG cooperative control of microgrid interface converter considering energy storage SOC [J]. Electric Power Engineering Technology, 2020,39(3):128-135.

**高电压技术**

[1] 不同环境因素下GIL温度场分布特性研究

乔宇娇， 唐泽华， 高鹏， 等. 不同环境因素下GIL温度场分布特性研究[J]. 电力工程技术, 2020, 39(3):136-143，150.

QIAO Yujiao, TANG Zehua, GAO Peng, et al. Distribution characteristics of GIL temperature field under different environmental factors [J]. Electric Power Engineering Technology, 2020,39(3):136-143，150.

[2] 典型表面状态下的绝缘子空间电场特性研究

黄宵宁， 刘锦， 杨成顺， 等. 典型表面状态下的绝缘子空间电场特性研究[J]. 电力工程技术, 2020, 39(3):144-150.

HUANG Xiaoning, LIU Jin, YANG Chengshun, et al. Electric field characteristics of polluted insulator space under typical surface state [J]. Electric Power Engineering Technology, 2020,39(3): 144-150.

[3] 退役高压XLPE电缆绝缘空间电荷行为研究

赵一枫， 刘刚， 谢月， 等. 退役高压XLPE电缆绝缘空间电荷行为研究[J]. 电力工程技术, 2020, 39(3):151-157,172.

ZHAO Yifeng, LIU Gang, XIE Yue, et al. Space charge behavior of retired high-voltage XLPE cables [J]. Electric Power Engineering Technology, 2020,39(3): 151-157,172.

**智能电网技术**

[1] 基于知识嵌入和DNN的工商业用户异常用电检测

李江腾， 王非. 基于知识嵌入和DNN的工商业用户异常用电检测[J]. 电力工程技术, 2020, 39(3):158-165.

LI Jiangteng, WANG Fei. Non-technical loss detection based on energy measurement knowledge and deep neural network among industrial and commercial customers [J]. Electric Power Engineering Technology, 2020,39(3):158-165.

[2] 基于弹性网络模型的月度用电量预测方法

胡春凤， 田世明， 苏航. 基于弹性网络模型的月度用电量预测方法[J]. 电力工程技术, 2020, 39(3):166-172.

HU Chunfeng, TIAN Shiming, SU Hang. Monthly electricity consumption forecasting method based on elastic network model [J]. Electric Power Engineering Technology, 2020,39(3):166-172.

[3] 基于蒙特卡洛法的用电信息采集系统可靠性评估模型

王进， 钟啸， 冯隆基， 等. 基于蒙特卡洛法的用电信息采集系统可靠性评估模型[J]. 电力工程技术, 2020, 39(3):173-179.

WANG Jin, ZHONG Xiao, FENG Longji, et al. Reliability evaluation model of electricity information acquisition terminal based on Monte Carlo method [J]. Electric Power Engineering Technology, 2020,39(3):173-179.

**技术探讨**

[1] 高压电缆缓冲层轴向沿面烧蚀故障机理分析

张静， 王伟， 徐明忠， 等. 高压电缆缓冲层轴向沿面烧蚀故障机理分析[J]. 电力工程技术, 2020, 39(3):180-184.

ZHANG Jing, WANG Wei, XU Mingzhong, et al. Analysis of axial ablation failure mechanism of buffer layer of high voltage power cable [J]. Electric Power Engineering Technology, 2020,39(3):180-184.

[2] 全息多场景特高压换流站反事故推演平台研究及开发

吴奕， 崔玉, 王业， 等. 全息多场景特高压换流站反事故推演平台研究及开发[J]. 电力工程技术, 2020, 39(3):185-191.

WU Yi, CUI Yu, WANG Ye, et al. Research and development of holographic multi-scenario UHVDC converter station anti-accident deduction platform [J]. Electric Power Engineering Technology, 2020,39(3):185-191.

[3] 基于图形化编程的HVDC以太网103双网通信设计

岳亚菲， 胡欢， 于海，等. 基于图形化编程的HVDC以太网103双网通信设计[J]. 电力工程技术, 2020, 39(3):182-199.

YUE Yafei, HU Huan, YU Hai, et al. Design of Ethernet 103 dual network communication in HVDC based on graphical programming [J]. Electric Power Engineering Technology, 2020,39(3):192-199.

**第2期**

**电网无功补偿与控制新技术专题**

[1] 新型同步调相机的关键技术及研究进展

程明， 田伟杰， 王伟， 等. 新型同步调相机的关键技术及研究进展[J]. 电力工程技术, 2020, 39(2):2-9.

CHENG Ming, TIAN Weijie, WANG Wei, et al. Key technologies and latest development of new synchronous condenser [J]. Electric Power Engineering Technology, 2020,39(2):2-9.

[2] 基于智能体群组强化学习的电网无功电压调控方法

范士雄， 刘幸蔚， 魏智慧， 等. 基于智能体群组强化学习的电网无功电压调控方法[J]. 电力工程技术, 2020, 39(2):10-17.

FAN Shixiong, LIU Xingwei, WEI Zhihui, et al. Reactive voltage regulation method based on agents group using reinforcement learning [J]. Electric Power Engineering Technology, 2020, 39(2):10-17.

[3] 基于相角差时间函数调相机并网合闸时间预测

蒋梦瑶， 汤晓峥， 刘一丹， 等. 基于相角差时间函数调相机并网合闸时间预测[J]. 电力工程技术, 2020, 39(2):18-22.

JIANG Mengyao, TANG Xiaozheng, LIU Yidan, et al. Prediction of grid-connected closing time of synchronous condenser based on improved phase-difference time function [J]. Electric Power Engineering Technology, 2020, 39(2):18-22.

[4] 一种静止无功发生器的改进模糊自适应PI控制策略

吕广强， 刘潇逸. 一种静止无功发生器的改进模糊自适应PI控制策略[J]. 电力工程技术, 2020, 39(2):23-28.

LYU Guangqiang, LIU Xiaoyi. An improved fuzzy adaptive PI control strategy for static var generator [J]. Electric Power Engineering Technology, 2020, 39(2):23-28.

[5] 计及出力波动的光伏电站无功支撑能力评估

王强， 顾乔根， 孙仲民， 等. 计及出力波动的光伏电站无功支撑能力评估[J]. 电力工程技术, 2020, 39(2):29-34.

WANG Qiang, GU Qiaogen, SUN Zhongming, et al. The evaluation of reactive power support capacity of photovoltaic power station considering output fluctuation [J]. Electric Power Engineering Technology, 2020, 39(2): 29-34.

[6] 负载不平衡条件下MMC-STATCOM补偿策略研究

丘冠新， 朱鹏宇， 王灿， 等. 负载不平衡条件下MMC-STATCOM补偿策略研究[J]. 电力工程技术, 2020, 39(2):35-42.

QIU Guanxin, ZHU Pengyu, WANG Can, et al. The compensation method of MMC-STATCOM under unbalanced load condition [J]. Electric Power Engineering Technology, 2020, 39(2): 35-42.

**专论与综述**

[1] 特高压直流故障的快速精细化静态安全分析

楼伯良， 鲍颜红， 周华， 等. 特高压直流故障的快速精细化静态安全分析[J]. 电力工程技术, 2020, 39(2):43-50.

LOU Boliang, BAO Yanhong, ZHOU Hua, et al. Fast and refined static security analysis of UHVDC fault [J]. Electric Power Engineering Technology, 2020,39(2): 43-50.

[2] 基于EMD-LSTM的光伏发电预测模型

朱玥， 顾洁， 孟璐. 基于EMD-LSTM的光伏发电预测模型[J]. 电力工程技术, 2020, 39(2):51-58.

ZHU Yue, GU Jie, MENG Lu. Photovoltaic power generation prediction model based on EMD-LSTM [J]. Electric Power Engineering Technology, 2020,39(2): 51-58.

[3] 基于PCS功率越限判据的独立型微电网紧急控制策略

朱皓斌， 徐光福， 侯炜， 等. 基于PCS功率越限判据的独立型微电网紧急控制策略[J]. 电力工程技术, 2020, 39(2):59-65.

ZHU Haobin, XU Guangfu, HOU Wei, et al. Emergency control strategy of independent micro-grid based on PCS power limit criterion [J]. Electric Power Engineering Technology, 2020,39(2): 59-65.

**电网运行与控制**

[1] 计及核电调峰的新能源电力系统两阶段随机优化调度

宁阳天， 罗翠云， 赵梓淇， 等. 计及核电调峰的新能源电力系统两阶段随机优化调度[J]. 电力工程技术, 2020, 39(2):66-74，126.

NING Yangtian, LUO Cuiyun, ZHAO Ziqi, et al. A two-stage stochastic optimization for power system nuclear power plants participa-ting in peak regulation with the consideration of renewable energy uncertainty [J]. Electric Power Engineering Technology, 2020,39(2): 66-74，126.

[2] 基于历史数据聚类分析的暂态功角稳定故障筛选

郭剑， 朱炳铨， 徐泰山， 等. 基于历史数据聚类分析的暂态功角稳定故障筛选[J]. 电力工程技术, 2020, 39(2):75-80.

GUO Jian, ZHU Bingquan , XU Taishan , et al. Transient power angle stability contingency screening based on clustering analysis of historical data [J]. Electric Power Engineering Technology, 2020,39(2): 75-80.

[3] 基于布谷鸟-Elman算法的光伏发电预测

赵俊浩， 吴杰康， 张文杰， 等. 基于布谷鸟-Elman算法的光伏发电预测[J]. 电力工程技术, 2020, 39(2):81-88.

ZHAO Junhao, WU Jiekang, ZHANG Wenjie, et al. Photovoltaic power prediction based on Elman neural network with improved cuckoo algorithm [J]. Electric Power Engineering Technology, 2020,39(2): 81-88.

[4] 考虑交流滤波器扰动的换相失败预测控制策略改进

黄聪. 考虑交流滤波器扰动的换相失败预测控制策略改进[J]. 电力工程技术, 2020, 39(2):89-94.

HUANG Cong. Improvement of commutation failure predictive control considering AC filter disturbance [J]. Electric Power Engineering Technology, 2020,39(2): 89-94.

[5] 基于改进变分模态分解的低频振荡模式辨别

肖怀硕， 贾梧桐， 肖冰莹， 等. 基于改进变分模态分解的低频振荡模式辨别[J]. 电力工程技术, 2020, 39(2):95-102.

XIAO Huaishuo, JIA Wutong, XIAO Bingying, et al. An identification method for power system low-frequency oscillation based on parameter optimized variational mode decomposition [J]. Electric Power Engineering Technology, 2020,39(2): 95-102.

**智能配网与微网**

[1] 基于智能负载的微电网精准切负荷控制策略

史军， 王加澍， 熊峰， 等. 基于智能负载的微电网精准切负荷控制策略[J]. 电力工程技术, 2020, 39(2):103-109.

SHI Jun, WANG Jiashu, XIONG Feng, et al. Load-shedding control strategy of microgrid based on smart loads [J]. Electric Power Engineering Technology, 2020,39(2): 103-109.

[2] 基于小波去噪-KPCA神经网络的光伏功率预测方法

孙新程， 万玥， 丁宏， 等. 基于小波去噪-KPCA神经网络的光伏功率预测方法[J]. 电力工程技术, 2020, 39(2):110-116.

SUN Xincheng, WAN Yue, DING Hong, et al. Forecasting method of photovoltaic output power based on wavelet denoising/KPCA/PSOBP [J]. Electric Power Engineering Technology, 2020,39(2): 110-116.

[3] 考虑源-荷不确定性的水风柴微电网优化配置

张文杰， 吴杰康， 赵俊浩， 等. 考虑源-荷不确定性的水风柴微电网优化配置[J]. 电力工程技术, 2020, 39(2):117-126.

ZHANG Wenjie, WU Jiekang, ZHAO Junhao, et al. Optimal capacity configuration of hydro-wind-diesel microgrid considering uncertainty of renewable energy and load [J]. Electric Power Engineering Technology, 2020,39(2): 117-126.

[4] 基于多时间尺度状态估计的配电网实时态势预测

李延真， 郭英雷， 彭博， 等. 基于多时间尺度状态估计的配电网实时态势预测[J]. 电力工程技术, 2020, 39(2):127-134.

LI Yanzhen, GUO Yinglei, PENG Bo, et al. Real-time situation prediction of distribution network based on multi-time scale state estimation [J]. Electric Power Engineering Technology, 2020,39(2): 127-134.

**高电压技术**

[1] 直流电缆雷电冲击电压安全裕度研究

吴夕科， 李栋， 邓天宇， 等. 直流电缆雷电冲击电压安全裕度研究[J]. 电力工程技术, 2020, 39(2):135-139.

WU Xike, LI Dong, DENG Tianyu, et al. Safety margin of DC cable under lightning impulse voltage [J]. Electric Power Engineering Technology, 2020,39(2): 135-139.

[2] 基于最大信息系数的变压器过热故障特征选择

陈如意， 江军， 陈珉， 等. 基于最大信息系数的变压器过热故障特征选择[J]. 电力工程技术, 2020, 39(2):140-145.

CHEN Ruyi, JIANG Jun, CHEN Min, et al. Feature selection of dissolved gases in power transformer based on maximal information coefficient [J]. Electric Power Engineering Technology, 2020,39(2): 140-145.

[3] 纳米SiO2增强脲醛树脂机械性能的分子模拟研究

张艳芳， 黄磊峰， 李伯男， 等. 纳米SiO2增强脲醛树脂机械性能的分子模拟研究[J]. 电力工程技术, 2020, 39(2): 146-151.

ZHANG Yanfang, HUANG Leifeng, LI Bonan,et al. Molecular simulation study on mechanical properties of poly (urea-formaldehyde) reinforced by nano-SiO2 [J]. Electric Power Engineering Technology, 2020,39(2): 146-151.

**智能电网技术**

[1] 基于AdaBoost-DT算法的电力市场串谋行为识别研究

张海生， 曹喆， 杨昌海， 等. 基于AdaBoost-DT算法的电力市场串谋行为识别研究[J]. 电力工程技术, 2020, 39(2):152-158.

ZHANG Haisheng, CAO Zhe, YANG Changhai, et al. Collusive behavior recognition in electricity market based on AdaBoost-DT algorithm [J]. Electric Power Engineering Technology, 2020,39(2): 152-158.

[2] 基于多尺度特征提取的电力客户欠费风险预测

葛安同， 谢晓慧， 谭忠恒，等. 基于多尺度特征提取的电力客户欠费风险预测[J]. 电力工程技术, 2020, 39(2):159-165.

GE Antong, XIE Xiaohui, TAN Zhongheng, et al. Arrears risk prediction of large power customers based on multi-scale feature extraction [J]. Electric Power Engineering Technology, 2020,39(2): 159-165.

[3] 电力监控系统的网络安全威胁溯源技术研究

李泽科， 陈泽文， 王春艳， 等. 电力监控系统的网络安全威胁溯源技术研究[J]. 电力工程技术, 2020, 39(2):166-172.

LI Zeke, CHEN Zewen, WANG Chunyan, et al. Network security threat tracing technology of power monitoring system [J]. Electric Power Engineering Technology, 2020,39(2): 166-172.

[4] 智能变电站稳定控制装置数字采样的设计与实现

程维杰， 王计林， 马刚，等. 智能变电站稳定控制装置数字采样的设计与实现[J]. 电力工程技术, 2020, 39(2):173-177.

CHENG Weijie, WANG Jilin, MA Gang, et al. Stability control device digital sampling in smart substation [J]. Electric Power Engineering Technology, 2020,39(2): 173-177.

**技术探讨**

[1] 基于SVPWM扇区号的三相变流器开路故障诊断

孙超， 邱颖宁， 冯延晖. 基于SVPWM扇区号的三相变流器开路故障诊断[J]. 电力工程技术, 2020, 39(2):178-185.

SUN Chao, QIU Yingning, FENG Yanhui. Open-circuit fault diagnosis of three phase converter based on SVPWM sector number [J]. Electric Power Engineering Technology, 2020,39(2): 178-185.

[2] 消除模糊区的同杆双回线自适应重合闸

崔玉， 陆金凤， 谢华， 等. 消除模糊区的同杆双回线自适应重合闸[J]. 电力工程技术, 2020, 39(2):186-192.

CUI Yu, LU Jinfeng, XIE Hua, WU Yi, et al. Adaptive reclosure of double-circuit line without fuzzy zone [J]. Electric Power Engineering Technology, 2020,39(2): 186-192.

[3] 变压器防尘网格栅设计

谭风雷， 陈昊， 马宏忠， 等. 变压器防尘网格栅设计[J]. 电力工程技术, 2020, 39(2):193-199.

TAN Fenglei, CHEN Hao, MA Hongzhong, et al. Design of dust filter mesh for transformer [J]. Electric Power Engineering Technology, 2020,39(2): 193-199.

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**专论与综述**

[1] 电力系统频率问题浅析与频率特性研究综述

陈雪梅， 陆超， 韩英铎. 电力系统频率问题浅析与频率特性研究综述[J]. 电力工程技术,2020,39(1):1-9.

CHEN Xuemei, LU Chao, HAN Yingduo. Review of power system frequency problems and frequency dynamic characteristics [J]. Electric Power Engineering Technology, 2020,39(1):1-9.

[2] 适应大规模新能源并网的电力系统备用配置及优化综述

杨肖虎， 罗剑波， 郁琛，等. 适应大规模新能源并网的电力系统备用配置及优化综述[J]. 电力工程技术,2020,39(1):10-20,63.

YANG Xiaohu, LUO Jianbo, YU Chen,et al. Review of power system reserve configuration and optimization for large-scale renewable energy integration [J]. Electric Power Engineering Technology, 2020,39(1): 10-20,63.

[3] 移动负载的动态无线供电系统发展及关键技术

张政， 张波. 移动负载的动态无线供电系统发展及关键技术[J]. 电力工程技术,2020,39(1):21-30.

ZHANG Zheng, ZHANG Bo. Development and key technologies of dynamic wireless power transfer system for mobile load [J]. Electric Power Engineering Technology, 2020,39(1): 21-30.

**电力系统中柔性设备的应用**

[1] 柔性直流接入对弱受端电网恢复特性的影响及优化措施

吕思卓， 舒展， 宋新甫， 等. 柔性直流接入对弱受端电网恢复特性的影响及优化措施[J]. 电力工程技术,2020,39(1):31-37.

LYU Sizhuo, SHU Zhan, SONG Xinfu, et al. Influence of VSC-HVDC interconnection on recovery characteristics of weak receiving-end grid fault and optimization measure [J]. Electric Power Engineering Technology, 2020,39(1):31-37.

[2] 基于集中控制的分布式潮流控制器策略研究

钟亮民，陈汹，赵静波，等. 基于集中控制的分布式潮流控制器策略研究[J]. 电力工程技术,2020,39(1):38-43.

ZHONG Liangmin, CHEN Xiong, ZHAO Jingbo, et al. Strategy research of distributed power flow controller based on centralized control [J]. Electric Power Engineering Technology, 2020,39(1):38-43.

[3] 风电场VSC-HVDC并网不平衡运行改善控制策略

王国栋， 卢少锋， 张晓佳， 等. 风电场VSC-HVDC并网不平衡运行改善控制策略[J]. 电力工程技术,2020,39(1):44-50.

WANG Guodong, LU Shaofeng, ZHANG Xiaojia, et al. An improved control strategy for wind farm with VSC-HVDC under unbalanced voltage [J]. Electric Power Engineering Technology, 2020,39(1):44-50.

[4] 适合风电接入的VSC-MTDC系统协调控制策略

邹朋， 李文帆， 伍文城. 适合风电接入的VSC-MTDC系统协调控制策略[J]. 电力工程技术,2020,39(1):51-56.

ZOU Peng, LI Wenfan, WU Wencheng. Coordinated control strategy for VSC-MTDC systems with wind power integration [J]. Electric Power Engineering Technology, 2020,39(1):51-56.

[5] 向孤岛电网供电的柔性直流逆变站综合控制策略

陈大林， 范绚然， 赵健， 等. 向孤岛电网供电的柔性直流逆变站综合控制策略[J]. 电力工程技术,2020,39(1):57-63.

CHEN Dalin, FAN Xuanran, ZHAO Jian,et al. Integrated control strategy of VSC inverter supplying power to the isolated grid [J]. Electric Power Engineering Technology, 2020,39(1):57-63.

**电网运行与控制**

[1] 基于混合换流器的多端交直流系统潮流计算

熊月清， 李峰， 徐鹏， 等. 基于混合换流器的多端交直流系统潮流计算[J]. 电力工程技术,2020,39(1):64-70.

XIONG Yueqing, LI Feng, XU Peng, et al. Power flow calculation of multi terminal AC / DC system based on hybrid converter [J]. Electric Power Engineering Technology, 2020,39(1):67-70.

[2] 一种基于节点聚合的区域联络线潮流调整方法

黄磊， 鲍颜红， 刘映尚， 等. 一种基于节点聚合的区域联络线潮流调整方法[J]. 电力工程技术,2020,39(1):71-75.

HUANG Lei, BAO Yanhong, LIU Yingshang, et al. A method for power flow adjustment of tie line based on data splicing of internal and external networks [J]. Electric Power Engineering Technology, 2020,39(1):71-75.

[3] 计及UPFC的电力系统多阶段多目标无功优化算法

孙蓉， 朱梓荣， 卫志农， 等. 计及UPFC的电力系统多阶段多目标无功优化算法[J]. 电力工程技术,2020,39(1):76-85.

SUN Rong, ZHU Zirong, WEI Zhinong, et al. Multi-objective and multi-stage reactive power optimization algorithm for power system considering UPFC [J]. Electric Power Engineering Technology, 2020,39(1):76-85.

[4] 半波长输电线路行波传播特性及故障测距

彭楠， 程真何， 崔玉， 等. 半波长输电线路行波传播特性及故障测距[J]. 电力工程技术,2020,39(1):86-94.

PENG Nan, CHENG Zhenhe, CUI Yu, et al. Travelling wave propagation characteristics and fault location of half-wavelength transmission lines [J]. Electric Power Engineering Technology, 2020,39(1): 86-94.

[5] 配置HSS的并联多端高压直流输电线路保护选择性研究

王杨正， 杨建明， 鲁江， 等. 配置HSS的并联多端高压直流输电线路保护选择性研究[J]. 电力工程技术,2020,39(1):95-102.

WANG Yangzheng, YANG Jianming, LU Jiang, et al. Line protection selectivity of the parallel multi-terminal HVDC with HSS [J]. Electric Power Engineering Technology, 2020,39(1): 95-102.

[6] 基于膜计算和蚁群算法的电网云平台资源配置方法

何伊妮， 曹伟， 韦昌福，等. 基于膜计算和蚁群算法的电网云平台资源配置方法[J]. 电力工程技术,2020,39(1):103-109.

HE Yini, CAO Wei, WEI Changfu, et al. Resource allocation method of power grid cloud platform based on membrane computing and ant colony algorithm [J]. Electric Power Engineering Technology, 2020,39(1): 103-109.

**智能配网与微网**

[1] 基于零序电流分布特性的配电网故障区段辨识

徐皓远， 刘波， 叶开， 等. 基于零序电流分布特性的配电网故障区段辨识[J]. 电力工程技术,2020,39(1):110-117，164.

XU Haoyuan, LIU Bo, YE Kai, et al. Identification of fault zones in distribution network based on zero sequence current distribution characteristics [J]. Electric Power Engineering Technology, 2020,39(1): 110-117，164.

[2] 动态矩阵预测控制在微型燃气轮机中的应用

耿健， 杜炜， 杨冬梅， 等. 动态矩阵预测控制在微型燃气轮机中的应用[J]. 电力工程技术,2020,39(1):118-123.

GENG Jian, DU Wei, YANG Dongmei, et al. Application of dynamic matrix predictive control in micro-turbine [J]. Electric Power Engineering Technology, 2020,39(1): 118-123.

[3] 基于SPCD的智能变电站虚实链路映射方案研究

李耕， 邱智勇， 饶丹， 等. 基于SPCD的智能变电站虚实链路映射方案研究[J]. 电力工程技术,2020,39(1):124-129.

LI Geng, QIU Zhiyong, RAO Dan,et al. Scheme for mapping between virtual and real link in smart substation based on SPCD [J]. Electric Power Engineering Technology, 2020,39(1): 124-129.

**高电压技术**

[1] ±1 100 kV直流滤波器典型故障过电压特性研究

吴钰颖， 郭洁. ±1 100 kV直流滤波器典型故障过电压特性研究[J]. 电力工程技术,2020,39(1):130-137.

WU Yuying, GUO Jie. Typical fault overvoltage characteristics of ??1 100 kV DC filter [J]. Electric Power Engineering Technology, 2020,39(1): 130-137.

[2] 基于多层PCB罗氏线圈的精密冲击电流测量装置

李文婷， 龙兆芝， 范佳威， 等. 基于多层PCB罗氏线圈的精密冲击电流测量装置[J]. 电力工程技术,2020,39(1):138-144.

LI Wenting, LONG Zhaozhi, FAN Jiawei, et al. Precision impulse current measuring device based on multi-layer PCB Rogowski coil [J]. Electric Power Engineering Technology, 2020,39(1): 138-144.

[3] 工频恒定电压下SF6气体中沿面放电发展过程研究

杨玥坪， 何聪， 李军浩. 工频恒定电压下SF6气体中沿面放电发展过程研究[J]. 电力工程技术,2020,39(1):145-150.

YANG Yueping, HE Cong, LI Junhao. Development process of surface discharge in the SF6 gas under constant voltage of power frequency [J]. Electric Power Engineering Technology, 2020,39(1): 145-150.

[4] ±535 kV直流电缆绝缘厚度理论设计与验证

李栋， 朱智恩， 杨黎明，等. ±535 kV直流电缆绝缘厚度理论设计与验证[J]. 电力工程技术,2020,39(1):151-156.

LI Dong, ZHU Zhien, YANG Liming, et al. Theoretical design and verification of ±535 kV DC cable insulation thickness [J]. Electric Power Engineering Technology, 2020,39(1): 151-156.

**电机与电器**

[1] 基于参数自适应VMD和SA-ELM的有载分接开关故障诊断

钱国超， 彭庆军， 程志万， 等. 基于参数自适应VMD和SA-ELM的有载分接开关故障诊断[J]. 电力工程技术,2020,39(1):157-164.

QIAN Guochao, PENG Qingjun, CHENG Zhiwan, et al. Fault diagnosis of on-load tap-changer based on the parameter-adaptive VMD and SA-ELM [J]. Electric Power Engineering Technology, 2020,39(1): 157-164.

[2] 基于PSO-ELM的储能锂电池荷电状态估算

缪家森， 成丽珉， 吕宏水. 基于PSO-ELM的储能锂电池荷电状态估算[J]. 电力工程技术,2020,39(1):165-169，199.

MIAO Jiasen, CHENG Limin, LYU Hongshui. Estimation of state of charge of energy storage lithium battery based on PSO-ELM [J]. Electric Power Engineering Technology, 2020,39(1): 165-169，199.

[3] 直驱风电机组阻抗建模及次同步振荡影响因素分析

王利超， 于永军， 张明远， 等. 直驱风电机组阻抗建模及次同步振荡影响因素分析[J]. 电力工程技术,2020,39(1):170-177.

WANG Lichao, YU Yongjun, ZHANG Mingyuan, et al. Impedance model and analysis of subsynchronous oscillation influence factors for grid-connected full-converter wind turbines [J]. Electric Power Engineering Technology, 2020,39(1): 170-177.

**技术探讨**

[1] 基于PSR和DBN的超短期母线净负荷预测

石天， 梅飞， 陆继翔， 等. 基于PSR和DBN的超短期母线净负荷预测[J]. 电力工程技术,2020,39(1):178-183.

SHI Tian, MEI Fei, LU Jixiang, et al. Ultra-short-term bus net load forecasting based on phase space reconstruction and deep belief network [J]. Electric Power Engineering Technology, 2020,39(1): 178-183.

[2] 基于特征电流波宽判据的变压器差动保护方法

夏家辉， 方园， 刘卜瑞， 等. 基于特征电流波宽判据的变压器差动保护方法[J]. 电力工程技术,2020,39(1):184-190.

XIA Jiahui, FANG Yuan, LIU Burui, et al. The transformer differential protection method based on characteristic current waveform width criterion [J]. Electric Power Engineering Technology, 2020,39(1): 184-190.

[3] 基于交通信息的多类型电动汽车综合充电需求研究

李琳玮， 宁光涛， 俞悦， 等. 基于交通信息的多类型电动汽车综合充电需求研究[J]. 电力工程技术,2020,39(1):191-199.

LI Linwei, NING Guangtao, YU Yue,et al. Comprehensive charging demand of multitype electric vehicles based on traffic information [J]. Electric Power Engineering Technology, 2020,39(1): 191-199.