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师资队伍

电气工程系

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自动化系 (../szdw/zdhx.htm)

电子信息工程系

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通信工程系

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现代电工电子技术中心

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电气电子国家级实验教学中心

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电气与自动化实验中心

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博士后 (../szdw/bsh.htm)

朱介北

Date: 2020年08月01日

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主要经历:

- (1) 2018.02 - 至今 天津大学 电气自动化与信息工程学院 - 教授
- (2) 2017.01 - 2018.02 英国国家电力调度中心 - 调度分析工程师
- (3) 2015.11 - 2017.01 英国国家电网公司总部 电网规划策略部 - 高级电力系统工程
- (4) 2013.03 - 2015.11 英国国家电网公司总部 数据与建模部 - 电力系统工程
- (5) 2009.10 - 2012.12 英国University of Strathclyde大学 - 博士
- (6) 2008.09 - 2009.10 英国University of Strathclyde大学 - 硕士
- (7) 2004.09 - 2008.07 南开大学 - 学士

主要研究方向:

- (1) 柔性直流输电技术 VSC-HVDC Transmission Technology
- (2) 风电、光伏新能源发电技术 Renewable Power Generation
- (3) 电力电子化电力系统 Power Electronics Dominated Grids
- (4) 分布式信息能源系统 Distributed Cyber Energy System

在研项目: 在研国家级纵向项目3项, 横向项目10余项。

- (1) 国家自然科学基金面上项目: 基于直流系统强度的新型协同式虚拟同步机研发, 2019-2022, 项目负责人
- (2) 国家高层次人才青年项目, 2018.02-2024.01, 项目负责人
- (3) 国家重点研发计划“变革性技术关键科学问题: 分布式信息能源系统的智能进化机理和设计”, 2019.06-2024.06, 课题四负责人
- (4) 天津市自然科学基金绿色通道项目“未来电力电子占主导的电网中新一代逆变器的虚拟同步机控制策略的研发”, 2019.01-2021.12, 项目负责人
- (5) 国家电网总部科技项目“高渗透率分布式光伏接入电网动态特性及稳定运行控制技术研究”, 2021.01-2023.01, 课题负责人
- (6) 国家电网总部科技项目“新能源高占比电网惯量评估与预警技术研究及应用”, 2021.01-2023.01, 课题负责人
- (7) 国家电网科技项目“以祁韶为例的特高压直流安全高效运行发展策略研究”, 2020.01-2020.12, 项目负责人
- (8) 国家电网总部科技项目“大规模新能源接入对电网低频振荡影响机理研究”, 2020.01-2021.12, 课题负责人
- (9) 国家电网总部科技项目“提升电网安全稳定性的新能源场站快速控制技术研究及实证”, 2019.01-2020.12, 课题负责人
- (10) 国家电网总部科技项目“交直流电网安全稳定控制系统本质安全技术提升研究”, 2019.01-2020.12, 课题负责人
- (11) 国家电网总部科技项目“基于异构硬件平台的含直流和高比例新能源电磁暂态及混合仿真并行技术提升研究”, 2019.01-2020.12, 课题负责人

代表性学术著作：发表SCI/EI期刊论文70余篇，获ESI高被引论文2篇，总引用1000余次（依据Google Scholar数据显示）。

中文论文：

- [1] 朱介北, 李峰, 俞露杰*, 梁纪峰, 刘娜, 王成山. 基于周期搜索的多端柔性直流输电系统非线性下垂控制[J]. 电力系统自动化, 2022.
- [2] 邱威, 贺静波, 樊小伟, 许涛, 于钊, 张剑云, 朱介北, 刘娜等. 应对特高压直流大扰动的稳定措施综述[J]. 电网技术, 2022.
- [3] 朱介北, 史美琦, 张利, 葛磊蛟, 俞露杰*, 邓兆顺, 王成山. 基于超级电容的海上风电柔直送出系统协调惯量支撑策略[J]. 电网技术, 2022.
- [4] 李霞林, 王智, 郭力, 朱琳, 张晨, 朱介北, 富晓鹏, 张野, 王成山. 基于最大估计吸引域的VSC接入弱网下的锁相环同步暂态稳定性分析[J]. 中国电机工程学报, 2022.
- [5] 朱介北, 王晓南, 俞露杰*, 刘娜, 葛延峰, 李霞林, 王成山. 互联异步电网VSC-HVDC的惯量与阻尼模拟控制策略[J]. 中国电机工程学报, 2022.
- [6] 申志鹏, 朱介北*, 李斌, 贾宏杰, 王成山. 基于柔性直流输电系统的双边惯量和阻尼模拟控制方案[J]. 高电压技术, 2021.
- [7] 朱介北, 邱威, 孙宁, 朱学科*, 霍超, 荀思超. 基于序贯蒙特卡洛法的安全稳定控制系统架构可靠性分析[J]. 电力系统自动化, 2021.
- [8] 邓兆顺, 朱介北*, 俞露杰, 邱威, 曲春辉, 贾宏杰, 王成山. 实现转子转速保护的双馈异步发电机有功输出速降新方案[J]. 电力系统保护与控制, 2021.
- [9] 李浩, 钟声远, 王永真, 赵军, 李敏霞, 朱介北. 基于能量与信息耦合的分布式能源系统配置优化方法[J]. 中国电机工程学报, 2020.
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- [12] 李霞林, 李志旺, 郭力, 黄迪, 李鹏飞, 朱介北, 王成山. 交直流微电网集群柔性控制及稳定性分析[J]. 中国电机工程学报, 2019.

英文论文：

- [1] **J.B. Zhu**, X.N. Wang, J.B. Zhao, L.J. Yu*, S.X. Li*, Y.W. Li, J.M. Guerrero, C.S. Wang, "Inertia Emulation and Fast Frequency-droop Control Strategy of a Point-to-point VSC-HVDC Transmission System for Asynchronous Grid Interconnection", *IEEE Transactions on Power Electronics*, 2022.
- [2] Z.P. Shen, **J.B. Zhu***, L.J. Ge*, S.Q. Bu; J.B. Zhao; C.Y. Chung; X.L. Li; C.S. Wang, "Variable-Inertia Emulation Control Scheme for VSC-HVDC Transmission Systems", *IEEE Transactions on Power Systems*, 2022.
- [3] **J.B. Zhu**, S.X. Li, L.J. Yu, S.Q. Bu, Y.J. Li, Z.S. Deng, Y.Z. Wang, H.J. Jia, C.S. Wang, D. Liu, "Coherence Analysis of System Characteristics and Control Parameters for Hybrid HVDC Transmission Systems Based on Small-signal Modeling", *IEEE Journal of Emerging and Selected Topics in Power Electronics*, 2021.
- [4] **J.B. Zhu**, Z.P. Shen, S.Q. Bu, X.L. Li, C.D. Booth, W. Qiu, H.J. Jia, C.S. Wang, "Coordinated Flexible Damping Mechanism with Inertia Emulation Capability for MMC-MTDC Transmission Systems", *IEEE Journal of Emerging and Selected Topics in Power Electronics*, 2021.
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- [10] R.Q. Li, **J.B. Zhu***, Q.T. Hong, C.D. Booth, A. Dysko, A. Roscoe, H. Urdal, "Impact of low (zero) carbon power systems on power system protection: a new evaluation approach based on a flexible modelling and hardware testing platform", *IET Renewable Power Generation*, vol. 14, no. 5, 2020.
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发明专利:

- [1] 一种基于柔性直流输电互联两区域电网的控制系统及方法, 202011061121.9 (授权)
- [2] 一种实现数据中心即时消纳光伏发电的变温控制方法, 202110388093.X (授权)
- [3] 一种双馈风机有功功率输出速降控制系统及方法, 202010947807.1 (授权)
- [4] 美国专利 Photovoltaic Power Generation Virtual Inertia Compensation System and Method Based on Super Capacitor Energy Storage, 17/183,174 (公开)
- [5] 美国专利 Fast Active Power Output Reduction System of Doubly-fed Induction Generator and Method Thereof, 17/308,929 (公开)
- [6] 一种基于多端混合直流输电系统的自适应电压下垂控制系统及方法, CN112510751A (公开)
- [7] 一种基于固态变压器的交直流混合电网及其自主功率协调控制方法, CN112653203A (公开)
- [8] 一种以二氧化碳为工质的机柜冷却系统及方法, CN111609580A (公开)
- [9] 一种基于深度强化学习的电网安全运行策略智能优化方法, CN202111330875.4 (公开)
- [10] 柔性直流输电系统的双边惯量阻尼模拟控制系统及方法, CN202110957092.2 (公开)
- [11] 基于柔性直流输电系统的自适应虚拟惯量控制系统及方法, CN202110566220.0 (公开)
- [12] 附加阻尼控制器的双馈风机次同步振荡抑制方法, CN202110042444.1 (公开)
- [13] 一种多微网平衡单元系统架构及控制协调方法, CN202011213718.0 (公开)

资质与荣誉:

- (1) 国家级海外高层次人才入选人员
- (2) IET Fellow 英国工程技术学会会士
- (3) 天津市“领军人才”
- (4) IEEE PES China “Distinguished Young Engineer” 杰出青年工程师
- (5) 天津市创新人才推进计划“优秀青年科技人才”
- (6) 中国电机工程学会高级会员

- (7) 中国电工技术学会高级会员
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- (9) 天津大学“教工示范岗”
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社会服务:

- (1) 中国电机工程学会电力系统专委会“电力系统分析与控制学术工作组” - 成员
- (2) 中国电工技术学会能源智慧化专业委员会 - 委员
- (3) 中国能源研究会新型电力系统专业委员会 - 委员
- (4) IEEE PES China “DC Transmission and Distribution System Simulation” Technical Council - 副秘书长
- (5) IEC国际电工委员会TC 8/SC 8A 可再生能源接入电网技术分委会 - 技术专家
- (6) SCI期刊 IET Renewable Power Generation - 编委Associate Editor
- (7) SCI期刊 IET Energy Systems Integration - 编委Associate Editor
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