Special Session IV

Special Session Basic Information:

专栏题目 Session Title	中文：面向新型电力系统的储能协同智能规划、运行优化与管控技术 英文：Energy Storage Coordinated Intelligent Planning, Operational Optimization, and Management Technologies for New Power Systems

专栏介绍和征稿主题
Introduction and topics

中文：

本专栏面向新型电力系统的运行特征与调控需求，聚焦储能资源协同规划、运行优化与智能管控的理论方法及工程应用，重点关注储能选址定容与容量配置策略、源网荷储协同调度机制、分层分区协调控制方法，以及面向安全约束的风险评估与系统韧性提升技术。随着可再生能源渗透率持续提高，电力系统随机扰动增强且结构复杂性上升，运行状态在规划、调度与控制等多时间尺度之间呈现更强耦合特征，对系统灵活性资源配置效率、运行安全边界维持能力及扰动后的动态恢复性能提出更高要求。在此背景下，本专栏围绕面向新型电力系统的储能智能运行控制技术，系统探讨储能协同规划与运行一体化建模、调度控制策略与安全韧性评估方法，为实现安全可靠、经济高效与低碳运行目标提供理论基础与实践支撑。

征稿主题

（1）新型电力系统下储能选址定容与容量配置方法研究；

（2）计及新能源不确定性的储能协同规划与运行优化技术；

（3）源网荷储协同的多时间尺度调度策略；

（4）储能分区协调控制与灵活性支撑技术；

（5）储能系统运行管控与智能安全管控方法；

（6）基于数据驱动的储能在线监测技术；

（7）储能系统风险评估、故障诊断与安全防护技术。

英文：

This Special Session focuses on coordinated planning, operational optimization, and intelligent management of energy storage resources in new power systems. With increasing renewable energy penetration, power systems are experiencing stronger uncertainty, more frequent disturbances, and higher operational complexity across multiple time scales. Energy storage is evolving from a traditional energy balancing asset to a key flexibility and security resource that supports secure operation, system resilience, and low carbon transition.

The session welcomes recent advances in storage siting and sizing, capacity configuration, coordinated scheduling of generation grid load and storage, hierarchical and zonal control, as well as risk and resilience assessment under security constraints. Contributions covering modeling, optimization, and engineering implementation validated through practical power system cases are particularly encouraged.

Topics

(1) Energy storage site selection, capacity determination, and capacity allocation under the new power system;

(2) Energy storage collaborative planning and operation optimization technology considering the uncertainty of new energy;

(3) Multi-time scale scheduling strategy for source-grid-load-storage coordination;

(4) Coordinated control and flexibility support technology for energy storage in zoned systems;

(5) Operation control and intelligent safety control methods for energy storage systems;

(6) Data-driven online monitoring technology for energy storage;

(7) Risk assessment, fault diagnosis, and safety protection technologies for energy storage systems.

Special Session Chair(s):

姓名 **Name**	颜宁 Ning Yan
称谓 **Prefix**	副教授 Associate Professor
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Organizer's Brief Biography

中文：博士，副教授，博士生导师，丹麦奥尔堡大学访问学者，IEEE PES 中国区青年专家委员会副秘书长，担任多个 SCI 国际学术期刊、国内电力行业相关期刊的审稿人。在《中国电机工程学报》、《CSEE Journal of Power and Energy Systems》、《IEEE Transactions on Sustainable Energy》、《电工技术学报》、《高电压技术》、《电网技术》等高水平期刊上发表论文 30 余篇，均被 SCI/EI 检索；发表在“IEEE Transactions on Sustainable Energy”的论文获得 ESI 全球排名前 1%高被引论文；参与编著书籍《固体电蓄热及可再生能源消纳技术》、《清洁能源工程技术原理与应用》2 部；申请发明专利 25 项；曾获得沈阳市科技进步一等奖 1 项，沈阳市自然科学学术成果奖 1 项，教育部国际合作优胜奖 IEEE PCCC Outstanding Young Engineer Award。

英文：PhD, Associate Professor, PhD Supervisor, Visiting Scholar at Aalborg University, Denmark, Deputy Secretary-General of the IEEE PES China Youth Experts Committee, and reviewer for multiple SCI international academic journals and domestic power industry-related journals. She has published over 30 papers in high-level journals, including China Electric Power Engineering Journal, CSEE Journal of Power and Energy Systems, IEEE Transactions on Sustainable Energy, Journal of Electrical Engineering, High Voltage Technology, Grid Technology, all indexed by SCI/EI. Her paper published in IEEE Transactions on Sustainable Energy was ranked in the top 1% of highly cited papers globally by ESI. She contributed to the books Solid-State Electric Storage and Renewable Energy Integration Technologies and Principles, Applications of Clean Energy Engineering Technology. She has applied for 25 invention patents. She has received several awards, including the First Prize for Scientific and Technological Progress in Shenyang, the Shenyang Natural Science Academic Achievement Award, and the Ministry of Education International Cooperation Excellence Award, as well as the IEEE PCCC Outstanding Young Engineer Award.

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Organizer's Brief Biography

中文：王晴瀚，丹麦奥尔堡大学博士，葡萄牙波尔图理工学院访问学者，清华大学、清华四川能源互联网联合培养博士后。担任多个 SCI 国际学术期刊的审稿人；在《Applied Energy》、《Energy》、《Energy Conversion and Management》等期刊和会议发表论文 10 余篇，均被 SCI/EI 检索；参与编著书籍《电池储能与清洁能源消纳》；申请发明专利 4 项；主要研究方向为能源管理策略、综合能源系统优化运行、多智能体系统等。

英文：Qinghan Wang, PhD from Aalborg University, Denmark, Visiting Scholar at the Polytechnic Institute of Porto, Portugal. He is currently a joint Postdoctoral Researcher at Tsinghua University and the Sichuan Energy Internet Research Institute. He has served as reviewer for multiple SCI international academic journals. He has published more than ten papers in high-level journals and conferences, including Applied Energy, Energy Conversion and Management

and Energy, all indexed by SCI/EI. He contributed to the book Battery Energy Storage and Clean Energy Integration. He has applied for 4 invention patents. His main research interests include energy management strategies, optimal operation of integrated energy systems, and multi-agent systems.