

Special Session IX

Special Session Basic Information:

专栏题目
Session Title

中文：现代电力能源系统的智能控制与先进电能变换技术
英文：Intelligent Control and Advanced Power Conversion Technologies for Modern Power Energy Systems

专栏介绍和征稿主题
Introduction and topics

中文：能源转型与数字技术的深度融合，正驱动现代电力与能源系统向智能化、电力电子化方向演进。系统规模的扩大、可再生能源的规模化接入以及电力电子设备的普及，对系统运行的灵活性及设备控制的精确性提出了更高要求。

为应对上述挑战，推动系统层级与设备层级的协同创新，本专题会议旨在汇聚学界与业界专家，共同探讨智能控制与先进电力电子变换技术的核心问题与前沿方案。征稿范围将涵盖但不限于以下方向：

1. 新型电力系统智能调控与运行优化
2. 多能协同与高弹性电网关键技术
3. 电动汽车与规模化灵活资源互动
4. 先进功率变换器与高效电能治理
5. 宽禁带半导体器件驱动与应用创新
6. 分布式能源与储能系统智能集成
7. 电力信息物理系统安全与韧性
8. 人工智能与大数据驱动的能源系统

英文：The deep integration of energy transition and digital technologies is driving the evolution of modern power and energy systems toward intelligence and power electronics. The expansion of system scale, the large-scale integration of renewable energy, and the widespread adoption of power electronic devices have imposed higher demands on the flexibility of system operation and the precision of device control.

To address these challenges and promote collaborative innovation between the system and device levels, this special session aims to bring together experts from academia and industry to discuss core issues and cutting-edge solutions in intelligent control and advanced power electronics conversion technologies. The scope of submissions includes, but is not limited to, the following areas:

1. Intelligent regulation and operational optimization of new type power systems
2. Multi-energy coordination and key technologies for high-resilience power grids
3. Interaction between electric vehicles and large-scale flexible resources
4. Advanced power converters and efficient power management
5. Driving technologies and innovative applications of wide-bandgap semiconductor devices
6. Intelligent integration of distributed energy and energy storage systems
7. Security and resilience of cyber-physical power systems
8. AI and big data-driven energy systems

Special Session Chair(s):

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Organizer's Brief Biography

中文：周博文，东北大学信息科学与工程学院副教授、博士生导师，未来技术学院副院长，IEEE 高级会员，CEng 特许工程师。担任《Energy Exploration & Exploitation》《Sustainability》等期刊编委，中国能源学会专家委员会、IEEE PES 中国区技术委员会理事。主要从事电力系统运行与控制、电动汽车与电网互动、虚拟储能与需求响应、工业负荷智能控制等方面的教学和科研工作。近年来，主持各类项目 21 项，发表 SCI 论文 74 篇，获得国家授权发明专利 45 项、欧洲发明专利 1 项、软件著作权 7 项，参与制定国标、行标、团标共 5 项，出版学术专著 3 部。曾获省部级科技进步一等奖 4 项、二等奖 3 项（主持 1 项），中国专利优秀奖 1 项，国际发明展金奖 3 项，教学成果奖 3 项。

英文：Zhou Bowen is an Associate Professor and Doctoral Supervisor at the School of Information Science and Engineering, Northeastern University, and also serves as the Deputy Dean of the School of Future Technologies. He is a Senior Member of IEEE and a Chartered Engineer (CEng). He holds editorial board positions for journals such as *Energy Exploration & Exploitation* and *Sustainability*, and is a member of the Expert Committee of the China Energy Society, as well as a council member of the IEEE Power & Energy Society (PES) Technical Committee in China. His research and teaching activities primarily focus on power system operation and control, electric vehicle-grid integration, virtual energy storage and demand response, and intelligent control of industrial loads. In recent years, he has led 21 research projects and published 74 SCI-indexed papers. He has obtained 45 authorized national invention patents, 1 European patent, and 7 software copyrights. Additionally, he has participated in the formulation of 5 national, industrial, and group standards, and has authored 3 academic books. His awards include 4 first-class and 3 second-class provincial/ministerial-level Scientific and Technological Progress Awards (one of the second-class awards was led by him), 1 China Outstanding Patent Award, 3 gold medals at international invention exhibitions, and 3 teaching achievement awards.

	姓名 Name	李思 (Si Li)
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Organizer's Brief Biography

中文：李思，东北大学信息科学与工程学院副研究员，博士毕业于哈尔滨工业大学，入选国家博士后研究人员资助计划。主要从事基于宽禁带器件的软开关电机驱动及其控制等方面的科研与教学工作。担任《IEEE Transactions on Power Electronics》《IEEE Journal of Emerging and Selected Topics in Power Electronics》等电力电子领域期刊审稿人。近年来，主持辽宁省博士科研启动项目 1 项，参与科技部/工信部国家重点研发计划、国家自然科学基金重点/面上等各类科研项目 5 项，曾获国际发明展金奖 2 项。发表 SCI/EI 论文 17 篇，授权/公开国家发明专利 12 项，多项研究成果实现产业化。

英文：Si Li is an Associate Researcher at the School of Information Science and Engineering, Northeastern University. He earned his Ph.D. from Harbin Institute of Technology and was selected for the National Postdoctoral Researchers Grant Program. His research and teaching primarily focus on soft-switching motor drives and control strategies based on wide-bandgap semiconductor devices. He also serves as a reviewer for several renowned journals in the field of power electronics, including *IEEE Transactions on Power Electronics* and *IEEE Journal of Emerging and Selected Topics in Power Electronics*. In recent years, he has led one Liaoning Provincial Doctoral Scientific Research Start-up Fund Project and participated in five other research projects, including the National Key R&D Program of China (supported by the Ministry of Science and Technology or the Ministry of Industry and Information Technology), Key and General Programs of the National Natural Science Foundation of China, among others. He has won two gold medals at international invention exhibitions. To date, he has published 17 SCI/EI-indexed papers, has been granted or publicly disclosed 12 Chinese invention patents, and has successfully transferred multiple research outcomes to industrial applications.