

Special Session X

Special Session Basic Information:

专栏题目
Session Title

中文：能源系统建模仿真与能碳感知优化
英文：Modeling and Simulation of Energy Systems and Optimization of Energy and Carbon Perception

专栏介绍和征稿主题
Introduction and topics

中文：能源系统的演进正日益聚焦于效率提升、清洁化与脱碳化。通过协同利用电力、天然气、热能、制冷及氢能等多种能源载体，能源系统成为推动可再生能源规模化应用、提升整体运行效率的关键基础。本专题重点议题包括：

- (1) 能源系统建模与仿真
- (2) 能碳监测与计量
- (3) 能源系统低碳规划与能碳感知优化
- (4) 多能系统灵活互动与交易决策

英文：The evolution of energy systems is increasingly focusing on efficiency improvement, cleanliness and decarbonization. By making coordinated use of various energy carriers such as electricity, natural gas, thermal energy, refrigeration and hydrogen energy, the energy system has become a key foundation for promoting the large-scale application of renewable energy and improving overall operational efficiency. Key topics include:

- (1) Modeling and Simulation of Energy Systems
- (2) Energy and carbon monitoring and measurement
- (3) Low-carbon planning of energy systems and optimization of energy and carbon perception
- (4) Flexible Interaction and Trading Decision-Making Technologies for Multi-Energy Systems

Special Session Chair(s):

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Organizer's Brief Biography

中文：李茜，博士，副教授，西南石油大学电气信息学院电气工程教研室副主任、天府永兴实验室兼职副研究员。IEEE PES 中国区电力系统保护与控制技术委员会电网运行控制技术分委员会委员，四川电机工程学会碳中和技术创新专委会委员。长期从事碳监测与碳计量、能源系统能碳智能感知、能源系统优化与运行等方向的研究。主研国家重点研发计划子课题项目 2 项；主持中央引导地方科技发展专项基金 1 项；主持、主研四川省科技计划重点项目、区域合作项目等省级项目 6 项；承担中海油、中石油、国家电网等企业研发课题 20 余项，多项成果实现转化。发表 SCI/EI 等期刊论文 30 余篇，授权发明专利 15 项，软件著作权 6 项。获得省级科技奖励二等奖 4 项、三等奖 1

项。指导学生获得“互联网+”大学生创新创业大赛全国金奖 1 项，全国铜奖 1 项；研究生电子设计竞赛全国一等奖 1 项，以及各类学科竞赛奖项 20 余项。

英文：Dr. Li Qian, Associate Professor and Master's Supervisor, serves as Deputy Director of the Electrical Engineering Teaching and Research Section, School of Electrical and Information Engineering, Southwest Petroleum University and Part-time Associate Researcher at Tianfu Yongxing Laboratory and Member of IEEE PES (China) Subcommittee on Power Grid Operation & Control Technologies and Member of the Carbon Neutrality Technology Innovation Special Committee of Sichuan Electrical Engineering Society. She has been continuously engaged in research in areas such as carbon monitoring and measurement, intelligent perception of energy and carbon in energy systems, and optimization and operation of energy systems. She has been the principal researcher of two sub-projects under the National Key Research and Development Program. Presided over one project of the Central Government's Special Fund for Guiding Local Science and Technology Development. She has presided over and participated in the research of 6 provincial-level projects, including key projects of Sichuan Provincial Science and Technology Plan and regional cooperation projects. And have undertaken over 20 research and development projects for enterprises such as CNOOC, petrochina and State Grid, and many of achievements have been successfully transformed. More than 30 papers have been published in SCI/EI and other journals, and 15 invention patents and 6 Software Copyrights have been authorized. Four second prizes and one third prize of provincial-level science and technology awards were won. Guided students to win one national gold award and one national bronze award in the "Internet Plus" College Students' Innovation and Entrepreneurship Competition. One first prize in the National Postgraduate Electronic Design Competition and over 20 awards in various subject competitions.

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Organizer's Brief Biography

中文：杨威，博士，副教授，硕士生导师，四川省电机工程学会理事，IEEE PES 中国区电网运行控制技术分委会委员，长期从事电动汽车与电网互动、综合能源系统、天然气余压资源综合利用等领域的研究工作。承担四川省科技计划项目、太行国家实验室重点项目等各类课题 20 余项，在 IEEE Transaction on power systems 等 SCI/EI/核心期刊学术期刊发表论文 30 余篇，获四川省科技进步三等奖、中国石油和化工自动化协会科技进步二等奖等省部级奖励 4 项。

英文：Dr. Yang Wei, Associate Professor and Master's Supervisor, serves as Council Member of Sichuan Society for Electrical Engineering and Member of IEEE PES (China) Subcommittee on Power Grid Operation & Control Technologies. His research focuses on electric vehicle-grid interaction, integrated energy systems, and natural gas residual pressure utilization. With over 20 funded projects including Sichuan Provincial S&T Program and Taihang National Laboratory Key Projects, he has published over 30 papers in journals like IEEE Transactions on Power Systems, and received 4 provincial/ministerial awards such as the Third Prize of Sichuan Science & Technology Progress Award.