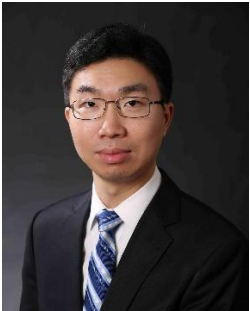


Special Session I

Special Session Basic Information:

专栏题目 Session Title	中文：支撑新型电力系统调度运行与电力市场运营的高效机组组合 英文：Efficient Security-Constrained Unit Commitment for Scheduling and Market Operations in Novel Power Systems
专栏介绍和征稿主题 Introduction and topics	<p>中文：</p> <p>随着新能源渗透率不断提高，参与主体复杂化、资源时空耦合强、随机风险难考虑，新型电力系统的电力电量平衡问题日益突出。电力系统日常运行主要基于安全约束机组组合进行优化调度与风险应对。然而，如何在有限时间内高效求解考虑各类复杂因素的机组组合，仍是一大挑战。亟需针对不同调度周期下的关键电力电量平衡矛盾，融合领域经验、人工智能、运筹优化等技术，实现机组组合高效求解，支撑电力系统调度运行与电力市场有效出清。</p> <p>英文：</p> <p>With the increasing penetration of renewable energy resources, new type power systems are encountering escalating strain on power balance due to complex modeling, strong coupling constraints, and the difficulty of incorporating uncertainties. The operation of new type power systems relies on scheduling optimization and risk management tools based on security-constrained unit commitment (SCUC). However, open challenges remain regarding how to model these complexities and solve SCUC within a limited time. In response to these challenges, it is essential to address key contradictions across different scheduling time spans by integrating domain knowledge, artificial intelligence, operations research, and other technologies to achieve efficient unit commitment solutions, supporting effective dispatch operations and power market clearing in power systems.</p>

Special Session Chair(s):

	姓名 Name	钟海旺
	称谓 Prefix	长聘副教授
	部门 Department	电机系
	单位 Organization	清华大学
	城市/地区 City/Region	北京

Organizer's Brief Biography

中文：

钟海旺，清华大学电机系长聘副教授，博士生导师，清华大学能源互联网创新研究院能源战略与运筹研究中心主任，清华四川能源互联网研究院交易与运筹研究所所长，国家优秀青年科学基金获得者。主要研究方向为电力系统优化运行、电力市场等。

近年来，在国内外期刊及国际会议上发表学术论文 100 余篇，其中 SCI 收录 50 余篇。其中，ESI 热点论文 2 篇，高被引论文 7 篇，合作出版英文专著 2 部。获 2020 年 IEEE PES General Meeting 的 Best of the Best 最佳论文奖；获日内瓦国际发明展金奖 3 项、全国发明展金奖 1 项。作为课题负责人，承担国家重点研发计划项目 1 项、国家

自然科学基金集成项目 1 项。获德国洪堡基金会等联合授予的亚太青年科学家奖、中国电力优秀青年科技人才奖、中国能源研究会优秀青年能源科技工作者奖。获省部级科学技术重大贡献奖 1 项、一等奖 2 项、二等奖 2 项；获中国专利优秀奖 1 项。2023 年，入选美国斯坦福大学发布的“全球前 2% 顶尖科学家榜单”；入选爱思唯尔 2023 和 2024 “中国高被引学者”榜单。

英文：

Haiwang Zhong is currently working as a tenured Associate Professor at Department of Electrical Engineering, Tsinghua University, and Director of Energy Internet Trading and Operation Research Department of Sichuan Energy Internet Research Institute, Tsinghua University. He was granted Excellent Young Scientists Fund by the Chinese National Natural Science Foundation (NSFC). His research interests include power system operations, electricity market, etc.

In recent years, he has published more than 100 academic papers in domestic and international journals and conferences, including more than 50 SCI indexed papers. He has published 2 ESI hot papers, 7 ESI highly cited papers, and 2 co-authored English monographs. He won the Best of the Best Paper Award at the 2020 IEEE PES General Meeting. He was awarded 3 gold medals at the Geneva International Exhibition of Inventions and 1 gold medal at the National Invention Exhibition. He is the PI of one National Key R&D Program project and one National Natural Science Foundation integrated project. He has received the ProSPER.Net-Scopus Young Scientist Award jointly awarded by the Alexander von Humboldt Foundation, the China Electric Power Outstanding Young Scientist Award, and the China Energy Research Society Excellent Young Energy Science and Technology Researcher Award. He received 1 outstanding contribution award and 2 first prizes, 2 second prizes at the provincial and ministerial level for scientific and technological achievements. He was awarded 1 Excellent Patent Award in China. In 2023, he was selected for the "Top 2% of Scientists in the World" list published by Stanford University. He was selected for the Elsevier 2023 and 2024 "Highly Cited Chinese Researchers".

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Organizer's Brief Biography

中文：

颜心斐，工学博士，2024 年毕业于清华大学电机系。研究方向为电力系统优化运行、混合整数规划加速算法、分布式优化等。当前研究聚焦于机组组合高效精确求解，主要关注基于割平面的组合优化加速机理。曾获中国工信部能源电子产业创新大赛关键信息赛道二等奖，中国能源研究会学术创新奖二等奖。

英文：

Xinfei Yan, Ph.D. in Engineering, graduated in 2024 from the Department of Electrical Engineering at Tsinghua University. His research focuses on the optimal operation of power systems, hybrid integer programming acceleration algorithms, distributed optimization, and related areas. His current work is centered on developing efficient and accurate solutions for unit commitment, with a primary focus on combinatorial optimization acceleration mechanisms based on cutting planes. He won second prize in the Key Information Track of the Energy Electronics Industry Innovation Competition, organized by the Ministry of Industry and Information Technology (China), and second prize in the Academic Innovation Award from the China Energy Research Society.