

## Control and Optimization of Urban Power Systems Integrated with Flexible Interconnection Devices

### Introduction and Topics

Amid the green and low-carbon transition in energy utilization, urban power systems are gradually evolving into major platforms for distributed energy resources and new types of electrical loads. With the increasing penetration of distributed energy resources such as solar and wind, the "multi-source" characteristics of urban power systems are becoming more pronounced. Moreover, the utilization of new loads such as electric vehicles is rapidly increasing in both load scale and charging power, presenting new demands on power supply. The rapid development of distributed energy resources and diversified loads has blurred the boundaries between sources and loads in urban power systems, leading to issues such as insufficient power supply capacity, deteriorated power quality, and reduced system reliability. These have posed significant challenges to traditional grid structures and operation control methods. To address the challenges, flexible interconnection devices, with their superior regulation capabilities, have gained widespread attention, driving the traditional urban power systems to gradually develop into new urban power systems characterized by multi-terminal flexible interconnection. This session aims to promote theoretical and practical studies in the control and optimization of the urban power systems so as to improve operating stability and flexibility. All original contributions covering a variety of topics related to the theme of the special issue are encouraged.

**List of topics of interest includes, but are not limited to the following:**

- Design and Energy Management of Flexible Interconnection Devices;
- Novel Grid-following/Grid-forming Control Strategies for Flexible Interconnection Devices;
- Wideband Oscillation Analysis and Stability Control of Flexible Interconnection Devices;
- Advanced Distributed Energy Resources/ Load Forecasting Techniques for Urban Power Systems;
- Modeling and Optimization Technologies for Urban Power Systems
- Energy Storage in Urban Power Systems for Effective Operation;
- Practical Studies and Applications of Integrated Flexible Devices for Urban Power Systems.

### Special Session Chairs



**Dr. Liang Yuan**  
Central South University, China



**Prof. Yonglu Liu**  
Central South University, China



**Dr. Minghao Wang**  
University of Macau, Macau, China



**Dr. Jingjie Huang**  
Changsha University of Science and Technology, China



**Dr. Junyu Chen**  
The Hong Kong Polytechnic University, Hong Kong, China

### IMPORTANT DATES

**Submission Deadline**  
September 10, 2024

**Notification Deadline**  
October 10, 2024

**Camera-Ready Deadline**  
November 30, 2024

### Publication

Submissions will be reviewed by the conference technical committees, and accepted papers will be published in ICSCGE 2024 International Conference Proceedings, which will be submitted for inclusion in the **IEEE Xplore Digital Library**, and submitted for indexing by EI compendex and Scopus.

### PAPER SUBMISSION

Submit your full paper or abstract via the following link: <https://icscge.org/sub.html> or scan the QR code on the right.



Sponsored by



Co-sponsored by



Technical Sponsored By

