The Institution of Engineering and Technology

RPG 2025

Invited Session Call for Papers

The 14th International Conference on Renewable Power Generation

24-26 October 2025 | Shanghai, China

Full Paper Submission Deadline: 05 June 2025 | https://rpg2025.theiet.org.cn/

Session Chair:

- Hua GENG, Tsinghua University, China
- Yushuang LIU, Wuhan University, China

Invited Session on:

03 Modelling, Analysis and Control of Large-scale Renewable Energy Integrated Power System

With the development of renewable energy generation, the operation characteristics of modern power systems are changed. Modern power systems may present nonlinearity, multi-time scale, low inertia and switching characteristics, which complicate the system responses and lead to undesired instability phenomena. Besides, grid-following and grid-forming renewable energy converters are connected to the power grid. The interaction of heterogeneous renewable energy converters makes the system behaviour difficult to predict. To address these issues, instability mechanism analysis and stabilization control for renewable energy systems are necessary. This session is aimed to discuss the modelling, analysis, and control of large-scale renewable energy integrated power systems.

The topics include but not limited to:

- Review of recent modelling, analysis, and control techniques of large-scale renewable energy integrated power systems.
- Equivalent modelling methods and simulation techniques of large-scale renewable energy systems.
- Synchronization/voltage/frequency stability analysis of renewable energy integrated power system.
- Interaction mechanism or cascading failure studies of heterogeneous renewable energy integrated power system.
- Stabilization or coordinated control of renewable energy integrated power system.
- Grid-support methods of renewable energy systems and grid-support capacity evaluation of renewable energy devices.

Session Chair: Hua GENG, Tsinghua University, China

Chair's Bio:

Hua Geng (Fellow, IEEE) received the B.S. degree in electrical engineering from the Huazhong University of Science and Technology in 2003, and the Ph.D. degree in control theory and application from Tsinghua University in 2008. From 2008 to 2010, he was a Postdoctoral Research Fellow with the Department of Electrical and Computer Engineering, Ryerson University, Toronto, Canada. In June 2010, he joined Automation Department, Tsinghua University, and is currently a Full Professor. He has authored more than 300 technical publications and holds more than 30 issued Chinese/US patents. His research interests include advanced control on power electronics and renewable energy conversion systems and AI for energy systems. He was the recipient of IEEE PELS Sustainable Energy Systems Technical Achievement Award. He is the Editor-in-Chief of IEEE Transactions on Sustainable Energy. He was the General Chair, track chairs and session chairs of several IEEE conferences. He is an IET Fellow, convener of the modeling working group in IEC SC 8 A.

BENEFITS OF SUBMITTING

- Successful Authors will receive **10% off the Adult Registration Fee** (early bird or standard registration) Please use code **INVITED25** during registration
- Accepted paper will be published in the RPG 2025 conference proceeding
- Accepted paper will paper published on **IET Digital Library** and indexed by **IET Inspec, Scopus, IEEE Xplore and Ei Compendex**
- Around 30 papers from the conference will be awarded the Best Conference Paper prize and will be invited to submit an extended version to IET renewable Power Generation Journal (open access journal, APC fee applies)

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