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:

- Dr. Jackson J. Justo, ITMO University, Russia / University of Dar es Salaam, Tanzania (Email: jackjusto2009@gmail.com) — Corresponding Chair
- Prof. Ramesh C. Bansal, University of Sharjah, UAE / University of Pretoria, South Africa (Email: rcbansal@ieee.org)
- Prof. Galina Demidova, ITMO University, Russia / Hangzhou Dianzi University, China (Email: 20234025@hdu.edu.cn)

Invited Session on:

02 "High Power Converter Applications in Renewable Power Generation: New Developed Topologies, Control Systems, Condition Monitoring and Fault Detection Strategies"

With just-energy transition initiatives taking place worldwide, updated technical requirements for grid connection and operation require manufacturers and the research industry to improve condition monitoring and fault detection. Such action not only assures the customers and operators but guarantees the reliability of renewable power generation (RPG). Moreover, the RPGs are playing a vital role in implementing SDG-7 (i.e., affordable and clean energy for all), improving the reliability and efficiency of the power supply in remote areas as well as supporting the grid operability. In addition, due to the advancement in the field of power electronics and control technology, RPGs are becoming the best options to invest in. They can be controlled to meet the entitled requirements for stable grid operation or provide isolated energy services such as reactive power and frequency support apart from the active power supply. The challenges remain on proper utilization of the available techniques for optimal design, overall RPG system configuration and control, condition monitoring, fault detection and mitigation using advanced techniques like machine learning, artificial intelligence, digital twin and big data analytics.

Therefore, this track session aims to bring together expertise and host high-level discussions on recent contributions of the new development in high power converters topologies, control systems, condition monitoring and fault detection, adjustment on technical standards and compliances that are focusing energy efficiency to support just transition initiatives.

Topics of the Session include, but not limited to:

- Technical Challenges in Grid Following and Grid Forming Converters for Optimal Operation of RPGs.
- Recent Developments on Power Converters Control System Applications with AI and Machine Learning for RPG Applications.
- New High Power Converter Topologies for Off-grid and Grid Integration of RPG Applications with New System Configurations such as Swarm-grid design and operation.
- Condition Monitoring and Fault Detection in RPG Components with AI, Machine Learning, Digital Twins Technologies

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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