

## 2026 11th International Conference on Power Electronics Systems and Applications



### Important Dates

Submission Deadline	June 25, 2026
Notification Deadline	July 25, 2026
Registration Deadline	August 30, 2026

## Special Session 4: Stability and Control of Grid-Forming Inverter-Based Power Systems

With the increasing penetration of renewable energy resources and energy storage systems, power-electronics-based inverters are rapidly replacing conventional synchronous generators (SGs) in modern power systems. Grid-forming (GFM) inverters have emerged as a key technology for future power grids due to their capability of providing voltage and frequency support. However, compared with conventional SGs, GFM inverters exhibit different dynamic characteristics and more complex control interactions, which introduce significant stability and control challenges. In addition, detailed controller parameters of commercial inverters are often unavailable in practical power systems, making black-box modeling increasingly important. This Special Session focuses on recent advances in the stability analysis, modeling, and control of GFM inverter-based power systems, covering both small-signal and large-signal stability issues. The scope of this Special Session includes, but is not limited to, impedance-based and state-space-based modeling, oscillation mechanism analysis, transient stability analysis and assessment under large disturbances, fault ride-through strategies and characteristics, stability enhancement methods for both transient and small-signal dynamics, data-driven and AI-assisted black-box impedance modeling, and machine-learning-based transient stability analysis. The session aims to provide a platform for researchers and engineers to exchange innovative ideas and discuss future directions in the stability analysis and control of GFM inverter-based power systems.



**Chair: Yang Wu**  
Nanyang Technological University, Singapore



**Co-Chair: Zhiheng Lin**  
Nanjing University of Aeronautics and Astronautics, China



**Co-Chair: Yifan Zhang**  
Nanyang Technological University, Singapore

### Publication

**IEEE** The accepted and presented papers will be published in the **PESA Conference Proceedings**. Conference content will be submitted for inclusion into **IEEE Xplore** and indexed by **Ei Compendex** and **Scopus**, etc.

- ✦ **PESA 2026 has been included in IEEE event list! (Read More)**
- ✦ **All past PESA proceedings are archived in IEEE Xplore and indexed by Ei Compendex and Scopus.**



#### SCI Journal

Up to 20% of the outstanding PESA 2026 papers will be selected and recommended for review and potential publication in IAS Transactions and IAS Magazines (JCR-Q2).

### Publication History

Accepted and presented papers of **10-year PESA** have been successfully published and indexed by **Ei Compendex & Scopus**.

**PESA 2024:** Hong Kong, China - ISBN: 979-8-3503-6580-1

**PESA 2022:** Hong Kong, China - ISBN: 978-1-6654-8668-2

**PESA 2020:** Hong Kong, China - ISBN: 978-1-7281-8890-4

**PESA 2017:** Hong Kong, China - ISBN: 978-1-5386-1387-0

**PESA 2015:** Hong Kong, China - ISBN: 978-1-5090-0063-0

**PESA 2013:** Hong Kong, China - ISBN: 978-1-4799-3491-1

More info, please visit: <https://www.icpesa.net/history.html>

### Submission Guidelines

**Submission Link:** <https://www.easychair.org/my/conference?conf=pesa2026>

Please select **Special Session 4** after accessing the submission system.

[Full Paper Template](#)

[Abstract Template](#)

#### Note:

- ~ Full Paper (**No less than 4 pages normally, 10 pages maximum. 5-6 pages are recommended**, including all figures, tables, and references)
- ~ Abstract (Within 300 words)
- ~ Official language is **English** in paper/abstract writing and presenting
- ~ Download the Full Paper/Abstract Template for proceedings and read **guidelines**.

### Contact US

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Conference Website: [www.icpesa.net](http://www.icpesa.net)

Special Session Page: <https://www.icpesa.net/special-session-4.html>

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