

IEEE 6th International Conference on Sustainable Energy and Future Electric Transportation (SeFet 2026)

Visvesvaraya National Institute of Technology, Nagpur, India (8th to 11th July 2026)

Call for Papers : SS1 (IEEE SEFET-2026)

(08TH – 11TH JULY, 2026, NAGPUR, MAHARASHTRA, INDIA)

SS1: Adaptive Protection and Control of PV-Integrated Microgrids Under Intermittent Generation

Special Session Acronym: APC-PV-MG

All the accepted and presented papers will be published in the form of e-proceedings and submitted to IEEE Xplore Digital Library (indexed in SCOPUS, Google Scholar, and other major indexing). All presented papers will be considered for further review and publication in IEEE Transactions on Industry Applications and IEEE Industry Applications Magazine.

Details of Organizers:



Dr. Debayan Sarkar
NIT Silchar
Email: debayan@ee.nits.ac.in
Mob: 7602995170



Dr. Biswajit Sahoo
NIT Silchar
Email: biswajitsahoo@ee.nits.ac.in
Mob: 7978752395



Dr. Basant Kumar Sethi
SVNIT Surat
Email: bks@eed.svnit.ac.in
Mob: 7008392721



Dr. Subhendu Sekhar Sahoo
VIIT Visakhapatnam
Email: subhendu441@gmail.com
Mob: 8093579282

Technical Outline of the Session:

The rapid proliferation of photovoltaic (PV)-integrated microgrids is fundamentally transforming modern power systems, while simultaneously introducing significant challenges in protection, control, and operational stability due to the inherently intermittent and inverter-dominated nature of solar generation. This special session aims to provide a focused forum on adaptive protection and advanced control strategies tailored specifically for PV-dominated microgrids operating under fast irradiance variations, partial shading, and dynamic grid disturbances. The session will address physics-based as well as signal-driven adaptive protection methodologies, emphasizing reliable fault detection, selective coordination, and accurate discrimination between electrical faults and PV-induced transients such as MPPT dynamics and partial shading. Complementing this, the session will highlight data-driven and AI-enabled protection frameworks, including machine learning, deep learning, and digital twin technologies for intelligent fault diagnosis, predictive security, and cyber-attack detection in PV-rich networks. Advanced control strategies for PV-integrated AC, DC, and hybrid microgrids will be explored, covering adaptive droop control, grid-forming and grid-following converters, virtual inertia implementation, and robust FPPT/GMPPT techniques under intermittent generation. Furthermore, the session will emphasize stability, resilience, and self-healing operation, including islanding detection, black-start capability, restoration strategies, and disturbance-resilient operation under high PV penetration. Further, strong emphasis will be placed on real-time implementation, hardware-in-the-loop (HIL) validation, laboratory-scale prototypes, and cyber-physical security considerations, ensuring the practical relevance and field deployability of proposed solutions. This session aims to bridge fundamental theory with real-world application for next-generation PV-dominated microgrids.

Suggested Topics of Session (not limited to):

1. Adaptive Protection and Fault Discrimination in PV-Dominated Microgrids
2. Data-Driven and AI-Enabled Protection, Diagnosis, and Predictive Security of PV Microgrids
3. Advanced Control Strategies for PV-Integrated AC, DC, and Hybrid Microgrids
4. Stability, Resilience, and Self-Healing Operation of PV-Rich Microgrids
5. Real-Time Implementation, HIL Validation, and Cyber-Physical Security

Important Dates

- Paper submission opens: **01st Oct 2025**
- Deadline for full paper submission: **31st Jan 2026**
- Notification of acceptance: **15th Mar 2026**

Submission

<https://cmt3.research.microsoft.com/SEFET2026/Submission/Index>
Select Special Session as "SS1: Adaptive Protection and Control of PV-Integrated Microgrids Under Intermittent Generation"
Conference Website: <https://vnit.ac.in/sefet26/index.html>

