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Call for Papers for the Special Session on

AI-driven Optimization Control Approaches in Renewable Energy Systems

Organized and co-chaired by

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Technical Outline of the Session and Topics

In recent years, the rapid development and wide application of artificial intelligence (AI) technology has triggered an AI boom sweeping in optimization control and utilization of renewable energies throughout the world. And remarkable advances have arisen in the fields of industry, architecture, ship, etc. For example, AI-driven short-term and ultra-short-term forecasting control for solar irradiance and wind power, dynamic optimization control in distributed energy management, optimal scheduling concerning the grid operation and market participation, capacity optimization configuration of energy storage systems, AI-powered digital twins and multi-agent control for simulation, anomaly detection and predictive maintenance. However, it is worth noticing that the massive integration of intermittent renewable energy sources presents unprecedented challenges to the stability, reliability and efficiency of renewable energy systems. And how can AI be utilized to turn these challenges into opportunities for a sustainable and reliable power supply? Therefore, the special session aims to provide a research venue for exchanging and discussing the technical trends and challenges of renewable energy utilization by using AI-driven optimization control approaches. Both theory- and application-driven studies are invited for participation.

Topics of the session include, but are not limited to:

- AI-driven advances in renewable energy technology
- Networked and multi-network cooperative control
- Optimization and control of renewable energy systems
- Energy storage and integration
- Building Integrated PV and wind power
- Energy Internet
- Microgrid, smart grid and smart energy
- AI-driven short-term and ultra-short-term forecasting control
- Dynamic optimization control in distributed energy management
- Optimal scheduling control of grid operation and market participations
- AI-powered digital-twin technology in renewable energies

Timeline for Authors

Paper Submission deadline: April 15th, 2026

Acceptance Notification: May 15th, 2026

Final Submission and registration: July 15th, 2026