Special Issue

Advanced Control Strategies for Photovoltaic Energy Systems

Message from the Guest Editors

The global transition toward sustainable energy systems has set photovoltaic (PV) technology as a key pillar for the use of renewable energy adoption. However, the widespread integration of PV systems into power grids introduces challenges, such as intermittent generation, power quality issues, and system reliability concerns, correlated to the availability of the primary energy source and operational disturbances. To overcome these challenges, advanced control strategies are essential for optimizing performance, enhancing resilience, and ensuring the reliable integration of PV systems into modern energy infrastructures. This Special Issue explores novel methodologies, algorithms, and technologies aimed at improving the operation, management, and resilience of PV systems.

- Adaptive control techniques;
- Strategies for hybrid energy storage system control;
- Fault detection and mitigation;
- Grid-supportive control;
- Artificial intelligence and machine learning-based optimization;
- Approaches for enhancing energy efficiency and system stability;
- Innovations that strengthen the resilience of PV systems to disruptions, ensuring sustainable operation under varying conditions.

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Message from the Editor-in-Chief

Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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