Special Issue

Symmetry in Clean Energy Systems: Recent Developments and Future Directions Towards AI

Message from the Guest Editors

This Special Issue addresses the benefits and operational complications of renewable energy systems (RES) in achieving 100% carbon-free energy generation. Energy losses are primarily due to system design failures and operational asymmetries. Secondly, imbalanced power flow to the conventional grid deteriorates the power quality, and voltage imbalance occurs. Accounting for the generation and consumption becomes a significant issue due to a lack of automation and real-time data monitoring. Furthermore, fault detection and optimisation through machine/deep learning enable RES to operate with minimal power conversion and transmission losses. Supervised machine learning models enhance the system's efficiency and detect anomalies in operation. Early fault detection significantly reduces the power plant outage period and prevents the higher risk of component replacement and cost-effective maintenance. AI-driven fault/anomaly detection and deploying automated fault rectifying units without human-made decisions could be a futuristic trend in the RES. This SI welcomes original research and review articles and on RES, including recent developments and future directions towards AI.

Guest Editors

Dr. Karthikeyan Velmurugan

Department of Technology Engineering, Faculty of Industrial Technology, Kamphaeng Phet Rajabhat University, Kamphaeng Phet 62000, Thailand

Dr. Butploy Narut

Department of Computer Technology, Faculty of Industrial Technology, Kamphaeng Phet Rajabhat University, Kamphaeng Phet 62000, Thailand

Deadline for manuscript submissions

31 March 2026

Symmetry

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 5.3

mdpi.com/si/246065

Symmetry
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
symmetry@mdpi.com

mdpi.com/journal/symmetry

Symmetry

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 5.3

mdpi.com/journal/symmetry

About the Journal

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

Editor-in-Chief

Prof. Dr. Sergei Odintsov
1. ICREA, 08010 Barcelona, Spain
2. Institute of Space Sciences (IEEC-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within SCIE (Web of Science), Scopus, CAPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

Journal Rank:

JCR - Q2 (Multidisciplinary Sciences) / CiteScore - Q1 (General Mathematics)

MDPI