Special Issue

Advances in Electrochemical Energy Storage and Conversion: Materials, System, and Performance

Message from the Guest Editor

As the demand for sustainable energy solutions grows, electrochemical energy storage and conversion technologies have become increasingly important. The transition towards a low-carbon economy requires the development of efficient, dependable, and cost-effective energy storage and conversion systems that can support the integration of intermittent renewable energy sources into the grid. This imperative is driven by the urgent need to mitigate climate change, reduce greenhouse gas emissions, and ensure a sustainable future for future generations. In addition, the increasing reliance on solar and wind power has created a pressing need for advanced energy storage solutions that can smooth out the variability in renewable energy output, ensuring a stable and reliable electricity supply. Electrochemical energy storage technologies, such as lithium-ion batteries, sodium-based batteries, and supercapacitors, have emerged as key enablers of this transition, offering improved performance, safety, and cost-effectiveness. Furthermore, developing advanced energy conversion systems, including fuel cells and electrolyzers, is critical to realizing a low-carbon economy.

Guest Editor

Dr. Fujun Niu

School of Advanced Energy, Sun Yat-sen University (Shenzhen), Shenzhen 518107, China

Deadline for manuscript submissions

closed (25 July 2025)

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 7.3

mdpi.com/si/228765

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

mdpi.com/journal/energies

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 7.3

mdpi.com/journal/energies

About the Journal

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.

Editor-in-Chief

Prof. Dr. Enrico Sciubba
Department of Mechanical and Industrial Engineering, University Niccolò Cusano, 00166 Roma, Italy

Author Benefits

Open Access:

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

High Visibility:

indexed within Scopus, SCIE (Web of Science), Ei Compendex, RePEc, Inspec, CAPlus / SciFinder, and other databases.

Journal Rank:

CiteScore - Q1 (Control and Optimization)