Special Issue

Challenges and Opportunities Towards Lithium-Ion Batteries

Message from the Guest Editor

In the modern era of digital civilization, energy storage technologies are under pressure now more than ever to be cost-effective, reliable, and capable of increasing their energy density. In such scenarios, the use of LIBs, with their unmatched performance and their ability to continually increase their energy density, is the only avenue available for development. Despite several breakthroughs in LIBs, such as cation-disordered, several critical issues remain to be addressed for their improved future application. Two major concerns include driving range anxiety and thermal runaways. Contributions on the following topics, among others, are invited for submission to this Special Issue:

- Designing better batteries for future applications;
- In situ/ex situ characterizations;
- Theoretical understanding of LIBs;
- Mitigating voltage/capacity fading;
- Designing novel materials based on theoretical understandings;
- Reviews/surveys/progress in LIBs;
- Opinions on the road map to future advances in LIBs;
- Finding opportunities in challenges to LIBs;
- Machine learning approaches to alleviate modern issues with LIBs;
- Pushing the limits of theoretical capacity limits to LIBs.

Guest Editor

Dr. Aditya N. Singh
Department of Energy and Materials Engineering, Dongguk University, Seoul 04620, Republic of Korea

Deadline for manuscript submissions

10 July 2026

Energies

an Open Access Journal by MDPI

Impact Factor 3.9
CiteScore 8.3

mdpi.com/si/210439

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 3.9
CiteScore 8.3

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)