Special Issue

Advanced Solid-State Batteries: Materials, Interfaces, Technologies, and Applications

Message from the Guest Editor

In recent years, solid-state batteries (SSLBs) have attracted extensive attention due to their potential to address safety issues via the replacement of liquid electrolytes with non-flammable solid counterparts. Solid-state electrolytes with a high modulus are theoretically expected to inhibit dendrite growth and penetration. Furthermore, electrochemically stable solid-state electrolytes enable the integration of high-voltage cathodes with metal anodes. The lamination configuration allows for a bipolar structure and highly stacked unit cells. Therefore, solid-state batteries are also able to boost energy density. However, several critical issues associated with the development of SSLBs remain, including the preparation of high-stability solid-state electrolytes, the improvement of long-life cycling stability, advanced characterization, the research of interfacial chemistry, the actual realization of high energy densities, analyses of the failure mechanism, and compatibility with current industrial technology.

Therefore, this Special Issue aims to gather recent research, reviews and perspectives related to solid-state batteries.

Guest Editor

Dr. Zhijie Bi

College of Physics, Qingdao University, Qingdao 266071 China

Deadline for manuscript submissions

20 August 2025

Crystals

an Open Access Journal by MDPI

Impact Factor 2.4
CiteScore 5.0

mdpi.com/si/226102

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

mdpi.com/journal/crystals

Crystals

an Open Access Journal by MDPI

Impact Factor 2.4
CiteScore 5.0

mdpi.com/journal/crystals

MDPI

About the Journal

Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

Editor-in-Chief

Prof. Dr. Alessandra Toncelli
Department of Physics, University of Pisa, 56126 Pisa, PI, 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), Inspec, Ei Compendex, CAPlus / SciFinder, and other databases.

Journal Rank:

JCR - Q2 (Crystallography) / CiteScore - Q2 (Condensed Matter Physics)