Special Issue

Solid-State Electrolytes for Next-Generation Batteries: Materials, Performance and Design Challenges

Message from the Guest Editor

This Special Issue is dedicated to showcasing the latest advances in materials for all-solid-state battery systems, establishing an international forum for high-level scholarly exchange. Through this curated collection, we aim to accelerate the development of next-generation materials essential for future energy technologies. Submissions from the global research community are welcome across key topics, including, the following:

- design and synthesis of novel solid-state electrolyte materials;
- ion transport mechanisms and interfacial stability;
- performance optimization and integration for all-solid-state batteries;
- electrode–electrolyte compatibility and interface engineering;
- high-throughput computation and AI-driven development of solid electrolytes;

Contributions featuring advanced characterization methods, such as three-dimensional non-destructive imaging and interfacial cryo-electron microscopy, are especially welcome. We look forward to receiving your contributions.

Guest Editor

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Message from the Editorial Board

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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