

## Special Issue

# Advances in Metal Chalcogenides and Their Composites: Synthesis, Properties and Energy Storage Application

### Message from the Guest Editor

Metal chalcogenides have garnered significant interest for energy storage applications. Compared to metal oxides, they exhibit superior specific capacity and electrochemical performance, making them ideal for supercapacitors and batteries. However, challenges like long-term stability and slow reaction kinetics persist. To address these, researchers are exploring strategies such as microstructure engineering, heteroatom doping, and hybridization with carbon/MXenes. These approaches enhance surface area, porosity, and active sites, enabling efficient ion interaction while preserving structural integrity. This Special Issue invites original research and reviews on advancements in synthesis, structural optimization, characterization, and charge storage mechanisms of metal chalcogenides and their composites for supercapacitors and rechargeable batteries. Contributions should highlight novel methodologies, performance breakthroughs, or fundamental insights into electrochemical behavior. Submissions may focus on experimental innovations, theoretical modeling, or hybrid material designs that push the boundaries of energy storage efficiency and durability.

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### Guest Editor

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### Deadline for manuscript submissions

closed (20 April 2026)



## Materials

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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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