

Special Issue

Sulfur-Based Nanomaterials for Secondary Batteries

Message from the Guest Editors

Alkaline/alkaline-earth metal-ion batteries are promising for energy storage, with performance driven by electrodes and electrolytes. Sulfur cathodes are widely studied due to high capacity, low cost, and eco-friendliness, but challenges like poor conductivity and polysulfide shuttling require solutions such as conductive sulfur nanocomposites. Transition metal sulfides offer high capacity as cathode alternatives. Sulfide-based solid electrolytes exhibit high ionic conductivity but need stability improvements. Beyond batteries, sulfur materials have applications in lubrication, electronics, and catalysis. This Special Issue covers synthesis, characterization, properties, and applications of sulfur-based nanomaterials for batteries, highlighting recent advances. Researchers are invited to submit original experimental, theoretical, or review papers.

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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