

Special Issue

Towards Low-Dimensional Materials in Energy Storage and Conversion

Message from the Guest Editor

Low-dimensional materials (LDMs) have garnered significant interest as highly promising materials for energy storage and conversion, largely due to their favorable properties. 0D materials are confined to the nanoscale in all three dimensions, such as quantum dots, nanoclusters, and nanodots under 10 nm. 1D materials are confined to the nanoscale in two dimensions, while the remaining dimension is typically on a microscale, such as high aspect ratio structures like nanorods, nanowires, nanotubes, nanoribbons, and nanofibers. For 2D materials, these are only restricted to the nano size in one dimension, with examples including thin sheets and nanoplatelets generally ranging from 3–50 nm thick. Importantly, controlling the performance and mechanisms of LDMs in energy storage and conversion can be achieved via the manipulation of physico-chemical properties like the size, shape, composition including heterostructures, as well as incorporating functional groups. This Special Issue aims to present cutting-edge research and developments on single and composite LDMs for energy storage and conversion. We welcome contributions from all related fields.

Guest Editor

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About the Journal

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.

Editor-in-Chief

Prof. Dr. Eugenia Valsami-Jones

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