Special Issue

Application of Nanomaterials in Efficient Energy Conversion and Storage

Message from the Guest Editors

The application of nanomaterials in efficient energy conversion and storage (EECS) has gained significant attention due to the growing demand for sustainable energy solutions. Reliable and scalable storage systems to support the integration of renewable energy sources into the grid are urgently needed. The development of advanced battery technologies, such as solid-state and lithium-ion batteries, and the exploration of novel nanomaterials and fuel cell designs, water-based photo/electrolysis, flexible wearable devices, and (super)capacitors are current topics in EECS. To address the challenges in this field, it is crucial to focus on improving the energy density, cycle life, and safety of electrochemical devices, as well as reducing their costs and environmental impact. This can be achieved through continued research into novel nanomaterials, manufacturing processes, and system integration, as well as the optimization of control and management strategies for energy storage systems. By addressing these aspects, more efficient and sustainable energy conversion and storage solutions can be developed in this Special Issue.

Guest Editors

Dr. Gege He

College of Chemical Engineering, Xinjiang University, Urumqi 830046, China

Dr. Shun Lu

Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences, Chongqing 400714, China

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

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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. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

Editor-in-Chief

Prof. Dr. Eugenia Valsami-Jones
School of Geography, Earth and Environmental Science, University of Birmingham, Birmingham B15 2TT, UK

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