Special Issue

Advances in Nanostructured Materials for Batteries

Message from the Guest Editors

The demand for efficient energy storage solutions has led to research into novel battery technologies, with a particular focus on solid-state batteries and alternatives to conventional lithium-ion (Li-ion) systems, such as sodium-ion (Na-ion) batteries. Nanostructured materials offer promising avenues for enhancing the performance of these batteries, addressing challenges related to energy density, cycling stability, safety, and cost-effectiveness. This Special Issue aims to highlight recent developments and breakthroughs in the synthesis, characterization, and applications of nanostructured materials for solid-state batteries, Li-ion batteries, Na-ion batteries, and beyond. Contributions will cover a wide range of topics, including, but not limited to, nanostructured electrodes, electrolytes, separators, and interfaces, as well as advanced characterization techniques and computational modeling approaches. By bringing together cutting-edge research in this field, this Special Issue will provide insights into the potential of nanostructured materials to revolutionize energy storage technologies and accelerate the transition toward sustainable and reliable battery systems.

Guest Editors

Prof. Dr. Lu Li

Department of Mechanical Engineering, National University of Singapore, 9 Engineering Drive 1, Singapore 117576, Singapore

Prof. Dr. Masashi Kotobuki

Battery Research Center of Green Energy, Ming Chi University of Technology, 84 Gungjuan Road, Taishan District, New Taipei City 24301, Taiwan

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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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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. 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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