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Functionalized Nanostructures for Novel Energy Storage Systems

Guest Editor:

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Deadline for manuscript submissions:
closed (28 February 2023)

Message from the Guest Editor

Dear Colleagues,

To meet the increasing demand for future batteries, new electrode and material concepts need to be developed. Besides the research activities aimed at developing new high-energy material cathodes and anodes, advanced electrode architectures and mass loading concepts need to be investigated to push lithium-ion and post-lithium batteries beyond state-of-the-art energy storage concepts. An enormous innovation of energy storage systems is possible through functionalized nanostructures, which have to be introduced into new material designs and electrode architectures.

This Special Issue is dedicated, but not limited to, the following aspects of advanced battery cell architectures:

- Li-ion batteries, all-solid-state batteries, post-lithium batteries, and supercapacitors;
- Nanoscale material development for cathodes, anodes, and electrolytes;
- Nanostructuring of battery materials;
- 3D printing;
- Electrode architectures;
- 3D batteries;
- Electrochemical characterization;
- Nano/microstructure, spectroscopic, 3D, and in situ/in operando characterization;
- Modeling.

Dr. Wilhelm Pfleging
Guest Editor

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Special Issue

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Editor-in-Chief

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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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