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Application of Nanomaterials in Ion Batteries

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Message from the Guest Editor

Nanosized (1–100 nm) materials possess distinct physical, chemical and electrochemical properties that could impact the cell performance of rechargeable ion-batteries. In energy storing Li-ion, Na-ion and K-ion batteries the anode and cathode materials dimensions, shape, structure and texture could play a significant role in charging and discharging time, ion-diffusion, electronic conductivity and solid electrolyte formation (typically for anodes). The designed electrode materials play a momentous role in a battery's cycle life, energy density, cost and safety aspects. This Special Issue of the *Nanomaterials* journal will cover and shine light on the applications of various fascinating nanomaterials and nanoarchitectures of metals, alloys, oxides, MXenes, heteroatom doped materials and many more as electrodes for ion batteries (single to multivalent) and their overall promising energy storing performance.



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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.

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