



## Nanomaterials in Environmental Friendly Fuel Cell

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### Message from the Guest Editors

Fuel cells are expected as an energy system for a low carbon or even hydrogen society. Fuel cells have already been put into practical use as residential and automotive power supplies, and are expected to spread dramatically in the near future. However, the performances of rechargeable batteries, exemplified by lithium-ion batteries, have also improved year-by-year, and further developments of fuel cells as energy systems are strongly desired. In order to widely disseminate fuel cells, it is important to acquire environmentally-friendly characteristics, namely the development of platinum-group-metal-free electrodes, securing system diversity. Especially, the use of various fuels (other than hydrogen), such as liquid fuels, biofuels and biogas, is an important key. Recent progress in experimental techniques and computational theories can provide fundamental insights in the development of new electrode and electrolyte materials corresponding to a wide range of fuels types. This Special Issue features nanomaterials in new-generation fuel cell technologies, including computational theoretical research, as well as experimental research and development.





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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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