Special Issue

Advances in ORR & OER Electrocatalysts

Message from the Guest Editor

The current global energy crisis and the negative environmental impacts resulting from the incessant use of fossil fuels have driven scientists to develop novel renewable energy storage and conversion technologies, such as fuel cells, water splitting devices, and metal–air batteries. Electrocatalysis plays a key role in these clean energy devices, enabling the development of several sustainable processes for future technologies. However, the design of highly efficient and cost-effective materials is one of the current major challenges in this field. The commonly employed technologies are expensive due to the use of noble metal-based electrocatalysts, but from the tremendous research efforts, several highly active and stable new materials have emerged. This SI aims to cover the latest advances on emerging oxygen reduction reaction (ORR) and oxygen evolution reaction (OER) electrocatalysts, including their synthesis and characterization, evaluation of their electrocatalytic performances, as well as a theoretical understanding of ORR and OER that affords rational design strategies for high performance ORR/OER electrocatalysts.

Guest Editor

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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