



Advances in ORR & OER Electrocatalysts

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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.





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