Novel Non-Precious Metal Electrocatalysts for Oxygen Electrode Reactions

Message from the Guest Editors

Increasing inevitable global demands for energy have stimulated considerable research on alternative energy harvesting technologies, conversion and storage systems with high efficiency, cost-effective and environmentally friendly systems, such as fuel cells, rechargeable metal-air batteries, unitized regenerative cells, and water electrolyzers. The scarcity of precious metals, their prohibitive cost, and declining activity greatly hamper the practice for large-scale applications. It is of paramount practical importance and interest to develop efficient and stable materials for the oxygen electrode, based on Earth-abundant non-noble metals. With the fast development of advanced nanotechnology, novel non-precious metal electrocatalysts for the oxygen reactions have been explored based on the innovative design in chemical compositions, structure, and morphology, and supports.