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.