Special Issue

Catalysis for Energy Storage and Batteries

Message from the Guest Editor

This special issue explores innovative advancements in electrochemistry for sustainable energy solutions. With global energy demands surging, the reliance on non-renewable sources has led to pollution and environmental concerns. Thus, a shift towards efficient, cost-effective, electrochemical energy technologies is crucial for achieving a carbon-neutral future. This issue focuses on the design and optimization of advanced electrocatalysts for key reactions like fuel cells, batteries, water splitting, CO2 reduction, and others. Additionally, it highlights recent progress in synthesizing novel catalysts, enhancing performance, and building efficient devices. In addition, advanced characterization techniques—such as ex-situ, in-situ, and operando methods—are utilized to provide insights into the mechanisms, supported by theoretical and computational modeling. In particular, the development of these technologies requires a multidisciplinary approach, bridging materials science, chemistry, physics, and computational fields. Thus, this issue aims to inspiring publications towards sustainable energy storage and conversion solutions.

Guest Editor

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