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Nanomaterials: Synthesis of New Few- or Free-Noble Metal Electrocatalysts for Water Splitting

Guest Editor:

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Message from the Guest Editor

Hydrogen (H2) has been considered as a clean and new energy due to its high energy density and negligible pollution of combustion products. Water electrolysis is deemed as a promising strategy to produce H2 because of abundance in resources and carbon-free emissions. However, the practical application of water splitting has been largely impeded due to the relatively slower kinetics and higher overpotentials of oxygen evolution reaction (OER) at the anode. In acid media, commercial Pt/C and RuO2 (IrO2) are regarded as the optimal electrocatalysts for hydrogen evolution reaction (HER) and OER, respectively, but their applications are limited by using a large number of noble metals. In alkaline media, non-noble metals for catalysts are easy to be obtained, but the kinetics of HER is sluggish, and overpotentials of OER are higher, too. Therefore, the development of high efficient and stable few-or free-noble metal electrocatalysts is important.

In this Special Issue, we invite investigators to contribute original research articles , communications, as well as review articles that are related to new materials design for HER and OER in acid or alkaline media.

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Message from the Editor-in-Chief

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