

Water Splitting Electrocatalyst for Renewable Hydrogen Production

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Hydrogen generation from water splitting reaction is an ideal clean energy source yet it requires high energy input. In order to lower the water splitting energy requirement, the development of electrocatalysts plays an important role. Among the electrocatalyst for hydrogen evolution reaction (HER) on the cathode, Pt is no doubt to be the best one, however, its cost limits the possibility for widely use in the industries. As a result, the earth abundant, cheap, and nontoxic catalyst such as molybdenum sulfide (MoS_x) is gaining more and more attention.

On the contrary, during the water splitting reaction, on the anode, the oxygen evolution reaction (OER) takes place. The overpotential of this half reaction usually limits the overall water splitting efficiency. So, the development of a suitable catalyst for OER is as important as for HER. We have successfully developed a series of highly active and stable amorphous metal oxide electrocatalysts such as FeO_x , CoO_x , MoO_x and their binary and ternary mixture for OER.

In this talk, the introduction of the electrocatalytic water splitting will be given as well as the status of our current studying projects.

References

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