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Iridium Nanoparticles Anchored on 3D Graphite Foam as a Bifunctional Electrocatalyst for Excellent Overall Water Splitting in Acidic Solution

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Abstract

The proton-exchange-membrane (PEM) water-splitting electrolyser is a highly appealing technology for economical hydrogen production. Unfortunately, only Iridium (Ir)-based electrocatalysts show efficient and stable activity towards oxygen evolution reaction (OER) in acidic medium, which seriously hampers the large-scale utilization of PEM water splitting electrolyser as a result of high cost and scarcity of the Ir. Here, we report synthesis of Ir nanoparticles on 3D graphite foam (Ir/GF) upon a heat treatment of Ir³⁺/polyaniline complex that were beforehand prepared on the GF. Benefiting from low content of Ir (5.91 wt%) and excellent resistance of 3D graphite

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