Short Communication

Template Synthesis of Hollow MoS₂ Microspheres with Enhanced Electrocatalytic Activity for Hydrogen Evolution

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Novel hollow MoS₂ microspheres with enhanced electrocatalytic activity for hydrogen evolution reaction (HER) have been synthesized by a facile self-sacrificial template method using MnCO₃ spheres as precursor. During a hydrothermal sulfuration process, uniform MnCO₃ spheres transformed to MoS₂/MnS core-shell structures. After removal of MnS with acid treatment of MoS₂/MnS, hollow MoS₂ microspheres have been obtained. XRD show that pure MoS₂ has been synthesized without any impurity. SEM images show that hollow MoS₂ structure is spherical morphology and consisted of many MoS₂ nanosheets, which imply more exposed edges and rims of MoS₂ nanosheets. The electrocatalytic activity of hollow MoS₂ microspheres for HER has been investigated. The results show that hollow MoS₂ microspheres have better activity for HER than conventional MoS₂ nanoparticles, which imply that hollow MoS₂ structures have more active sites for HER. Template synthesis of hollow MoS₂ microspheres is a suitable choice for high active electrocatalysts.

Keywords: template synthesis; hollow MoS₂ microspheres; hydrogen evolution; electrocatalytic activity

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