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Short Communication

Carbon Encapsulated WS_2 Nanocomposites Derived from ZIF-67@WS_2 Core-Shell Nanoparticles and their electrocatalytic applications

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In this work, Co_9S_8 and N,S co-dopped carbon encapsulated WS_2 nanocomposites (Co_9S_8-N,S-C@WS_2) has been successfully prepared through a high-temperature carbonization of the precursor ZIF-67@WS_2 nanoparticles. The obtained Co_9S_8-N,S-C@WS_2 nanoparticles were confirmed to have a core-shell structure and uniform element distribution by TEM and element mapping. Its crystal structure was characterized by XRD, and the high specific surface areas with porous structure was characterized by BET tests. The as-prepared Co_9S_8-N,S-C@WS_2 nanoparticles exhibited a better ORR/OER/HER performance than single component. In this work, a novel idea for the preparation of functional nanocomposite materials could be provided.

Keywords: WS_2, ZIF-67, core-shell nanoparticles, electrocatalysts

FULL TEXT