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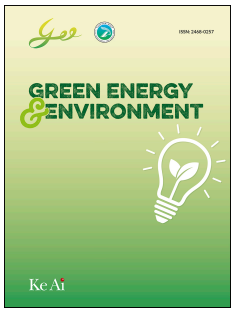

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A host-guest approach to fabricate metallic cobalt nanoparticles embedded in silk-derived N-doped carbon fibers for efficient hydrogen evolution

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Abstract

Hydrogen evolution reaction (HER) plays a key role in generating clean and renewable energy. As the most effective HER electrocatalysts, Pt group catalysts suffer from severe problems such as high price and scarcity. It is highly desirable to design and synthesize sustainable HER electrocatalysts to replace the Pt group catalysts. Due to their low cost, high abundance and high activities, cobalt-incorporated N-doped nanocarbon hybrids are promising candidate electrocatalysts for HER. In this report, we demonstrated a robust and eco-friendly host-guest approach to fabricate metallic cobalt nanoparticles embedded in N-doped carbon fibers derived from natural silk fibers. Benefiting from the one-dimensional nanostructure, the well-dispersed