

Fabrication of atomically dispersed Co-NC hollow sphere as an efficient electrocatalyst for a stable and high-performance proton exchange membrane fuel cell

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metal-nitrogen-carbon (M-N-C) catalysts have been reported as a promising electrocatalysts to replace noble metal catalysts (Pt/C, Au/C, and Ru/C etc.). Carbonized ZIFs (Zeolite imidazole frameworks) as a precursor of metal-nitrogen-carbon (M-N-C) catalyst have been extensively studied because of their porosity and ligand that is composed of nitrogen and carbon. Most of ZIFs precursor is prepared by hydrothermal method with metal salt and 2-methylimidazole. Although this method has advantages of simple and low-cost synthesis, it is difficult to control the shape of the particles and it is difficult to synthesize in large quantities. In this study, we synthesized Co-doped ZIFs particles from Co-doped ZnO sphere by spray pyrolysis method and pseudomorphic replacement. This process makes it possible to control the morphology of MOF particles and make MOF composite particles easily. The pyrolyzed ZIFs particles were applied to oxygen reduction reaction.