Co/CoO Nanoparticles/Ag Nanowires/Nitrogen Codoped Electrospun Carbon Nanofibers as Efficient Electrocatalysts for Oxygen Reduction

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Development of efficient electrocatalysts for oxygen reduction reaction (ORR) is of crucial importance to optimize the performance of fuel cells. In this work, Firstly, Ag nanowires (AgNWs) were in-situ embedded in electrospun carbon nanofibers (CNF). Then, Nitrogen and Co/CoO nanoparticles (Co/CoO NPs) were successively codoped into CNF-AgNWs *via* the thermal annealing process, aiming to increase the accessible surface area of CNF-AgNWs and facilitate O₂ diffusion and OH⁻ transport of the resulting N-CNF-AgNWs-Co/CoO hybrids. It is demonstrated that N-CNF-AgNWs-Co/CoO exhibited excellent electrocatalytic activity for the ORR in alkaline electrolytes, including high onset potential (-0.069 V), high half-wave potential (-0.246 V), and large electron transfer number (~4).

Keywords: Ag nanowires; Co/CoO nanoparticles; nitrogen-doping; carbon nanofibers; oxygen reduction reaction

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