Nanofiber-based $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$ of N-doped graphene modification for bifunctional oxygen electrocatalyst in alkaline medium

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The development of electrocatalysts with excellent OER and ORR performance is a significant challenge for the commercialization of metal-air batteries. We report $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$ (SSCF28) nanofibers modified by 3D nitrogen-doped graphene (3DNG) composite catalysts with different mass ratios of SSCF28:3DNG. In 0.1 M KOH electrolyte, SSCF28/3DNG with the optimal mass ratio (1:1) demonstrates the best oxygen electrocatalysis performance. The synergistic effect between SSCF and 3DNG benefits the electrocatalytic activities of OER and ORR.

Keywords: $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$; N-doped graphene; Nanofibers; OER; ORR

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