Short Communication

Preparation of $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$ /MWCNT Composites and their electrocatalytic activities for ORR and OER

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In the perovskite/carbon composite electrocatalyst, the carbon phase acts as the conductive framework to support the perovskite phase and at the same time make the current distribution more uniform and improve the electrical contact between the perovskite phase and the electrode. Here, to improve the ORR/OER activity of perovskite, $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$ (SSCF28) nanofibers prepared by electrospinning are mixed with multi-walled carbon nanotubes (MWCNT) to obtain SSCF28/MWCNT composite catalyst. For SSCF28/MWCNT with the optimal mass ratio, the OER Tafel slope of is 85.8 mV dec^{-1} , and the ORR Tafel slope is only 67.3 mV dec^{-1} . SSCF28/MWCNT (1:5) shows good bifunctional electrocatalytic performance.

Keywords: $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$; Multi-walled carbon nanotube; OER/ORR; Electrocatalyst

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