Short Communication

Synthesis and Pseudocapacitive Performance of Ordered Mesoporous NiCo₂O₄ Nanowires

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Ordered mesoporous NiCo₂O₄ nanowires electrodes were prepared using SBA-15 as template through a hydrothermal impregnation method. X-ray diffraction, nitrogen adsorption-desorption and transmission electron microscopy were used to characterize the structure and morphology of the SBA-15 and NiCo₂O₄. The pseudocapacitive performance of the samples were tested by electrochemical workstation. The results demonstrate that the ordered mesoporous NiCo₂O₄ electrode material exhibit excellent pseudocapacitance. The specific capacitances were calculated to be 1079.6 F g⁻¹, 1012 F g⁻¹, 943.9 F g⁻¹ and 820 F g⁻¹ at current densities of 1 A g⁻¹, 2 A g⁻¹, 4 A g⁻¹ and 10 A g⁻¹, respectively. The cycling stability during the 1000 cycles was more than 96%. Therefore, the ordered mesoporous NiCo₂O₄ electrodes materials are an excellent supercapacitor electrode materials.

Keywords: Mesoporous materials; Template method; NiCo₂O₄; Pseudocapacitance

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