Short Communication

Synthesis and Electrochemical Performances of Co₃O₄/graphene as Supercapacitor Material

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In this paper, the Co₃O₄/graphene composition has been successfully prepared by a facile low-temperature oxidation route using Co(NO₃)₂·6H₂O and general type graphene (GGR) as raw materials. The structure and morphology of as-prepared composite is investigated by X-ray diffractometer (XRD) and scanning electron microscopy (SEM), and the results reveal that the sphere-like Co₃O₄ with the diameter the 300-500 nm uniformly loads on the surface of 2D graphene nanosheet. As the supercapacitor material, the Co₃O₄/GR composite displays a specific capacitance of 362.6 F/g at a current density of 0.72 A/g, and a capacity retention rate of 108.1% can be reached after 500 cycles. While the bare Co₃O₄ only delivers a low discharge specific capacitance of 161.6 F/g.

Keywords: Co₃O₄/graphene; low-temperature oxidation; supercapacitor; electrochemical performances.

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