Synthesis and Electrochemical Measurement of Three Dimensional Carbon Nanofibers/Co₃O₄-Polyaniline Composites as Supercapacitor electrode materials in Neutral Electrolyte

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Three dimensional (3D) carbon nanofibers (CNFs) /Co₃O₄-polyaniline (PANI) composites have been successfully prepared by simple hydrothermal reaction and electropolymerization steps. And the electrochemical performances of the composites have been characterized in 1.0 M Na₂SO₄ aqueous solution electrolyte. The CNFs/Co₃O₄-PANI composites exhibited high specific capacitances of 770 F/g at 1A/g and 200 F/g at 20 A/g. Moreover the composites showed excellent cycling stability, their capacitance retained 85.3% at 2 A/g for 1000 cycles. The results showed that the CNFs/Co₃O₄-PANI composites are potential electrode materials for high performance supercapacitors.

Keywords: supercapacitors, carbon nanofibers, polyaniline, Co₃O₄

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