Preparation of Ni(OH)₂/MWCNTs Composite for Supercapacitor Application

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In this work, flexible supercapacitor electrodes were fabricated using a simple chemical strategy in which nanocrystalline Ni(OH)₂ was coated on multiwalled carbon nanotubes (MWCNTs). Ni(OH)₂/MWCNT thin films were deposited on large-area flexible substrates using the simple successive ionic layer adsorption and reaction (SILAR) strategy proposed in this report. The specific capacitance (SC) of the Ni(OH)₂/MWCNT films was determined to be 1466 F/g in aqueous KOH solution (2 M) at a scan rate of 5 mV/s. A facile three-beaker SILAR configuration was used to prepare the electrodes at room temperature, providing a facile route to the fabrication of flexible supercapacitors with high energy and power levels. An extensive variety of Ni(OH)₂/MWCNT-like materials could be prepared using a general strategy based on our proposed technique, and these materials could be used in applications beyond electrochemical energy storage.

Keywords: Supercapacitor; Ni(OH)₂; Graphene; Vehicular application; Multi-walled carbon nanotube

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