SnS/Graphene Nanocomposites for High Performance Supercapacitor Electrodes

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A series of SnS/Graphene (SnS/G) nanocomposites at various concentrations of graphene was synthesized by wet chemical route and as the prepared composites were analyzed by X- ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), High Resolution Transmission Electron Microscopy (HRTEM) for its structural and morphological investigation. Results show that the prepared SnS nanoparticles in the composite are ~ 30 nm sized and uniformly dispersed on graphene sheets. To test the supercapacitance behaviour, electrochemical measurements were carried out in 6M KOH electrolyte. A maximum specific capacitance of 984 F/g was observed for SnS/G-c at 5 mVs-1 scan rate. Galvanostatic charge/discharge curves showed an excellent cyclic stability with higher charge/discharge duration, and hence could be used for high performance supercapacitor applications.

**Keywords:** Graphene, SnS, supercapacitors, specific capacitance.

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