Polyaniline and tin dioxide on sulfur-doped reduced graphene oxide for supercapacitor application

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Because of special properties such as large specific area, good mechanical strength, high conductivity, and low density, three dimensional (3D) graphene network structures have drawn increasing attention. 3D graphene structure was made and doped with S (S-rGO). At the same time, tin dioxide anchored inside of the 3D system from tin dichloride precursor (SnO_2@S-rGO). Then, polyaniline (PANI) was coated to produce a ternary composite PANI@SnO_2@S-rGO. The structure of as-prepared composite was characterized by x-ray diffraction (XRD), scanning electron microscopy (SEM) and transmission electron microscopy (TEM). Electrochemical property of composite was investigated using cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS) and amperometric response.