

Electrodeposition of PANI/Co₃O₄ on carbon paper for supercapacitor application

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Nowadays, binder free composite for supercapacitor was raised attention owing to its remarkable advantage. Neither binder nor conducting agent was used for attaching sample on substrate in electrochemical investigations. The purity of active materials will not be affected by these additives. The effective contact area between working electrode and electrolyte will also be enhanced. So, in this work, hybrid material based on Co₃O₄ and PANI was directly deposited on carbon paper using electrodeposition method. This symmetric supercapacitor achieves the high capacitance via Faradic electron-charge transfer of both semiconductor Co₃O₄ and conducting polymer PANI. The morphology of PANI/Co₃O₄ was checked by scanning electron microscopy (SEM). The electrochemical properties were investigated by cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS), and galvanostatic charge/discharge method.

Keywords: electrodeposition, PANI, Co₃O₄, supercapacitor.