

Preparation and characterization of chemically deposited Co-Ni composite oxide thin films for supercapacitor application

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Magnetic oxides containing cobalt, nickel, manganese, etc. Draw much attention for their good magnetic properties. In this work, a low temperature chemical deposition method has been used to deposit semiconducting nanocrystalline cobalt-nickel oxide composite thin films on glass and copper substrates. The deposition bath consisted of aqueous cobalt chloride and nickel chloride salt. It was found that the deposition parameters significantly influenced the quality of cobalt-nickel thin films. The films were uniform and adherent to the substrates. The deposited films were characterized by X-ray diffraction, scanning electron microscope (SEM), optical absorption, and electrical resistivity measurements. Film showed nanocrystalline nature having porous morphology useful for supercapacitor application. In addition, optical band gap and electrical resistivity showed semiconducting behaviour.