

Magnetic and electrochemical properties of nickel oxide microstructures prepared by hydrothermal method

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Abstract. Nickel oxide microstructures were successfully synthesized by hydrothermal method. X-ray diffraction (XRD), field emission scanning electron microscopy (FE-SEM) and Brunauer-Emmett-Teller (BET) isotherm were used to characterize the crystallinity, morphology, surface and porosity characteristics for the sample. The magnetic properties were investigated by vibrating sample magnetometer (VSM). The sample exhibited ferromagnetic behaviour at room-temperature with the magnetization value of ~ 160 memu/g. The electrochemical properties were examined by cyclic voltammetry (CV) and galvanostatic charge-discharge (GCD). The sample shows considerable specific capacitance of 174.14 F/g at a current density of 1 A/g, the cycle stability excellent usability 76.6% after 500 cycles charge and discharge at a current density of 5 A/g.