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Electrochemical supercapacitors possess much higher capacitance and specific energy than normal capacitors [1]. Recently, transition metal oxides have been great attention for using as electroactive materials in electrochemical supercapacitors due to their long cycle life, high specific capacitance, high conductivity and good electrochemical reversibility[2-3]. In recent reports, nanostructured electrode materials have attracted great interests since these electrodes show better rate capabilities than conventional electrodes composed of the same materials [4], and different techniques have been developed in order to prepare nanostructured transition metal oxides [5]. In this work electrochemical behaviors of $NiMnO_3$ nanosheets were studied. Nanosheets of $NiMnO_3$ were synthesized directly by molten-salt procedure.The morphology and size of the as-prepared $NiMnO_3$ samples were investigated using Scanning Electron Microscopy (SEM).The cyclic voltammetric and electrochemical impedance spectroscopy were carried out for electrochemical study. Galvanostatic charge-discharge experiments used in order to investigate the applicability of the system as a redox supercapacitor. The XRD clearly revealed the formation of $NiMnO_3$. The SEM images showed that $NiMnO_3$ nanosheets consisted of uniform sheets with thickness in the range of 40 to 70 nm. Based on the galvanostatic charge-discharge results, high specific capacitance of 175 $F.g^{-1}$ was obtained, at constant discharge current of 1 mA cm^{-2}.

Reference

[1] X.M. Liu, X.G. Zhang, S.Y. Fu, Materials Research Bulletin, 41 (2006) 620-627.
[2] Yuan, X.H. Xia, J.B. Wu, J.L. Yang, Y.B. Chen, S.Y. Guo, Electrochimica Acta, 56 (2011) 2627-2632.
[3] A. Zolfaghari, F. Ataherian, M. Ghaemi, A. Gholami, Electrochimica Acta, 52 (2007) 2806-2814.
[4] H.R. Ghenaatian, M.F. Mousavi, S.H. Kazemi, M. Shamsipur, Synthetic Metals, 159 (2009) 1717-1722.
[5] M. A . Kiani, M . F . Mousavi, S . Ghasemi, Journal of Power Sources 195 (2010) 5794.