

Enhanced Electrochemical Performance of Hierarchical MnO<sub>2</sub> Nanosheet Array-based Carbon Fiber Paper as Pseudocapacitor Electrode

홍석복, 최봉길†

강원대학교 삼척캠퍼스

(bgchoi@kangwon.ac.kr†)

In this work, we synthesized hierarchical porous structure of MnO<sub>2</sub> nanosheet arrays based on carbon fiber paper (CFP) which can provide three dimensional electron and ion transfer. As-synthesized MnO<sub>2</sub>/CFP is thoroughly characterized by transmission electron microscopy, scanning electron microscopy, X-ray diffraction, and X-ray photoelectron spectroscopy. Such structure of MnO<sub>2</sub>/CFP enabled to a good electrical connection each other and elimination of polymeric binders and carbon additives which are generally used in convention electrode preparation. When testing as an electrode of supercapacitor, the MnO<sub>2</sub>/CFP shows a high specific capacitance (204 F/g), high rate capability (75% retention), and good cycling life (~ 100% retention after 1000 cycles).

Keywords: MnO<sub>2</sub>, Carbon fiber paper, Supercapacitor, Pseudocapacitance, Electrochemical properties.