

Efficient electrode material of nickel-cobalt binary oxide for Electrochemical supercapacitors

장광수<sup>1</sup>, 아민사디아<sup>2,1</sup>, 김은비<sup>3</sup>, 신형식<sup>3,†</sup>

<sup>1</sup>전북대학교; <sup>2</sup>정읍 산학협력지원센터;

<sup>3</sup>전북대학교 화학공학부

(hsshin@jbnu.ac.kr<sup>†</sup>)

In this work, nickel-cobalt binary oxide ( $\text{Ni}_2\text{CoO}_4$ ) nanomaterials were synthesized through a facial hydrothermal method using cobalt nitrate, nickel nitrate and trimethylamine as surfactants. The synthesized  $\text{Ni}_2\text{CoO}_4$  was applied as electro-active electrode material for the fabrication of electrochemical supercapacitor. From the morphological characterizations, porous hexagonal discs (HDs) like nanostructures, comprised of stacked layers with the average diameter of  $\sim 500$  nm were confirmed. The synthesized  $\text{Ni}_2\text{CoO}_4$  HDs displayed a high surface area of  $\sim 78.69$   $\text{m}^2/\text{g}$  with good pore size distribution and pore volume. The charge storage ability, cycle stability and ion transport of the synthesized  $\text{Ni}_2\text{CoO}_4$  HDs electrode were investigated by performing cyclic voltammetry (CV) in 6 M KOH electrolyte.