

Core-shell designed ultrathin NiO atomic layering over  $\text{Co}_3\text{O}_4$  nanostructures as high-performing supercapacitor materials

김도형<sup>†</sup>

전남대학교

(kdhh@chonnam.ac.kr<sup>†</sup>)

Energy crisis is a huge challenge in today's modern world. To solve the present crisis, researchers around the world are hunting for sustainable energy storage systems that are environment friendly and economical. Supercapacitors are one of the most attractive electrochemical energy model systems that delivers promising power in comparison to battery type devices. Their outstanding performance and ability to provide back-up power for electric vehicles have made them commercially demanding. Since, the performance is directly proportional to the structure, surface area and electronic properties of the materials, therefore designing novel structures having large surface area carrying stable reactions over long period is the major target in this application. In this perspective, one-dimensional nanostructures of  $\text{Co}_3\text{O}_4$ , a battery type material delivering high theoretical capacity is grown on ni-foam by hydrothermal and calcination process followed by ultrathin NiO constructing a core-shell type nanostructure. Different thickness of NiO was deposited on grown  $\text{Co}_3\text{O}_4$  structure and their influence on supercapacitor behavior was comprehended.