

Copolymer–Graphene Oxide Composite/Carbon Cloth for Flexible Supercapacitor Electrode Materials

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Recently, flexible wearable devices such as smart watches, wearable computers, and smart clothes have been getting significant attention. These devices require rechargeable batteries and supercapacitors. In this study, a supercapacitor material was prepared using carbon cloth as substrate (0.356 mm in thickness) for the active electrode materials. Graphene oxide (GO), which can easily form composites with other functional nanomaterials, was employed. Poly(diphenylamine)–polyaniline (PDPA–PANI) copolymer was selected owing to its several advantages such as higher conductivity, flexibility, and higher mechanical strength. GO was coated on carbon cloth by using layer-by-layer (LBL) method, and the PDPA–PANI copolymer was deposited on the graphene oxide surface by electrodeposition, forming a composite wide potential window and high conductivity as well as good stability.