

Fabrication and characterization of  
polyaniline/TiO<sub>2</sub>/Graphene nanocomposite and its  
application as an efficient electrochemical supercapacitor  
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Supercapacitors have been a promising devices or future energy storage. The present work focuses on the fabrication of polyaniline/TiO<sub>2</sub>/Graphene (PANI/TiO<sub>2</sub>/GRP) nanocomposite as a material for energy storage devices. For the fabrication of PANI/TiO<sub>2</sub>/GRP, a suspension of GRP and TiO<sub>2</sub> was obtained by sonicating the mixture of GRP and TiO<sub>2</sub> (2:1 in 1 mL DMF), which was dropcasted onto the surface of indium titanium dioxide plate. This was followed by electropolymerization of aniline at the surface of GRP/TiO<sub>2</sub>. Polymerization was carried out in a solution of 0.1 M H<sub>2</sub>SO<sub>4</sub> containing appropriate amount of aniline monomer under an anodic potential limit of 1.1 to 1.5 V. The morphology was analyzed by field emission scanning electron microscopy (FE-SEM) and transmission electron microscopy (TEM). The structure was analyzed by fourier transform infrared spectroscopy (FT-IR) and X-ray diffraction (XRD). The electrochemical measurements revealed a higher capacitance of PANI/TiO<sub>2</sub>/GRP as compared to PANI/GRP and GRP.

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