

Synthesis of ZnO@rGO nanocomposites for photocatalysts and supercapacitors

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In this research, a nanocrystal-seed-directed solvothermal method was applied to grow up rice-like zinc oxide nanoparticles on ZnO-seed sowed reduced graphene oxide ground. The structure, morphology and photochemical property of the samples were characterized by X-ray diffraction, scanning electron microscopy (SEM), transmission electron microscopy (TEM), Fourier Transform Infrared Spectroscopy (FT-IR), Nitrogen adsorption and desorption, UV-Vis diffuse reflectance spectroscopy (UV-Vis DRs). The Electrochemical properties of samples were thoroughly studied cyclic voltammetry (CV), Galvanostatic charge/discharge and electrochemical impedance spectroscopy (EIS). This work also showed that ZnO@rGO nanocomposite could decompose methyl orange under ultraviolet irradiation and performed higher photocatalytic activity than the pristine ZnO and reduced graphene oxide.