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Preparation and Optical Properties of ZnO/rGO Nanocomposites

Zinc oxide-Reduced graphene oxide nanocomposites (ZnO/rGO) were successfully synthesized via hydrothermal method. This research synthesized graphene oxide by modified hummer method and varied concentration of zinc hydroxide. The structure and morphology were characterized by X-ray diffraction (XRD) and Scanning Electron Microscopy (SEM). The optical property was investigated by UV-Vis spectrophotometer. XRD spectra confirmed that ZnO/rGO nanocomposites showed hexagonal wurtzite structure. SEM images showed that at low concentration of zinc hydroxide solution, ZnO nanorods had inserted into the rGO sheet. At higher concentration of zinc hydroxide solution, ZnO nanorods distributed on the rGO sheet. The result from UV-vis investigated that the GO sample has an absorption peak at 222 nm. The others ZnO/rGO nanocomposites showed the absorption peaks at 220, 260 and 385 nm, respectively. In addition, the band gap energy of ZnO/rGO nanocomposites showed the values between 2.2 –2.4 eV.

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