

Effects of reaction time on the morphological, structural, and gas sensing properties of ZnO nanostructures

Abstract

Morphological transformation was achieved from ZnO hexagonal needle-like rods to hexagonal flower-like rods by varying the reaction growth time using the hydrothermal method. Optical bandgap energies were calculated from the absorption spectra using UV-vis spectroscopy. Gas sensing properties of flower-like hexagonal ZnO structures at 50 ppm for ethanol (C₂H₅OH) and nitrogen dioxide (NO₂) at different temperatures were analyzed. The sensor showed a higher response toward C₂H₅OH than NO₂ gas at 350 °C.

Keywords; Gas sensing, Optical property, Structural property, ZnO