

Sensor application of ZnO nanorods bundle fabricated by hydrothermal method and its chemical conversion mechanism of H₂S gas sensing

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ZnO nanorods bundle was synthesized by hydrothermal method at 150 oC and its gas sensor was fabricated for H₂S sensing and mechanism study. Scanning electron microscopy (SEM) and X-ray diffraction (XRD) spectra confirmed a well-crystalline ZnO of hexagonal structure. The H₂S sensitivity of ZnO nanorods bundle sensor increased with increasing temperature, which is thought to be due to chemical reaction of nanorods with gas molecules. Through analysis of X-ray photoelectron spectroscopy (XPS), the sensing mechanism of ZnO nanorods bundle sensor was explained by chemical adsorption and chemical conversion.