



SYNTHESIS OF ZnO NANORODS BY HYDROTHERMAL METHOD FOR GAS SENSOR APPLICATIONS

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Abstract- ZnO nanorods with different sizes and shapes have been successfully synthesized via a simple hydrothermal route, using zinc acetate and Cetyltrimmonium bromide (CTAB) as the reactants. The thick films of as prepared ZnO were prepared by screen-printing technique in desired pattern. The films are characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM) and transmission electron microscopy (TEM). The gas sensing properties of the materials have been investigated for various interfering gases such as CO₂, CO, Ethanol, NH₃ and H₂S etc at operating temperature from 30° (room temperature) to 300°C. The results indicate that the ZnO nanorod thick films showed much better sensitivity and stability than the conventional materials to H₂S gas at 30°C. The nanoshaped pillar can improve the sensitivity and selectivity of the sensors. ZnO nanorods are excellent potential candidates for gas sensors.

Index terms: Hydrothermal, CTAB, ZnO nanorods, H₂S gas sensor, gas response.