Abstract ID: P17

SYNTHESIS OF Ag DECORATED ZnO: OPTICAL, STRUCTURAL, MORPHOLOGICAL, PIEZOELECTRIC AND PHOTOCATALYTIC STUDIES

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Abstract

ZnO, 1%, 2%, 3% and 4% Ag decorated ZnO were successfully synthesized using sol-gel method. The structural, morphological, surface, and optical properties were characterized by using spectroscopic (FTIR, XPS, UV-Vis), diffractometric (XRD), and microscopic (SEM, TEM) techniques. The photocatalytic activity of different percentages of Ag decorated ZnO was studied by analysing the degradation of methylene blue (MB) dye, and it is found that 1 % (w/w) Ag decorated ZnO has high efficiency in photocatalytic degradation under UV light and photo piezoelectric degradation and this observation is mainly because of the Plasmon resonance of such particles. Further, X-ray diffraction analyses reveal that Ag decorated ZnO crystallizes in hexagonal wurtzite structure.

Keywords: *decorated, degradation, photo piezoelectric, photocatalytic*