

Abstract Submitted
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Study of structural and optical properties of Al doped ZnO nanoparticles MALLIKA A N¹, RAMACHANDRA REDDY A², National Institute of Technology Warangal — This paper reports on the structural and optical properties of Al doped ZnO nanoparticles prepared through sol-gel method using poly vinyl alcohol as chelating agent. Al was effectively doped in ZnO with concentrations up to 6 atomic percent concentrations (at. %). X-ray diffraction (XRD) results revealed that all the samples do not have impurity phase indicating hexagonal wurtzite structure of ZnO formed, the average crystallite sizes were decreased with increasing Al concentrations. A compressive strain was induced with Al doping and was calculated with W-H plot analysis. The morphology of all the samples was studied from Field Emission Scanning Electron Microscope (FE-SEM). The energy band gap of the Al doped samples was estimated from UV-Vis spectrum showed an overall increase. The presence of functional groups and chemical bonding of ZnO with Al doping was confirmed by Fourier Transform Infrared Spectroscopy (FTIR) spectra, and in addition to this, the photoluminescence (PL) properties of Al doped ZnO nanoparticles were studied.

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