

Abstract:

Mn²⁺ doped ZnS nanoparticles are synthesized by chemical precipitation method in presence of PVA matrix. The particle size estimated to be 3.7 nm from transmission electron microscopy and calculate as 3.30 nm from the peak broadening in UV-vis spectra. A small photorefractive index has been observed of the Mn²⁺ doped ZnS nanoparticles which shows a minimum absorption caused by reducing size of nanoparticles. We characterize the sample by x-ray diffraction, Photoluminescence spectroscopy, UV- vis spectroscopy and finally by Transmission Electron Microscopy. From UV- vis spectroscopy we get the particle size as 3.30 nm with energy band gap of 4.14 eV. While that of the bulk sample as 10.38 nm with band gap of 3.7 eV. The particle size as obtained from TEM are 3.7 eV and 26.3nm respectively. UV-vis spectra and PL spectra show blue shift which indicates that particle size is reducing.