

## **Abstract**

Undoped and Fe doped ZnS have been successfully synthesized by hydrothermal method. The resulting materials were characterized by using different experimental techniques. X-ray diffraction shows formation of cubic zinc blend structure with crystallite size in the range of 20.10 to 6.60 nm. Scanning electron microscopy was used to study morphology, which has confirmed the spherical shape of nanoparticles. EDX is performed for the analysis of chemical composition and EDX graphs confirmed the presence of Zn, S, and Fe. UV-Vis spectroscopy shows the red shift in absorption and band gap values vary from 4.27 to 3.94 eV. FTIR spectra demonstrate presence of Zn-S stretching vibrations and related functional groups.