

## Effect of Temperature on the Structural and Optical Properties of ZnS Thin Films Obtained by Chemical Bath Deposition in Acidic Medium

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**Abstract :** Thin films of ZnS have been deposited by chemical route into acidic medium. The deposition time fixed at 5 hours, and the bath temperature varied from 80° C to 95°C with an interval of 5°C. The X-ray diffraction (XRD), UV/ visible spectrophotometry, Fourier Transform Infrared spectroscopy (FTIR) have been used to study the effect of temperature on the structural and optical properties of ZnS thin films. The XRD spectrum of the ZnS layer obtained shows an increase of peaks intensity of ZnS with increasing bath temperature. The study of optical properties exhibit good transmittance (60-80% in the visible region), and the band gap energy of the ZnS thin film decrease from 3.71 eV to 3.64 eV while the refractive index (n) increase with increasing temperature bath. The FTIR analyze confirm our studies and show characteristics bands of vibration of Zn-S.

**Keywords :** ZnS thin films, XRD spectra, optical gap, XRD

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