

## **Influence of Thickness on Optical Properties of ZnO Thin Films Prepared by Radio Frequency (RF) Sputtering Technique**

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**Abstract :** Zinc oxide (ZnO) thin films of 75.5 nm and 130.5 nm were deposited at room temperature onto chemically and ultrasonically cleaned corning glass substrate by radio frequency technique and annealed at 150°C under nitrogen atmosphere for 60 minutes. The optical properties of the films were ascertained by UV-VIS-NIR spectrophotometry. Influence of the thickness of the films on the optical properties was studied keeping other deposition parameters constant. The optical transmittance spectra reveal a maximum transmittance of 81.49% and 84.26% respectively. The band gap of the films is found to be direct allowed transition and decreases with the increase in thickness of the films. The band gap energy ( $E_g$ ) is in the range of 3.28 eV to 3.31 eV, respectively. These thin films are suitable for solar cell applications.

**Keywords :** optical constants, RF sputtering, Urbach energy, zinc oxide thin film

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