Optical Characterizations of CdS Thin Films Grown by Pulsed Laser Deposition Technique

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Abstract

Cadmium Sulphide (CdS) thin films were prepared by pulsed laser deposition technique under high vacuum. The structural characteristics were investigated by X-ray diffraction. The X-ray analysis revealed that the deposited CdS films are crystalline and have preferred orientation on a plane (110) of an hexagonal system. Optical constants (n and k) were estimated using spectrophotometric measurements of transmittance and reflectance at normal incidence of light. The optical band gap energy was found to be 2.44 eV with direct allowed transitions. Some dispersion parameters are calculated namely; single oscillator energy, dispersion energy, lattice dielectric constant and high frequency dielectric constant.

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Author Keywords: CdS; Pulsed Laser Deposition; Structure Characterization; Optical Properties

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