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EFFECT OF ANNEALING ON THE Sb_2S_3 AND CsCL THIN FILMS

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ABSTRACT

Crystalline nanoparticles of CsCl were suspended in the amorphous matrix of antimony trisulphide Sb_2S_3. Sb_2S_3 and CsCl has large band gap. The films are deposited on glass substrate by thermal co-evaporation technique at room temperature (300 K). The absorption coefficient α was determined using the absorbance and transmission measurements from a UV vis double beam spectrometer Shimadzu JAPAN (model UV-2401 PC Shimadzu) at normal incidence of light in the wavelength range 300-900 nm and the structural characterizations were done using XRD(X Ray Diffraction) and morphology study was done by AFM (Atomic Force Microscope) and SEM (Scanning Electron Microscope). Various graphs $(\alpha h\nu)^{1/2}$ against hν showed that the material has indirect band gap. Thin films have been annealing at different temperature i.e. 100°C and 150°C for one hour in air using by horizontal muffle Furness. After annealing at different temperatures the optical properties of thin films are changed.

Keywords: Sb_2S_3 and CsCl material, Thermal co-evaporation technique, refractive index, extinction coefficient, energy band gap, surface morphology, annealing.

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