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MEASUREMENT OF THERMAL AND ELECTRONIC TRANSPORT PROPERTIES OF SEMICONDUCTOR THIN FILMS USING PHOTOTHERMAL DEFLECTION TECHNIQUE

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Abstract: *Photothermal deflection (PTD) is a nondestructive optical technique and we have developed a theoretical model suitable to analyze the variations of PT Signal amplitude due to changes in electronic and thermal properties in semiconductor materials. In the present work, transverse PTD in skimming configuration was used to study the thermal and electronic transport properties of Copper Indium Sulfide ($CuInS_2$) thin films. The thermal diffusivity, minority carrier lifetime and surface recombination velocity of p type $CuInS_2$ thin films with different thickness were determined by fitting the experimental curves using the theory. The experimental data was in good agreement with the theory.*

Key words: *Photothermal deflection, thermal diffusivity, minority carrier lifetime, surface recombination velocity*.