

Optical Characterization of Lead Sulphide Thin Films Grown by Chemical Bath Deposition

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Abstract : Thin films can either be conductive or dielectric (non-conductive). It is formed through atom/molecules state or formed after decomposing the materials into atomic/molecular scale by physical or chemical processes. In this study, thin films of Lead Sulphide were deposited on glass substrate prepared from lead acetate and thiourea solution using chemical bath deposition (CBD). The glass slides were subjected to the pretreatment by soaking them in a solution of 50% sulphuric acid and 50% nitric acid. Lead sulphide was deposited at different parameters such as deposition time and temperature. The optical properties of the thin films were determined from spectroscopy measurements of absorbance and reflectance. Optical studies show that the band gap of lead sulphide ranges between 0.41 eV to 300K.

Keywords : lead sulphide, spectroscopy, absorbance, reflectance

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