Investigation of ZnS thin layers by thermal evaporation method (PVD)

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Abstract
Thin layers of ZnS in two different temperature conditions of 25 or 200°C and also with different thicknesses from 100nm to 600nm were prepared by physical vapor deposition. Absorption and also transmission spectra of the films were obtained to determine absorption coefficient, extinction constant and optical band gap of the films. It was found that by decreasing the substrate temperature or decreasing the film's thickness, optical band gap of ZnS films were increased or decreased, respectively. These phenomena can be attributed to the quantum size effect.

Keywords: Zinc sulfide thin layers, thermal evaporation, windows layer in solar cell

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