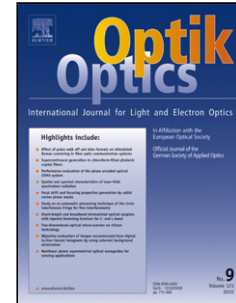


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Characterization of optical and morphological properties of chalcone thin films for optoelectronics applications

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Abstract

Thin films of a chalcone 1-(4-chlorophenyl)-3-(4- N, N dimethyl amino phenyl)-2-propen-1-one (CDP) were prepared. The chalcone was dissolved in acetone with different concentrations to achieve thin films of different thicknesses. The solution was deposited by spin coating technique on glass substrates. The optical spectra of the chalcone thin films (CDP-TFs) were recorded. FTIR, DRS, NMR, TGA and DSC were used to characterize and investigate the chalcone properties as power and thin films. XRD and SEM have demonstrated the structure and surface morphology of the (CDP-TFs) depends strongly on film thickness. The findings revealed that the variations of the thickness from 150 to 400nm have led increasing the crystal size from 2.92 to 78.51nm. In contrast, the macrostrain was shifted to lower values. Furthermore, the energy band gaps of CDP-TFs increased by increasing the film thickness. To the best of our knowledge, this is a first report on the structural and optical properties chalcone as thin films.

Keywords: *Chalcone; Thin films; Crystal structure; Optical materials and properties*

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