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Characteristics of CuInSe2 thin films annealed at different temperatures

$CuInSe_2$ This films were prepared on ITO coated glass substrates by lectrodeposition from aqueous solution containing 0.0005 M $CuCl_2$, 0.005M $InCl_3$ & 0.01M SeO_2. Deposition was carried out under potentiostatic condition of -0.50V vs SCE at room

temperature for a period of 10-15 minutes. To obtain better quality films, samples were eannealed at different temperatures (200C^{o},350C^{o},400C^{o}&500C^{o})in Ar.

XRD & optical absorption measurements were performed to characterize the films. According to the results, $CuInSe_2$ is a p- type semiconductor. $CuInSe_2$ shows better improvement when it is annealed at 200C^{o}, eventhough the earlier reported values in literature for optimum temperature was found to be around 350C^{o}. For the sample annealed at 200C^{o}, XRD shows three sharp peaks of (112), (220) & (116) reflections. Light absorption shows1.1 eV direct band gap.