

Elaboration and Characterization of Copper Oxide (CuO) Thin Films Deposited by the Spray Pyrolysis Method

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Abstract : In this work, copper oxide thin films were deposited by a simple and inexpensive technique (spray pyrolysis) on ordinary glass substrates at a fixed temperature $T=500^{\circ}\text{C}$. and different concentration of precursor 15, 30 and 45 ml made with H_2O like solvent. The structural, morphological and optical properties of thin films of CuO were studied by X-ray diffraction (XRD), scanning electron microscopy (SEM) and UV-vis spectrophotometry. The X-ray diffraction patterns confirm the presence of the polycrystalline phase of CuO as monoclinic crystal structure with preferential orientation along (110), (002), (111) and (020). Their optical band gaps ranged from 3.95 to 4.02 eV with a high absorbency in the visible region.

Keywords : Copper oxide, Thin films, Spray pyrolysis, Band Gaps, XRD, SEM