

عنوان مقاله:

Effect of substrate temperature on structural, morphological and optical properties of deposited Al/ZnO films

محل انتشار:

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خلاصه مقاله:

Al-doped ZnO (Al/ZnO) thin film is a promising alternative to an ITO electrode in solar cell applications due to its low price, non-toxicity and other promising properties. In this paper, Al/ZnO thin films at different substrate temperatures were deposited on glass substrates as transparent conducting (TCO) films by DC magnetron sputtering. The effect of substrate temperature on the structural, morphological and optical properties of Al/ZnO films was investigated. X-ray diffraction (XRD) analysis suggests that crystal structure characteristics of synthesized thin films depend on the substrate temperature. The structure growth and variation in surface roughness with increasing substrate temperature are revealed by scanning electron microscope (SEM) micrographs and atomic force microscopy (AFM) analyses. Thicknesses of the deposited films were also examined by surface profiler. Moreover, obtained results from optical transmission patterns revealed that with the increasing substrate temperature, optical transmittance decreases.

کلمات کلیدی:

Sputtering Thin film Transparent conducting oxide SEM AFM

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