

Influence of Thickness on Electrical and Structural Properties of Zinc Oxide (ZnO) Thin Films Prepared by RF Sputtering Technique

Authors : M. Momoh, S. Abdullahi, A. U. Moreh

Abstract : Zinc oxide (ZnO) thin films were prepared on corning (7059) glass substrates at a thickness of 75.5 and 130.5 nm by RF sputtering technique. The deposition was carried out at room temperature after which the samples were annealed in open air at 150°C. The electrical and structural properties of these films were studied. The electrical properties of the films were monitored by four-point probe method while the structural properties were studied by X-ray diffraction (XRD). It was found that the electrical resistance of the films decreases with increase in the thickness of the films. The XRD analysis of the films showed that the films have a peak located at 34.31°-34.35° with hkl (002). Other parameters calculated include the stress (σ) and the grain size (D).

Keywords : electrical properties, film thickness, structural properties, zinc oxide

Conference Title : ICRESA 2014 : International Conference on Renewable Energy Systems and Applications

Conference Location : Paris, France

Conference Dates : June 26-27, 2014