

Investigation of the effect of drying method on the optical properties of nanostructured nickel oxide thin films

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Abstract: The nanostructured nickel oxide thin films were prepared by dip coating sol – gel method. Three methods (drying with oven, IR and microwave) have used for drying the films. The effect of drying method on the optical, molecular, electrical, structural, and morphology properties of the films were studied by Uv-Visible spectrophotometry, Fourier Transform Infrared spectroscopy, Hall effect, X-ray diffraction, Atomic Force Microscopy, and Scanning Electron Microscopy. Optical constants of nickel oxide thin films were calculated by using Pointwise Unconstrained Minimization Approach. The optical band gap of the films dried by infrared, oven, and microwave methods obtained 3.62, 3.59, and 3.47eV, respectively. The X-ray diffraction patterns of samples show that the film dried by infrared is amorphous while by two other methods are crystalline.

Keywords: *Sol- gel; Nickel oxide; Drying; Optical properties.*

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