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Effects of ZnO ratios on structural and optical properties of SnO₂ thin films

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The nano-sized oxides SnO₂/ZnO thin films in a concentration ratio of 2:1 (Z2S), 1:2 (ZS2) were prepared by using spray pyrolysis method at 350 °C and characterized with X-ray diffraction (XRD), the optical properties were obtained using transmittance measurements in the wavelength range [200–2500 nm] Visible JASCO type V-570 double beam spectrophotometer. The crystallinity increases when the ZnO addition increases. The film additions with 75% ZnO has minimum value of dislocation density and strain which confirm the improved crystallinity of the film. The optical results featured the transparency of the SnO₂ and ZnO films is greater than 70% in the visible region, and we found when the concentration of ZnO additions increase the optical band gap increasing from (3.45 to 3.69 eV).

Biography

Mohamed Bensaidi is working in chemistry of wells from 2011 Department of Chemistry, Faculty of Exact Sciences, Djilali Liabes University, Algeria. He has completed his graduation in chemistry in the year of 2008 and post-graduation in water chemistry and sustainable development in the year of 2013. His research of interest is organic, inorganic, analytical chemistry and water chemistry.

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