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Preparation of SnO_2/ ZnO composite thin films: Structural and optical characterizations and comparison with Brugmann model

Mohamed Bensaidi, M A Benali, H Tabet-Derraz, A Bourguig, R Miloua and **I E Yahiaoui**
Djillali Liabes University, Algeria

(SnO_2) x (ZnO) 1−x composite coated films were deposited on glass substrate by spray pyrolysis method at the temperature of 350 °C. The structural details of composite films were characterized by X-Ray Diffraction (XRD). Optical properties of the deposited films were obtained using transmittance measurements in the wavelength range [200–2500 nm]. The direct optical band gap value of these films varies from 3.1 to 3.7 eV. The effective dielectric functions of the composite films as a function of the volume fraction are deduced using the Brugmann effective medium theory. The real and imaginary spectra resulting from these are compared with the experimental spectra. The results demonstrate that the Brugmann theory can adequately interpret the optical properties of the composite, indicating that an accurate tailoring of the composite optical properties can take place by varying the composite volume fraction.

Biography

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

bensaidimohamed13@gmail.com

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