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Role of Substrate Temperature on the Structural and Morphological Properties of ZnO Thin Films Deposited by Ultrasonic Spray Pyrolysis

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Abstract: Zinc oxide (ZnO) thin films have been prepared by ultrasonic Spray Pyrolysis (USP) technique using zinc acetate dihydrate dissolved in methanol, ethanol and deionized water. A thermodynamic analysis for the growth of ZnO thin films from zinc acetate and water vapor has been made. The evolution of the preferred crystalline orientations in the ZnO films was investigated systematically. The optical measurements reveal that films have a maximum transmittance of about 90% and a direct band gap of 3.26 eV.

Key Words: Zinc oxide, Ultrasonic spray pyrolysis, Thermodynamic study, X-ray diffraction, Optical properties

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