AFM and Raman Spectroscopy of Fluorine Doped Tin Oxide (FTO) Thin Films: a Combined Experimental Study

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Abstract. Thin films of fluorine doped tin oxide to be used as transparent electrical contacts for PV solar cells were deposited on glass substrate using ultrasonic spray pyrolysis technique. The films were grown at a temperature of 420°C. Structural analysis and characterization and morphological study of these films was carried out by Atomic Force Microscopy and Raman Spectrophotometer. Growth parameters such as carrier gas flow rate of the sprayed solution were found to have an influence on the grain size and roughness of the deposited films.