

Preparation of SrTiO_3 thin films by spray pyrolysis technique and study of their structural and optical properties

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Abstract: Strontium titanate polycrystalline thin films were prepared by sequent deposition of three $\text{TiO}_2/\text{SrO}/\text{TiO}_2$ layers using spray pyrolysis technique. Deposition parameters such as: precursor solution, deposition temperature, flow rate of solution and annealing conditions were optimized to obtain homogeneous transparent films. Prepared thin films have granular microstructure. The optical transmittance and absorption spectra show that the films are absorber of the ultraviolet and transparent against visible lights. The transparency and grain size of the prepared samples increase by annealing process. The calculated optical band gap (3.38 eV) is in good agreement with the existing data.

Keywords: *Strontium Titanate, Thin film, Spray pyrolysis.*