

Abstract Submitted
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Electrical and Optical properties of fluorine tin- doped thin films using Chemical Bath Deposition technique GBADEBO TAOFEEK YUSUF, Osun State Polytechnic - Iree — This work studied the effect of substrate temperature on the optical and electrical properties of fluorine-doped tin oxide thin films using chemical bath deposition technique. Fluorine-doped tin oxide, SnO₂: F, thin films were deposited by using tin chloride and ethanol as starting material to form 0.2M of solution, EDTA was used as complexing agent. The detail of deposition procedure was reported elsewhere. The solution was maintained at 10% F: Sn. The characteristics of the films as a function of substrate temperature were studied. The result of analysis shows the presence of F into the SnO₂ lattice. The XRD analysis showed that all films structure were polycrystalline regardless of deposition condition. The electrical resistivity increased with increase substrate temperature, reaching a minimum value at lowest substrate temperature of 3500C, and highest for films deposited at 500°C substrate temperature. Optical transmittance of SnO₂: F films were high, in the order of 75%, and the band gap values oscillated around 3.8 eV. The Scanning electron Microscopy (SEM) surface morphologies varied with different geometries depending on the deposition conditions. Keywords: Tin Oxide; Chemical Bath, Transparent Conducting Oxides; Resistivities

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