**OPTICAL PROPERTIES OF AL DOPED ZNO THIN FILMS PREPARED BY CHEMICAL SPRAY PYROLYSIS METHOD**

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**Abstract:**

Pure and Al-doped ZnO (Al: 1, 2, and 3 wt.%) thin films were prepared on glass substrate at a constant substrate temperature at 350 0C by spray pyrolysis technique using zinc nitrate and aluminium nitrate as precursors. The X-ray diffraction (XRD) results showed that the obtained (AZO) films were polycrystalline with a highly c-axis preferred (002) orientation, and the shift in 2θ values showed the incorporation of Aluminium in ZnO lattice. The optical properties of the Al doped ZnO thin films were identified using UV-Vis spectroscopy and photoluminescence spectra. From the UV results, the obtained optical bandgap values for undoped (3.16 eV) and Al doped ZnO thin films (3.18 - 3.25 eV) were just about close to the standard wide band gap energy of zinc oxide (~3.3eV). The PL spectra exhibited nearband edge emission (360 nm) and the defect related emission in the visible region of undoped thin films got suppressed when aluminium was incorporated in ZnO thin films.

**Keywords**

Thin films; Spray pyrolysis; Al:ZnO; UV-Vis; PL