X-RAY PHOTOELECTRON EMISSION, PHOTOLUMINESCENCE AND RAMAN ANALYSIS OF SOLID SOLUTIONS OF ALUMINIUM ZINC OXIDE

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ABSTRACT

High quality transparent conducting Al doped zinc oxide (AZO) powders were synthesised by solid state reaction route in different doping concentrations of Al (2%, 4%, 6%).Successful substitution of Al up to 6 wt% in ZnO lattice is confirmed from XRD pattern. The room temperature PL emission spectra shows two strong visible bands at 466nm (2.67eV) and 704nm (1.76eV). Raman scattering measurements exhibit the sample quality and specific aspects of lattice dynamics. A wide survey scan of XPS is taken in the range of 0-1100 eV.

KEY WORDS: Al doped zinc oxide, PL emission spectra, Raman spectra.