

Morphological and Optical Properties of nanostructure of ZnO Doped Mn

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Al doped Mn-ZnO thin films were successfully synthesized on to glass substrates by the dip-coating sol-gel method. Al concentration in the films was varied from 1% to 5%. the structural, morphological and optical properties of the resultant films were characterized by X-ray diffraction (XRD), Atomic force microscopy (AFM), and UV-VIS spectroscopy. XRD pattern described that the films are polycrystalline having the hexagonal structure and a preferred orientation along (100) for undoped ZnO films, further Al doped Mn-ZnO films show a shifted preferred orientation to (002) direction [1] [2], without any Mn or Al related phases. 5% Al doped Mn ZnO showed a highest value of transmission around 81%, All films exhibited a dense homogenous nanostructures, with a reduced grain sizes of 41 nm for 5% Al doped Mn ZnO films as evaluated by AFM microscopy.

Keywords : Thin films, Sol-gel, X-ray diffraction, Al doped Mn-ZnO

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