

Nanotechnology and nanomaterials

**INVESTIGATION OF VARIOUS PROPERTIES OF INTRINSIC AND
EXTRINSIC MgO₂ NANOMATERIALS**

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ABSTRACT:- In the present investigation, We synthesize intrinsic and extrinsic MgO₂ nanofilm on glass substrates using chemical dip method. MgO₂ was doped with 0.1%, 1% and 10% Nd. The structure and morphology of as prepared materials were determined by X-ray diffraction (XRD), [1-2] Scanning electron microscope (SEM), UV-Visible spectroscopy (UV-Vis.). The XRD pattern showed that MgO₂ nanomaterial thin films and doped MgO₂ nanomaterial are of amorphous in nature. Optical band studies show that the films are highly transparent and exhibit a direct band gap. Optical properties suggest the formation of intrinsic MgO₂ thin films.[3-4] SEM images shows that grains of the thin film of the prepared samples comes out to be in nanoscale. SEM gives the morphology of the nanocomposites. Thickness of as obtained nanomaterials were calculated by ellipsometer spectroscopy. Thickness of pure MgO₂ Film comes out to be 619.04A⁰ Whereas of 10% Nd doped Thickness MgO₂ nanofilm comes out to be 571.023 A⁰

Keywords: Extrinsic, nanofilm, dip method, morphology coating

1. Ashwani Sharma, Pallavi, Sanjay, Synthesis and characterization of NiO-ZnO Nanocomposites, International Journal of Nanoscience and Nanotechnology 3, 2011, 115
2. Ashwani Sharma, Pallavi, Sanjay, Rajesh Sharma, Optical properties of Tin Oxide Nanoparticles, ISST Journal of Applied Physics 2, 2011, 13
3. A. Sharma, Pallavi, S. Kumar, S. Dahiya and N. Budhiraja, *Advances in Applied Science Research*, **2013**, Vol. 4, No. 1, pp. 124-130
4. Ashwani Sharma, Pallavi, Sanjay, Synthesis and characterization of CeO-ZnO Nanocomposite, Nanoscience and Nanotechnology 2, 2012, 82