

SYNTHESIS OF METAL OXIDE THINFILM AND STUDY OF ITS LINEAR-NONLINEAR OPTICAL PROPERTIES

INTRODUCTION: Modern technology requires thinfilm for different application thinfilm studies have directly or indirectly advanced many new areas of research in solid state physics, chemistry based on phenomena uniquely characteristics of thickness, geometry and structure of thinfilm. the fabrication of Ic circuits consists of deposition & selective removal of series of thinfilms. thinfilm micro electronics & opto electronics are among the strongest technological drivers of our economy. thinfilm technologies make use of the fact that the properties can particularly be controlled by the thickness parameter.

OBJECTIVES:

The main interest of this work is to provide internet of things and effectively extend its boundaries by bringing intelligence to everyday item printing electronic uses for fewer process steps This glimpses of the research which is based on the preparation of thin film of metal oxides using the sol-gel method and research work on its linear-nonlinear optical properties also recognized by equipments means by which samples films were examined. the idea of sol-gel process and advantages of this process makes an important and preferable to the rest of other methods. as well as show their flaws and application of thin film produced.

METHODS FOR SYNTHESIS THINFILM:

Thinfilms form by the oxides which makes them more Attractive. the sol-gel process is a wet-chemical technique to fabricate of materials typically a metal oxide thinfilms. in this method the chemical composition of the product can be controlled Nano materials derived and by this method have wide application like better homogeneity from raw materials, better purity from materials by passing crystallization, good mixing for multicomponent system.

Characterization techniques:

The morphological and micro structural properties of the formed metal oxide thinfilm layers were characterized by scanning electron microscopy and X-RAY DIFFRACTION.

APPLICATIONS:

Thinfilms are used in micro electronics devices magnetic thinfilms in recordings devices, magnetic sensors, gas sensors, A.R coating, photo conductors IR detectors, solar cells, polarizers, temperature controller in satellite. Anti corrosive & decorative coatings.

FINALLY THE SCOPE OF WORK IN THIS RESEARCH:

1. METAL OXIDE THIN FILM WILL BE PREPARED VIA SOL-GEL METHOD.

2. THE QUALITY OF THE THINFILM SURFACE WILL BE TESTED USING SEM or AFM.

3. Optical properties will be understood using reflection and transmission experiment.

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