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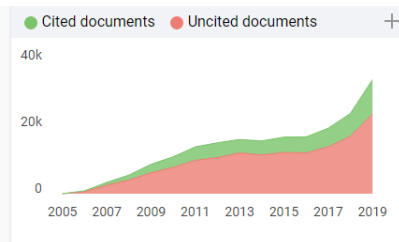
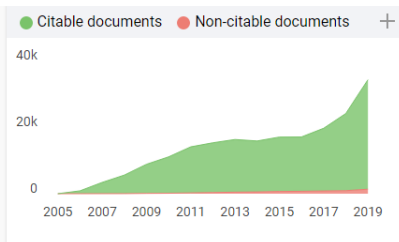
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Table of contents

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Characterization Thin Film Nano Particle of Aluminum Tin Oxide (AlTO) as Touch Screen


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Abstract



Abstract

The aims of this research are to synthesis Aluminum Tin Oxide (AlTO) thin films have been deposited on glass substrates. The Tin (II) chloride dihydrate as precursor, ethanol as solvent, and $AlCl_3$ as dopant substance, the film was done by spin coating technique. Then to characterization the properties of the thin film as the Structural and morphological analysis was carried out by X-Ray Diffraction (XRD) measurement and Scanning Electron Microscope (SEM). The Optical characteristics were analyzed from the study of transmission and absorption spectrum data obtained by UV-Vis Spectrophotometer. The Result from XRD measurement, there were crystal system alterations. They were confirmed that SnO_2 and SnO_2 doped Aluminum have cubic structure (by material phase classification of Al_2O_3) because of the substrate compositions contained Aluminum. The XRD pattern shows that grain size of thin film decreased just after the Aluminum dopant was added. EDX analysis confirms the presence of SnO_2 . The Optical characteristics were analyzed from the study of transmission and absorption spectrum data obtained by UV-Vis Spectrophotometer. The Aluminum was added by various concentrations (5, 10, and 15)%. Transmissions of visible light were better on the little concentrations of Al, but absorptions were lower too. The range of band gap energy value (3.52 – 3.47) eV was decreased by increasing the Aluminum concentration. It show that semiconductor range used touch Screen.

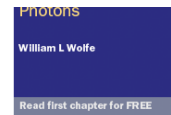
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Characterization Thin Film Nano Particle of Aluminum Tin Oxide (AlTO) as Touch Screen

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Abstract. The aims of this research are to synthesis Aluminum Tin Oxide (AlTO) thin films have been deposited on glass substrates. The Tin (II) chloride dihydrate as precursor, ethanol as solvent, and $AlCl_3$ as dopant substance, the film was done by spin coating technique. Then to characterization the properties of the thin film as the Structural and morphological analysis was carried out by X-Ray Diffraction (XRD) measurement and Scanning Electron Microscope (SEM). The Optical characteristics were analyzed from the study of transmission and absorption spectrum data obtained by UV-Vis Spectrophotometer. The Result from XRD measurement, there were crystal system alterations. They were confirmed that SnO_2 and SnO_2 doped Aluminum have cubic structure (by material phase classification of Al_2O_3Sn) because of the substrate compositions contained Aluminum. The XRD pattern shows that grain size of thin film decreased just after the Aluminum dopant was added. EDX analysis confirms the presence of SnO_2 . The Optical characteristics were analyzed from the study of transmission and absorption spectrum data obtained by UV-Vis Spectrophotometer. The Aluminum was added by various concentrations (5, 10, and 15)%. Transmissions of visible light were better on the little concentrations of Al, but absorptions were lower too. The range of band gap energy value (3.52 – 3.47) eV was decreased by increasing the Aluminum concentration. It show that semiconductor range used touch Screen.

1. Introduction

Nano technology continuous to be developed and prioritized in science and technology. Thin film is one form of this nanotechnology. A thin film is made of organic or inorganic material, metal or metal-organic mixture (thickness in the scale of nanometers to millimeters) and has the properties of a conductor, semiconductor, or insulator. Since 1850, this thin film technology has been introduced by M. Faraday, W.Grove, T.A. Edison and continues to experience growth in terms of the materials used, method of manufacture, and its application in life [1]. In material science, there are some metal oxide materials are often used in thin film technology, both pure and doped with other materials.

Studies on the synthesis and characterization of thin film has always attracted the attention of researchers for extensive application in everyday life, both in the field of decoration-construction and electronics. In the field of electronics, thin film was used to make semiconductors. The application of thin films for semiconductors are developed in the form of transparent conductive oxide (TCO), capacitors, diodes, transistors and sensors. Application of TCO develops rapidly and has been applied to electronic devices such as LCD TVs, Plasma TVs,

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