

**STRUCTURAL AND OPTICAL PROPERTIES OF GRAPHENE  
OXIDE / ZINC OXIDE NANORODS THIN FILMS PREPARED  
BY AQUEOUS SOLUTION IMMERSION METHOD**

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**JULY 2018**

## ABSTRACT

### **STRUCTURAL AND OPTICAL PROPERTIES OF GRAPHENE OXIDE / ZINC OXIDE NANORODS THIN FILMS PREPARED BY AQUEOUS SOLUTION IMMERSION METHOD**

This study has been done to synthesis Graphene Oxide added Zinc Oxide (GO/ZnO) nanostructure coated on glass substrate using aqueous solution immersion method. ZnO and GO/ZnO were prepared at different concentration ranging from 0.1, 0.2, 0.3, 0.4 and 0.5 mg/ml. From the X-Ray Diffraction (XRD) results, pure ZnO and GO/ZnO nanorods thin films added at different concentration were in polycrystalline wurtzite structure. All nanorod thin film sample show the highest intensity peak along (002) c-axis orientation. The optical transmission of GO/ZnO nanorods thin films increased gradually when added with GO compared to pure ZnO. The highest absorbance spectra were belonging to GO/ZnO nanorods thin films which prepared at 0.4 mg/ml concentration. Energy-dispersive X-Ray spectroscopy (EDX) results shows the composition of Carbon (C), Oxygen (O), and Zinc (Zn) which confirms element of the materials. Field Emission Electron Microscope (FESEM) analysis, observed that GO/ZnO thin films are in nanorod shapes. Based on the results the properties of ZnO could be improved when added with GO without changing the ZnO structure wurtzite. Hence, it can be used for electronic device application.

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