

**INFLUENCE OF SOLVENT VAPOR ANNEALING ON ZINC OXIDE
NANOSTRUCTURE FILMS FOR UV SENSORS APPLICATIONS**

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ABSTRACT

In this research work, ZnO nanostructure films were prepared and the effects of Solvent vapor annealing (SVA) was studied for its UV sensors applications. ZnO nanostructure films were deposited on the pre – patterned ITO substrates by sol – gel spin coating method. SVA was varied at various times (0, 10, 30 and 60 min) and annealed at 500 °C for 1 hour. The top view of the pre – patterned ITO was scanned using a profilometer. In this research, pixel 3 was used to characterize the performance of electrical properties and photoresponse of ZnO nanostructure films under UV illumination. The performance of ZnO nanostructure films with various time SVA was characterized using a source measure unit (SMU). I – V curve of ZnO nanostructure films was recorded under the illumination of a 254 nm UV lamp. For all characterization, ZnO nanostructure films with 10 minutes expose to SVA has good performance in electrical properties. It also shows stable and good response time compared to the other samples. For sensitivity and responsivity, ZnO nanostructure films 10 minutes expose to SVA has higher sensitivity which is 7.31 and higher responsivity which is $5.78 \mu AW^{-1}$.