

## **Fabrication and characterization of Cu<sub>2</sub>O/ZnO thin films for pn heterojunction devices**

### **ABSTRACT**

This paper described the fabrication of Zinc Oxide (ZnO)-Cuprous Oxide (Cu<sub>2</sub>O) heterojunction thin films using RF-powered Magnetron Sputtering System. The deposition parameters were controlled to produce the films with the thicknesses in the range of 100 nm to 500 nm. During deposition, the RF power and the argon flow are fixed at 100 Watt and 10 sccm, respectively. Structural and optical properties were studied by X-Ray Diffraction Method and UV-VIS Spectrometer. The electrical properties were studied by IV Source Meter. The grain sizes of both thin films increasing while the thickness increase. The band gap of ZnO thin films range from 3.25 eV -3.27 eV and for Cu<sub>2</sub>O thin films range from 2.00 eV – 2.15 e V. All Cu<sub>2</sub>O/ZnO thin films show ideal diode properties.