

## **Influence of dissipation power in copper sputtering plasma measured by optical emission spectroscopy**

### **Abstract**

Copper oxide is a low cost material, easy process fabrication and sensitivity to ambient conditions. Therefore, it is a suitable p-type semiconductor oxides material to be used as a gas sensing material. In order to raise the sensitivity of the copper oxide gas sensor, study on the correspondence in between the coated thin film with coating parameters is an important part. In current study, optical emission spectroscopy is used to investigate the reactive magnetron sputtering plasma during the deposition of copper oxide thin film. The measurement point was focused at roughly 2cm above the substrate holder. The emission of copper, oxygen and argon in the reactive magnetron sputtering were observed at various plasma conditions. In general, the emission of copper, oxygen and argon increased when the discharge rf power is increased. On the other hand, oxygen line intensity was found to be excess when the oxygen flow rate is above 8sccm. The result suggests the best condition to deposit the copper oxide thin film using solid 3 copper target.

**Keywords;** Copper Oxide, Optical Emission Spectroscopy, Reactive Magnetron Sputtering