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## CHARACTERISTICS OF Cu-DOPED ZnO FILMS PREPARED USING MAGNETRON CO-SPUTTERING

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**ABSTRACT-** In this study, the fabrication of un-doped and cu-doped zinc oxide (ZnO) films by magnetron co-sputtering technique were reported. The films were deposited on glass substrates followed by thermal annealing treatment at 400°C in air environment for 60 minutes. The crystal structure, surface morphology, optical transmittance and resistivity were studied by using X-ray diffraction (XRD), ultraviolet-visible (UV-Vis) spectrophotometry, atomic force microscopy (AFM) and Hall effect measurement with four-point Van der Pauw configuration respectively. Polycrystalline films with hexagonal wurtzite structure has been observed when Cu was introduced into ZnO structure. The redshift and bandgap narrowing were discussed in optical analysis. The trend in bandgap narrowing was contributed by hybridization of Cu 3d band and O 2p band. Hall measurement revealed that the resistance of deposited Cu-doped ZnO (CZO) films will increase at excessive high Cu doping level.

**Keywords:** Cu-doped ZnO, co-sputtering, thin film, ZnO.