

**Effect of argon gas flow rate on properties of film electrodes prepared by thermal vacuum evaporation from synthesized  $\text{Cu}_2\text{SnSe}_3$  source**

**ABSTRACT**

This work describes a new technique to enhance photoresponse of metal chalcogenide-based semiconductor film electrodes deposited by thermal vacuum evaporation under argon gas flow from synthesized  $\text{Cu}_2\text{SnSe}_3$  sources. SnSe formation with Cu-doped was obtained under higher argon gas flow rate ( $\text{VA} = 25 \text{ cm}^3/\text{min}$ ). Higher value of photoresponse was observed for films deposited under  $\text{VA} = 25 \text{ cm}^3/\text{min}$  which was 9.1%. This finding indicates that Cu atoms inside the SnSe film were important to increase carrier concentrations that promote higher photoresponse.

**Keyword:** Doping; Photoresponse; Thermal vacuum evaporation; Thin film; Tin selenide