



## Investigation of $\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_2$ thin films co-evaporated from two metal sources for photovoltaic solar cells

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Résumé en anglais	<p><math>\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_2</math> (CIGS) thin films were grown by co-evaporation using two sources for the metal elements (Cu, Ga and In). A Mo coated soda lime glass substrates heated at 500 °C was used for the deposition. X-ray diffraction (XRD) and scanning electron microscopy (SEM) confirm that these films are polycrystalline with a chalcopyrite structure and showed homogeneous grain size estimate about 25 nm. X-ray photoelectron spectroscopy (XPS) was performed to analyse the binding energy values of Ga3d and O1s onto CIGSe layers. The conductivity measurements in the temperature range of 40-400 K were carried out for <math>0.05 \leq x \leq 0.23</math>. The effect of grain boundary scattering on the electrical transport played an important role in describing the transport processes in these films. The bowing factor is discussed taking into account the deposition techniques of CIGS films. It has been noticed that the open circuit voltage (<math>V_{oc}</math>) is influenced by Ga content and the energy gap value of the absorber CIGS thin layers and yielded a poor efficiency of solar cells.</p>
URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua19986">http://okina.univ-angers.fr/publications/ua19986</a> [14]

### Liens

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