Contribution ID: **177** Type: **Poster Presentation**

AES and XRD study of In/Cu thin films deposited onto SiO₂ by electron beam evaporation

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<p>In order to investigate the diffusion of indium (In) when an In thin film is coated with a copper (Cu) thin film, thin In/Cu films were grown on a silicon dioxide (SiO₂) substrate. Both the In and the Cu layers were grown by electron beam evaporation. The temperature during evaporation of the films ranged between 27 and 38 <sup>

o</sup>C. The In films (500 Å) were coated with Cu films (500 Å and 1000 Å). The films were characterized with X-ray diffraction (XRD) and Auger electron spectroscopy (AES). The In/Cu layers interdiffused during evaporation and formed intermetallic CuIn₂ and Cu₁₁In₉ phases. The In layer completely reacted with the Cu layers during the deposition process. The In layer was effectively coated with a Cu layer (1000 Å). The In (500 Å)/Cu (1000 Å) films were annealed at temperatures ranging between 150 and 300 ^oC for times varying between 25 and 121 min. For annealed films the diffraction data demonstrated peaks only for Cu and Cu₁₁In₉ and AES depth profiles pointed out the stability of the Cu₁₁In₉ and In diffusion to the surface of the film. The results of this work provide insight towards the In doping of Cu crystals at temperatures higher than the melting point of In (156.6 ^oC).

Level (Hons, MSc,
   PhD, other)?

Msc

Consider for a student
   award (Yes / No)?

Yes

Would you like to <br> submit a short paper <br> for the Conference
 Proceedings (Yes / No)?

Yes

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