

CIS system surface composition and influence on it of Xe⁺ irradiation

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Among other Cu-chalcopyrite semiconductors compound CuInSe₂ (CIS) is of interest to photovoltaics as the result of the acceptable energy gap width, the high optical absorption coefficient, the high efficiency and the radiation resistance [1-4]. But solar elements characteristics are influenced by the elemental composition of absorption layer and damage process these layers [5]. With that end in view the CIS system surface composition was researched by the Rutherford Backscattering method (RBS) and the fluence dependence of the surface composition was studying by the Rutherford Backscattering/channeling method (RBS/C). As it can be seen on the figure 1, elements profiles are irregular in dependence of the depth. Figure 2 shows that Xe⁺ ion implantation influences significantly on the concentration of elements in the samples.

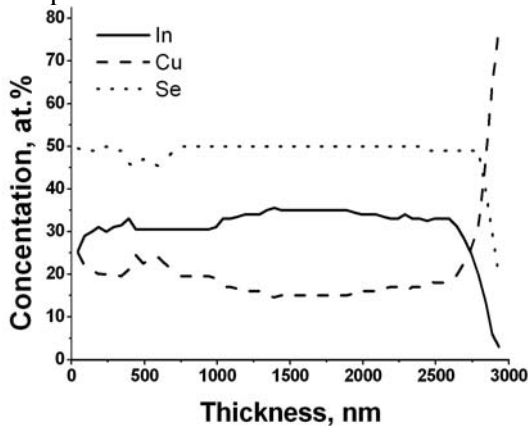


Fig. 1. Depth dependence of elements concentration in the CIS sample

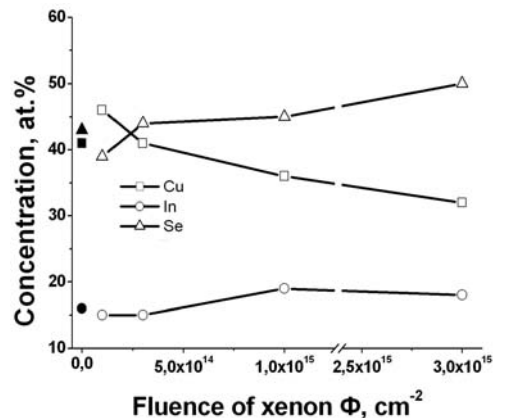


Fig. 2. Cu, In, Se concentration dependence on fluence (full symbols – elements concentration in the unirradiated sample)

References

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