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Effect of the burn-out step on the microstructure of the solution-processed $Cu(In,Ga)Se_2$ solar cells

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Abstract

For the development of the photovoltaic industry cheap methods for the synthesis of $Cu(In,Ga)Se_2$ (CIGSe) based solar cells are required. In this work, CIGSe thin films were obtained by a solution-based method using oxygen-bearing derivatives. With the aim of improving the morphology of the printed CIGSe layers, we investigated two different annealing conditions of the precursor layer, consisting of (1) a direct selenization step (reference process), and (2) a pre-treatment thermal step prior to the selenization. We showed that the use of an Air/H_2S burn-out step prior to the selenization step increases the CIGSe