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**[ SEM-179 ] SONOCHEMICAL-ASSISTED CuInSe<sub>2</sub> ELECTRODEPOSITION AND ELECTROCHEMICAL POST-SELENIZATION TREATMENTS**

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CuInSe<sub>2</sub> films have been prepared onto Cu substrates by an electrochemical, ultrasonic-assisted method, using a home-made potentiostat and deposition cell. Films were prepared by sweeping the potential at 5 mVs<sup>-1</sup> from 0 to -1500 mV vs SSC and left there during 15 min with ultrasonic agitation. The electrolytic bath composition was varied in order to study its effect on the phases present in the films. The precursor solutions were mixed in Cu:In:Se ratios of 1:1:1, 1:2:1 and 1:2.5:1, while the precursor concentration was varied from 1.5 mM to 4 mM, with respect to Cu. A 1 M NaCl solution was used as supporting electrolyte when needed. An electrochemical selenization procedure was done after film deposition, by immersing the films in a 1.5 mM Se electrolyte and sweeping the potential from -200 to -800 mV vs SSC and left there during 5 min. The effect of thermal annealing in N<sub>2</sub>-flux on the film structure was also assessed. Films were characterized by X-ray diffraction, Raman spectroscopy and atomic force microscopy. Ultrasonic agitation leads to compact, uniform films. Raman spectra of the as-grown films indicate the presence of In-Se and CIS in the tetragonal and cubic forms. In-rich films were obtained at the higher In ratios and precursor concentrations. The selenization treatment showed to affect the phase composition, while thermal treatment increased the crystallinity.

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