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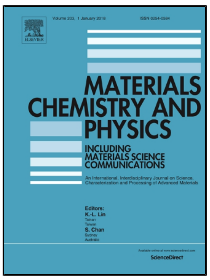

Stoichiometry control in Cu_2ZnSnS_4 thin films grown by pulsed laser deposition

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Stoichiometry control in Cu_2ZnSnS_4 thin films grown by pulsed laser deposition

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Abstract

We synthesized Cu_2ZnSnS_4 (CZTS) thin films on soda lime glass substrates using pulsed laser deposition. Deposition parameters and sputtering target compositions were varied in order to optimize the composition and morphology of the CZTS films. At room temperature, films deposited using a sputtering target composition of $Cu_{1.90}Zn_{1.20}Sn_{1.00}S_{4.25}$, consisting of the nominally desired metal ratios and excess sulfur, were found to be heavily Sn-rich and S-deficient.