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Structural characterization of the solid solution $Cu_2Mn(Ge_xSn_{1-x})S_4$

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Materials like Cu_2MnGeS_4 and Cu_2MnSnS_4 are promising candidates as absorber material in tandem solar cells. They show a wide bandgap in the range of 1.6-1.72 eV, while being made of non-toxic and earth abundant elements. Results of the chemical composition study in combination with structural characterization (XRD and neutron diffraction) as well as the optical bandgap evaluation from diffuse reflectance of the $Cu_2Mn(Ge,Sn)S_4$ mixed crystals will be presented.

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