

SYNTHESIS OF SINGLE PHASE CZTS THIN FILMS

ABSTRACT

The present study deals with the synthesis of single phase CZTS thin films. $\text{Cu}_2\text{ZnSnS}_4$ (CZTS) is a new and promising material for harvesting solar energy for photovoltaic applications due to its high theoretical absorptivity and direct band gap. Its comprising species are affordable as they are abundant therefore making it an attractive alternative absorber material for photovoltaic devices. Achieving however the high theoretical values has been the goal of intense research due to the difficulties that are predominantly encountered in relation to the invention of a synthesis method that is capable of consistently isolating the narrow region of the single CZTS phase thus making it possible to capitalize on the full potential of this new photovoltaic material¹.

This work has managed by a systematic approach built upon the investigation of the thermodynamics of the system and the necessary parameters involved during the formation of it, to provide a methodology for the synthesis of the CZTS single phase. Preliminary results are very encouraging though further experiments are deemed necessary in order to be able to assess thoroughly the methodology under proposal.

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