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**A Low Cost and Single Source Atmospheric Pressure Vapor Phase Epitaxy of ZnS for
Thin Film Photovoltaic Applications**

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Abstract

A novel and low cost vapor phase epitaxy (VPE) method using a single non-volatile source has been used to deposit ZnS thin films on soda lime glass substrates. Utilization of the non-volatile source eliminated the need for expensive and sophisticated reactors commonly used in conventional VPE. Instead, this experiment was carried out using inexpensive and easily attainable apparatus. The vapor phase reaction process described is also more compatible to the industry standard dry deposition processes of the other layers in the thin film solar cell stack for Cu(In,Ga)Se₂ (CIGS), Cu₂ZnSnS₄ (CZTS) and CdTe photovoltaic (PV) devices. In this experiment, the substrate temperature was varied from 400 to 480 °C

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