

Abstract Submitted
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Cadmium Telluride Solar Cell Simulations Using SCAPS RYLAN GORDON, SPENCER SHORTT, HASITHA MAHABADUGE, Georgia Collage State University — The most prevalent thin-film solar cell in industrial production is the cadmium telluride (CdTe) Solar Cell. The role of cadmium sulfide (CdS) as the n-type buffer layer in CdTe solar cells is well studied. However, CdS limits the transmission of photons due to its higher bandgap. The work done in this project investigates the possibility of replacing CdS with magnesium doped zinc oxide. We simulated the effect of the optimal ratio of elemental composition, thickness of the layer, and the doping level, on efficiency of the solar cell, using SCAPS, a one dimensional solar cell simulator [1]. The simulation results and plans for the experimental study will be presented. [1] M. Burgelman, P. Nollet and S. Degrave, "Modelling polycrystalline semiconductor solar cells", *Thin Solid Films*, **361-362**, 527-532 (2000)

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