Abstract Submitted
for the OSF09 Meeting of
The American Physical Society

Improving the a-Si:H and nc-Si:H Back Reflectors Modeled with ZnO Stacks STEPHANIE ASH, Ohio Northern University, LILA DAHAL, MICHELLE SESTAK, ROBERT COLLINS, DINESH ATTYGALLE, ZHUANG HUANG, University of Toledo — This report looks to find the best model that will give the optimal reflectance from the ZnO, least absorption in the Ag, most absorption in the Si and the least amount of total reflection by creating a multi-layer ZnO with alternating indices of refraction on a Ag back-reflector. The ZnO high is an intrinsic ZnO and the ZnO low is created theoretically by introducing more free carriers modeled by the Drude behavior in the ZnO dielectric functions. Later, ITO layers with alternating indices of refraction were also placed in the model to improve its performance. The best results are shown and discussed. Finally, some suggestions of work that could be further made on this project are presented.

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Date submitted: 17 Sep 2009 Electronic form version 1.4