Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Band alignment and interdiffusion at the BaCuSeF/ZnTe interface[1] ANDRIY ZAKUTAYEV, JANET TATE, Department of Physics, Oregon State University, USA, HEATHER PLATT, DOUGLAS KESZLER, Department of Chemistry, Oregon State University, USA, ALIREZA BARATI, WOLFRAM JAEGERMANN, ANDREAS KLEIN, Division of Surface Science, Darmstadt University of Technology, Germany — In-situ ultraviolet- and x-ray photoemission spectroscopy experiments (XPS/UPS) on the wide-bandgap p-type semiconductor BaCuSeF indicate that it forms an ideal p-type contact to ZnTe. The interface is interdiffused, and there is no valence band offset. The transitivity rule for the valence band offsets and the similar chemistry of ZnTe and CdTe suggest that BaCuSeF is a promising p-type window layer for CdTe p-i-n double-heterojunction solar cells. BaCuSeF anode may also improve collection of charge carriers in thin film inorganic photovoltaic devices based on Cu(InGa)Se2 (CIGS) and Cu2ZnSnS4 (CZTS) absorbers.

[1]This work received support from SFB 595 (Germany) and NSF (USA).

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Date submitted: 18 Nov 2009 Electronic form version 1.4