

Abstract Submitted
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The Effect of PEDOT:PSS Back Contact on CdTe/polymer Solar Cells¹ PROF WEINING WANG, BROOKE MYERS, TYLER LUCAS, BRANDON BARNES, Seton Hall Univ, NABA PAUDEL, YANFA YAN, University of Toledo, WANG COLLABORATION — In our previous studies, we reported the potential of conducting polymer being used as the back contact of CdTe/CdS solar cells, with the efficiency of the CdTe solar cell with the poly(3,4-ethylenedioxythiophene) polystyrene sulfonate (PEDOT:PSS) back contact approaching those with traditional Cu/Au back contact. In this work, we report our studies on the effect of conductivity and work function of the polymer on the characteristics of CdTe/polymer solar cells. A series of conducting polymer with different conductivity and work function were used as back contact for CdTe solar cells. We have found that the solar cells with higher polymer conductivity yields higher fill factor and higher short-circuit current, and the solar cells with higher polymer work function yields higher open-circuit voltage. We also studied the effect of polymer work function on the barrier height of the CdTe/polymer junction. Those results help us gain a better understanding on the energy level alignment at CdTe/polymer junction, and provide insight on developing more efficient CdTe/polymer solar cells.

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