Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Planar Organic Photovoltaics for more Opportunities of Efficiency Enhancement and Parameters Controlling[1] FERAS G. ALZUBI, Nanoscience Technology Center, Department of Physics, University of Central Florida, SAIFUL I. KHONDAKER, Nanoscience Technology Center, Department of Physics, School of Electrical Engineering and Computer Science, University of Central Florida — Organic photovoltaics have been intensively studied as a cheap, easy processed and reliable source of energy that will eventually substitute the inorganic photovoltaics. Commonly, PV devices are made in vertical geometry where the BHJ active material is sandwiched between two electrodes one of them must be transparent to shin the light through. This vertical geometry created some challenges such as requirement of transparent ITO electrode as well as tying up the active material film thickness and electrodes separation. As an approach to overcome these challenges, we utilize the planar geometry to fabricate PV device where the poly (3-hexylthiophene) and [6,6]-phenyl C61-butyric acid methylester (P3HT/PCBM) blend is deposited between two asymmetric metallic electrodes. We investigated the PV behavior for different metal electrodes which is an advantage provided by planar structure. Also, we discuss the behavior of the power conversion efficiency (PCE) with independently varying the active material film thickness and electrodes separation.

[1]This work is supported by U.S. National Science Foundation under Grant No. ECCS 0801924.

Biddut Sarker
University of Central Florida

Date submitted: 16 Nov 2011 Electronic form version 1.4