

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Below gap external quantum efficiency of organic solar cells.

ALEXANDRE NDOBE, VALY VARDENY, University of Utah — We fabricated a variety of organic bulk hetero-junction photovoltaic (PV) solar cells based on blends of regio-regular polythiophene (RR-P3HT) and MEHPPV with the fullerene molecules C60- and C70- PCBM. We found, surprisingly that the organic devices show a photovoltaic effect even when excited with light having photon energy below the optical gap of the polymers. This implies that organic solar cells efficiencies can be improve by considering material other than PCBM that have higher infrared absorption but still can serve as a good acceptors for the polymers. To complement this finding we measured the excitation dependence of various PV parameters such as the PV fill-factor, open-circuit voltage, and external quantum efficiency. The interesting excitation spectra reveal the device structure geometry as will be discussed in detail.

Alexandre Ndobe
University of Utah

Date submitted: 09 Nov 2006

Electronic form version 1.4