Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Photoinduced charge transfer from polymers to fullerene molecules revisited. TOMER DRORI, Physics Department, University of Utah, CHUANXIANG SHENG, ALEX NDOBE, CUNGENG YANG, MINGHONG TONG, VALY VARDENY — We study the process of photoinduced charge transfer (PCT) between conjugated polymers and fullerene molecules as electron acceptors, using the technique of picosecond transient, and steady state photomodulation at various modulation frequencies and temperatures. The polymers studied were MEH-PPV and regio-regular P3HT [RR-P3HT], which are some of the common polymers that are used in organic photovoltaic, as well as polyfluorene [PFO] with optical gap in the blue spectral range; whereas the fullerene molecules where C_{60}, C_{70} and their PCBM variations. In all cases we found PCT as evident by the formation of strong photoinduced absorption (PA) polaron bands in the mid ir spectral range. Surprisingly we also found PCT with photon energy below the polymer optical gap. This below-gap PCT process will be discussed and compared with the more usual PCT process with above gap excitation.

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Date submitted: 15 Nov 2006 Electronic form version 1.4