Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Spatial dependence of charge photogeneration and transport in an ordered, phase-separated liquid crystalline organic semiconductor SANJOY PAUL, Department of Physics, Kent State University, SUVAGATA TRIPATHI, Department of Chemistry, Kent State University, BRETT ELLMAN, Department of Physics, Kent State University, ROBERT TWIEG, Department of Chemistry, Kent State University — Bulk heterojunction organic photovoltaic cells depend on charge and exciton physics within, and between, small regions of organic semiconductors. To probe the physics of charge generation and transport in these geometries, we have fabricated patterned, phase-separated mixtures of liquid crystalline (LC) organic semiconductors and photopolymerized polymers. To characterize transport in the LC regions, we have developed "scanning time-of-flight microscopy" (STOFm), whereby spatially resolved TOF and polarized microscopy data are acquired in parallel. We will discuss the technique, as well as our results on efficiency of charge generation, mobility, and trapping in these confined geometries.

Sanjoy Paul
Department of Physics, Kent State University

Date submitted: 09 Nov 2012 Electronic form version 1.4