Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Spatially resolved charge transport study in discotic liquid crystalline organic semiconductors SANJOY PAUL, Department of Physics, Kent State University, ALEXANDER SEMYONOV, Department of Chemistry and Biochemistry, Kent State University, NATHAN J. DAWSON, KENNETH D. SINGER, Department of Physics, Case Western Reserve University, ROBERT J. TWIEG, Department of Chemistry and Biochemistry, Kent State University, BRETT ELLMAN, Department of Physics, Kent State University — Spatially resolved time-of-flight photogeneration and mobility have been measured on a discotic liquid crystalline organic semiconductor using scanning time-of-flight microscopy (STOFm). STOFm simultaneously obtains time-of-flight transients and polarized transmittance across the sample. Various shapes in time-of-flight transients were observed and extracted charge transport parameters such as photogeneration efficiency, mobility, and trapping show significant spatial variation. In some cases these can be linked to electrode surface inhomogeneities. Detailed measurement methodology, experimental results and challenges in their analysis will be discussed.

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Date submitted: 06 Nov 2015 Electronic form version 1.4