Abstract Submitted
for the OSS12 Meeting of
The American Physical Society

**Effects of Passivation on Charge Transport in DNA-CTMA and P3HT Thin Films Using the Time of Flight (TOF) Technique** TIMOTHY GORMAN, PERRY YANEY, University of Dayton, FAHIMA OUCHEN, University of Dayton Research Institute — TOF measurements were carried out on a variety of thin films of deoxyribonucleic acid (DNA) of MW $\sim$ 200 kDa with and without hexacetyltrimethl-ammonium chloride (CTMA) along with thin films of regioregular poly(3-hexylthiophene (P3HT) with and without passivation in room air. A 20 ns, pulsed Nd:YAG laser with doubled output at 532 nm was used for P3HT and quadrupled output at 266 nm was used for DNA to inject charge carriers to produce a photoconduction transient with an applied electric field. Charge mobilities are derived from these transients. Without any passivation, photoconductive response signals were seen to change shape and decay in amplitude by factors of more than three with exposure to room air for both P3HT and DNA-CTMA. It was found that thin layers of polyurethane gave some degree of passivation to the DNA devices to preserve the photoconductive signals. A glass cover sealed over devices using Norland Products UVS 91 solvent-free epoxy was found to successfully passivate P3HT devices on a glass slide, which produced consistent signals in room air over the span of days.

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Date submitted: 05 Apr 2012 Electronic form version 1.4