**Broadband Carbon Nanotube Photodetectors with Intrinsic Polarimetry**

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Light polarization is used in the animal kingdom for communication, navigation, and enhanced scene interpretation, and also plays an important role in astronomy, remote sensing, and military applications. To date, there have been few photodetector materials demonstrated to have direct polarization sensitivity, as is often the case in nature. In this presentation, I will discuss the realization of macroscopic carbon-based photodetectors, where the polarimetry is intrinsic to the active photodetector material[1,2]. The detectors are based on macroscopic, optically-thick films of aligned single-wall carbon nanotubes (SWCNTs), and are actualized using asymmetric contact electrodes or in p-n junction format. Responsivities as high as 1 V/W were observed in these devices, with a broadband spectral response spanning the visible to the mid-infrared. A combination of experiment and theory is used to demonstrate the photothermoelectric origin of the responsivity and to discuss the performance attributes of such devices.

1. S. Nanot *et al*, Scientific Reports 3, 1335 (2013).
2. X. He *et al*, ACS Nano, DOI**:** 10.1021/nn402679u.