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Near infrared photoresponse study of large area multi-walled carbon nanotube film with different electrode spacing BIDDUT SARKER, M. ARIF, PAUL STOKES, ALAMGIR KABIR, SAIFUL I. KHONDAKER, Nanoscience Technology Center and Department of Physics University of Central Florida, Orlando, FL 32826 — Photoconductivity of carbon nanotube have generated considerable debate in terms of whether the photoresponse is (i) due to photon induced charge carrier (excitonic), (ii) due to heating of the CNT network (bolometric), or (iii) caused by photodesorption of oxygen molecules at the surface of the CNT. In addition, the role of the metal electrode – CNT contact's effect on the photoresponse has also been debated. In this talk, we will present near -infrared photoresponse study of multi-walled carbon nanotube (MWCNT) film with different electrode spacings. We found that there is a large enhancement of photocurrent upon laser illumination and the photocurrent strongly depends on the position of the laser spot with maximum response occurring at the metal – film interface. We also show that the photoresponse is rather slow (~ 1 s) and increases with increasing electrode spacing. We will discuss the origin of the position dependent photocurrent and slow time response.

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