

Abstract Submitted  
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**CNT Quantum dots as Terahertz detectors**<sup>1</sup> MOHAMED RINZAN, Physics Department, Georgetown University, GREG JENKINS, DENNIS DREW, Department of Physics, University of Maryland, SERHII SHAFRANJUK, Department of Physics and Astronomy, Northwestern University, PAOLA BARBARA, Physics Department, Georgetown University — We study Carbon Nanotube (CNT) quantum dots as detectors of THz radiation via photon assisted single electron tunneling. Although successful detection was recently demonstrated [1], the coupling between the CNT and THz radiations was very weak. Here, we implement a novel device design where the radiation is effectively coupled to the CNT quantum dot through broad band on-chip antennas. We show that the enhanced coupling yields a highly sensitive broad band Terahertz sensor.

[1] Y. Kawano, S. Toyokawa, T. Uchida and K. Ishibashi, THz photon assisted tunneling in carbon-nanotube quantum dots, *Journal of Applied Physics* 103, 034307 (2008).

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