

Abstract Submitted  
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**Photocurrent generation efficiency of a carbon nanotube pn junction** DANIEL MCCULLEY, LEE ASPITARTE, ETHAN MINOT, Oregon State University — Carrier multiplication effects can enhance the quantum efficiency of photovoltaic devices. For example, quantum dot solar cells have demonstrated photon-to-electron conversion efficiencies greater than 100% when photon energies exceed twice the band gap. Carbon nanotube photodiodes exhibit carrier multiplication effects (Gabor et al, Science 2009), but the quantum efficiency of such photodiodes has not previously been characterized. We have reproduced the carrier multiplication phenomena in individual CNT pn junctions and investigated the conditions under which it occurs. We will present early results quantifying the internal quantum efficiency of the process.

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