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**Individual carbon nanotube Schottky diode rectifiers characterized at microwave frequencies** ENRIQUE COBAS, STEVEN ANLAGE, MICHAEL FUHRER, Department of Physics and Center for Nanophysics and Advanced Materials, University of Maryland College Park — Carbon nanotube Schottky diodes (CNT-SDs) are predicted to have very high cut-off frequencies due to small junction capacitances. Additionally, carbon nanotube (CNT) conductors are expected to exhibit signatures of Tomonaga-Luttinger Liquid states in their frequency-dependent conductivity. We have measured the rectification of microwave signals by CNT-SDs as a function of frequency, power, and dc bias voltage. Horizontally aligned CNTs were grown by chemical vapor deposition on high-frequency compatible quartz substrates. Dissimilar metal contacts were created in coplanar waveguide geometries via photolithography. The diodes were subjected to microwave signals from 100MHz to 40GHz. A frequency-independent rectified dc current of approximately 100$\mu$A / W was observed throughout this frequency range, consistent with the expected intrinsic cut-off frequency of the devices of order 1THz.

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