Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Antenna Effects in Arrays of Aligned Carbon Nanotubes K. KEMPA, J. RYBCZYNSKI, Y. WANG, Z. REN, Boston College, Z. P. HUANG, D. CAI, NanoLab, J. B. KIMBALL, J. CARLSON, US Army Natick Soldier Center, G. BENHAM, MegaWave Corporation — We have demonstrated earlier [1], that carbon nanotubes respond to light as radio antennas. Specifically, we have demonstrated the polarization and length antenna effects. Here we show yet another, a more subtle antenna effect: the multi-lobe reflection pattern with the specular enhancement. We demonstrate this effect in a random array of aligned, widely spaced carbon nanotubes. We show via calculation and computer simulations that these effects are results of the conventional antenna theory.

[1] Y. Wang, K. Kempa, B. Kimball, J. B. Carlson, G. Benham, W. Z. Li, T. Kempa, J. Rybczynski, A. Herczynski, and Z. F. Ren, Applied Physics Letters **85**, 2607 (2004).

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Date submitted: 04 Dec 2005 Electronic form version 1.4