

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Anisotropy in broadband microwave conductance spectra of highly oriented multi-walled carbon nanotube sheets BRIAN BROWN, JULIA BYKOVA, AUSTIN HOWARD, MARK LEE, ANVAR ZAKHIDOV, University of Texas at Dallas — Highly oriented multi-walled carbon nanotube (MWCNT) sheets are drawn from carbon nanotube (CNT) forests grown by chemical vapor deposition (CVD) synthesis on silicon (Si) substrates with iron catalyst. Sheets are assembled on coplanar waveguides (CPWs) with and without densification in isopropyl alcohol, and are aligned either parallel or perpendicular to the electric field polarization of the propagating field. Broadband microwave conductance spectra is measured using capacitive coupling to the MWCNT sheets up to a frequency of 50 GHz over a temperature range of 4 to 300 K. We find a parallel/perpendicular conductance ratio of up to 200/1 with very weak temperature dependence. The behavior of the AC conductance anisotropy will be compared to DC measurements of the resistance anisotropy.

Brian Brown
University of Texas at Dallas

Date submitted: 15 Nov 2013

Electronic form version 1.4