

Abstract Submitted
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Microwave Conductivity of Single Wall Carbon Nanotube Arrays¹ C. HIGHSTRETE, E.A. SHANER, MARK LEE, F.E. JONES, P.M. DENTINGER, A.A. TALIN, Sandia National Laboratories — We have measured the microwave conductivity spectra of carbon nanotube (CNT) parallel arrays from room temperature to 4K. Single wall CNTs were assembled by AC dielectrophoresis into parallel arrays of individual CNTs and ropes spanning the electrodes of coplanar waveguides (CPWs). The CPW complex reflection and transmission coefficients were measured from 0.1 to 50 GHz. Measurements of identical bare CPWs were utilized to calculate the frequency dependent complex conductivity and power dissipation of the CNT arrays and provide estimates of these quantities for individual CNTs in this configuration. Small loss due to the CNT arrays is consistently measured and increases with frequency.

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