

Abstract Submitted  
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**Temperature Dependent Conductivity of Metallized and Non-Metallized Multiwall Carbon Nanotubes and Corresponding Nanocomposites** MAX ALEXANDER, Air Force Research Lab, HILMAR KOERNER, University Of Dayton Research Institute, CHYI-SHAN WANG, Materials Research Institute, HEATHER DOWTY, Air Force Research Lab, AIR FORCE RESEARCH LAB TEAM, UNIVERSITY OF DAYTON RESEARCH INSTITUTE TEAM, MATERIALS RESEARCH INSTITUTE TEAM — The availability of multi-wall carbon nanotubes (MWCNT) has lead to realization of low cost, highly conductive, bulk nanocomposites. Bulk nanocomposites of MWCNTs and metallized MWCNTs have been produced at loadings ranging from 0.1 to 20 vol % in select thermoplastics. The corresponding DC, room temperature conductivity of these nanocomposites ranged from a few  $\mu\text{S}/\text{cm}$  to  $400\text{S}/\text{cm}$ . The DC electrical conductivity of the nanocomposites and of the pure nanotubes were characterized over a broad temperature range (5K to 500K) to elucidate the electron transport properties of these materials. Significant changes in the electrical conductivity were observed and will be reported. The understanding of the temperature dependent behavior of these materials is critical to determining the appropriate use temperatures for end products made from these multi-wall carbon nanotubes.

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