

Abstract Submitted  
for the 4CF11 Meeting of  
The American Physical Society

**Mechanical and Electrical Properties of Carbon Nanotube Templated Metal Microstructures** RICHARD HANSEN, DAVID MCKENNA, Department of Physics and Astronomy, Brigham Young University, BRIAN JENSEN, Department of Mechanical Engineering, Brigham Young University, RICHARD VANFLEET, ROBERT DAVIS, DAVID ALLRED, Department of Physics and Astronomy, Brigham Young University — Our group has used vertically aligned carbon nanotubes as a patterned, three-dimensional microfabrication scaffold to create CNT composite materials through chemical vapor infiltration. This method, termed carbon nanotube templated microfabrication (CNT-M), is a novel approach for creating precise high-aspect-ratio microstructures. In the past, dielectrics ( $\text{SiO}_2$  and  $\text{SiN}_x$ ) and semiconductors (Si and a-C) were the materials deposited on the CNT framework. Production and characterization of metallic microstructures is in its infancy. This study presents electrical, mechanical and structural properties of *metallic* microstructures made using tungsten and molybdenum carbonyl precursors through the CNT-M process.

Richard Hansen  
Department of Physics and Astronomy, Brigham Young University

Date submitted: 19 Sep 2011

Electronic form version 1.4