

Abstract Submitted  
for the TSS12 Meeting of  
The American Physical Society

**Effects of hydrogen and amorphous carbon on the microwave absorption of carbon nanotubes** C.R. SAYAVEDRA, D. GONZALES, B.S. CAVNESS, S. WILLIAMS, Angelo State University — Plans for experiments studying the effects of hydrogen on the microwave absorption of carbon nanotubes are described, including details concerning the construction of experimental apparatus. Previous studies have shown that carbon nanotubes emit infrared, visible, and ultraviolet radiation under microwave fields. Theoretical studies of this phenomenon have suggested that either vibrational resonances or interactions of the microwaves with metal catalysts are responsible for the observed radiation emission. Our plans involve comparing the emission spectra for unpurified carbon nanotubes synthesized via arc-discharge using nickel and cobalt catalysts with single-walled carbon nanotubes synthesized via chemical vapor deposition using iron catalyst. Additionally, the emission spectra of samples that have undergone hydrogen absorption will be compared to samples that have not as part of an effort to help understand the mechanism(s) responsible for the exothermic reactions observed when nanotubes are irradiated with microwaves.

S. Williams  
Angelo State University

Date submitted: 14 Feb 2012

Electronic form version 1.4