

Abstract Submitted  
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**Fluorescence Spectroscopy of Single-Walled Carbon Nanotubes in Epoxy**<sup>1</sup> PAUL WITHEY, KENA SENEGAL, SARENA SENEGAL, TAMIKA THOMAS, Northwestern State University, SERGEI BACHILO, R. BRUCE WEISMAN, Rice University — Single-walled carbon nanotubes (SWCNTs) have been successfully embedded into EPON 862/W epoxy both with and without a surfactant. Near-infrared fluorescence imaging and spectroscopic studies of individual carbon nanotubes (CNTs) within these nanocomposites indicate very good separation of individual CNTs with little bundling. Application of strain to the nanocomposites permitted the interfacial adhesion between the CNT and host to be studied at the single-particle level. Shifts in the emission spectrum of individual semiconducting SWCNTs clearly indicate load transfer. Loss of adhesion, or slipping, has also been detected for some nanotubes as changes in their emission spectra. Near-infrared fluorescence imaging and spectroscopy are proving to be ideal methods for monitoring the behavior of SWCNTs within nanocomposites, especially at the single-particle level. Much of this work has been carried out by undergraduate physics and chemistry majors.

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