

### **361c Raman Spectroscopy Study of Swnt – Poly(Ethylene Oxide) Nanocomposites**

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Nanocomposites of poly(ethylene oxide) (PEO) reinforced with single-walled carbon nanotubes (SWNTs) are expected to show improved mechanical and electrical properties. We have been successful in obtaining a series of well-dispersed PEO-SWNT nanocomposites by using an anionic surfactant as a compatibilizer and have determined that electrical percolation occurs at ~ 0.05 wt % SWNT and geometrical percolation, as manifested from melt rheology, occurs at ~ 0.1 wt % SWNT. The mechanical properties of composites such as strength and toughness depend strongly on bonding between filler and matrix as load is expected to be transferred from matrix to filler through interfacial shear stress. For well-dispersed nanocomposites we have studied Raman spectroscopy to identify the nature of stress transfer as a function of SWNTs loading and temperature. These results will be presented with other proof of dispersion of tubes in PEO matrix.