Acquisition of a Fourier Transform Raman and Infrared Spectrometer for Materials Research and Education

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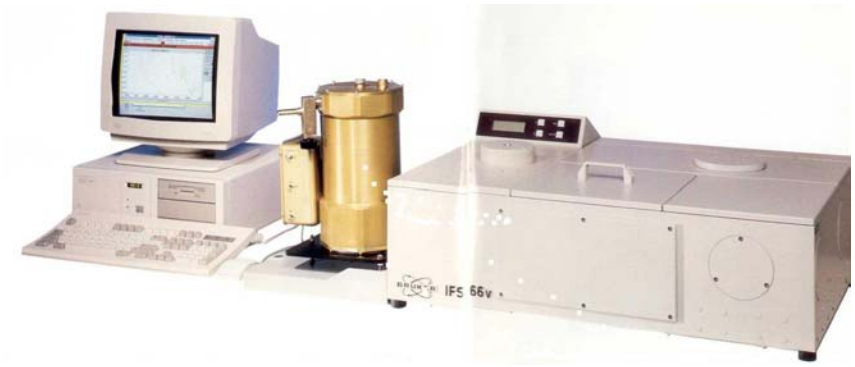
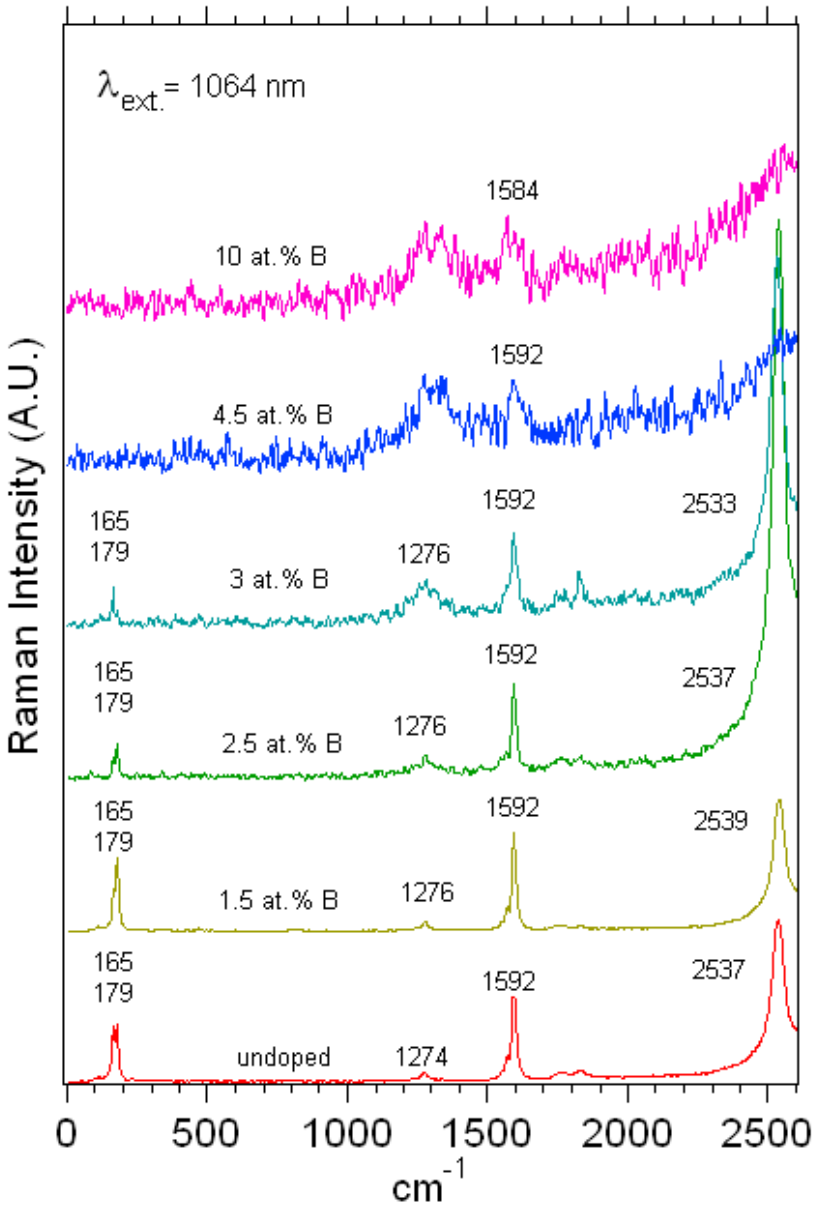


This award helped Clemson University acquire a combined FT Raman / FTIR spectrometer for full vibrational spectroscopic characterization of novel materials. The main optics bench is the BRUKER IFS 66v FT spectrometer (left panel) and its accessories include FT Raman module, IRscope and Ramanscope for measurements of very small samples (right panel). Importantly, it is enabling students gain hands-on experience in the use of vibrational spectroscopy in materials research.

Research and Educational Activities

Four graduate students and two undergraduate students are presently using this spectrometer in their materials research.

Systematic studies were conducted using this spectrometer as depicted in the adjacent figure. The Raman spectra reveal vibrational and c changes in carbon nanotubes as a function of boron dopant concentration.

Since acquiring this FT spectrometer in 2003, three refereed publications, and one refereed proceedings have been published.