

SOCIETY OF PHYSICS STUDENTS (SPS) EVENT

## **Fourier Transform Infrared Spectroscopy**

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In Infrared (IR) spectroscopy, the energy levels, instead of corresponding to the energies of transitioning electrons, correlate to the vibrational energies between atoms that occur within chemical structures. Since each molecule is comprised of different atoms of different masses and differ by other defining features (e.g. bond types), individual molecule has different signatures (electromagnetic, energy-level patterns) by which one can determine the identity of IR active compounds.

The process of obtaining a spectrum for a chemical compound involves sending an IR signal through a sample and observing which frequencies are absorbed by the sample's vibrational energy and which ones pass through the sample. One method for obtaining this spectrum is to send a beam of monochromatic light through a sample while changing its wavelength to see the quantified signal transmission with respect to wave number. However, an alternative method, Fourier Transform Infrared (FT-IR), proves to be optimal for requirements including the following: high spectral resolution, working with weak signals, high spectral accuracy.

In this talk I will present our efforts to make operational the new addition to the Advanced Optics Laboratory course (PHY 455/555) – the FTIR MIR8025 spectrometer.

**WHERE**

**SI – 117 (room next to Physics Computer Lab)**

**WHEN**

**Noon- 1pm**  
**Thursday, September 20, 2007**