Chem 302 Laboratory 6

What Molecule Is It? Fourier Transforms and Interferograms For FT-IR Vibrational Spectroscopy

NAME:

1. An interferogram is the “raw product” of an FT-IR experiment. Lay out the process of how IR radiation travels from the source of the instrument to the detector and ultimately forms the interferogram.
2. Using the **read.csv** function, read in the “unknown” interferogram1 in the file interferogram1.csv. Plot and upload the interferogram.
3. Use the control script to FFT the unknown interferogram. Plot the spectrum as a function of absorbance and %T. Upload your plots.
4. Estimate the positions of the major frequencies and record them.
5. What is the identity of the molecule based on the frequencies you found? The US NIST WebBook (<https://webbook.nist.gov/chemistry/>) and Japanese AIST SDBS (<https://sdbs.db.aist.go.jp/sdbs/cgi-bin/direct_frame_top.cgi>) databases can help you figure it out and have many IR spectra.
6. Repeat the FFT process for interferogram2.csv. Upload the spectrum you obtain and name the molecule.