

IR Pre-Lab

1. What does an IR spectrum show about a molecule? What are the selection rules for IR spectroscopy?
2. What is the Isotope Effect? How does it relate to this lab? Please use an equation when describing this in the context of chloroform.
3. What information is present in an interferogram? How is the interferogram converted from a pulse-like signal to the spectra that we know and love?
4. What factors determine the ω_0 of a stretch? What main stretches do you expect to see in the IR spectrum of the essential oils and what are their energies?

EXTRA CREDIT:

The IR spectra of gases shows a series of small lines that form a Rotation-Vibrational (ro-vibrational) band that shows the rotational features of the molecule. Why is this not visible in our IR spectra? Explain the different causes of broadening in a paragraph.

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