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Vibrational and Electronic Spectroscopy

“One of the basic requirements of being a sprinter is being a biped!” –Norm Macdonald

• Spectroscopy
• Spectrometry

→ Identify compound
→ Buy it
→ Learn everything about it
→ Look for it elsewhere
Isoprene – It’s everywhere!

1150 Tg C/year from biosphere
\(\rightarrow\) Isoprene 44%

- Isoprene \(\rightarrow\) biomarker?
- Oxidation products?
Spectroscopy Vac-line and FT-IR

Diagram showing a schematic of a spectrometry setup with labels for components such as pressure gauges, cold trap, gas cell, sample holder, light source, beam splitter, stationary and movable mirrors, and a detector.
Fit → Find oscillator strengths → Quantities!
Cavity Ring-Down 10000-16000 cm$^{-1}$ (Higher Overtones)

"Effective pathlength" = 15 km