

A Hands on Introduction to NMR

22.920

Lab & Problem Set #1

Nuclear Spin and Magnetic Resonance

- Introduction to the spectrometer.
- Observation of an FID from water.
- Fourier transformation and processing of the FID to a spectrum.
- The effect of changing the magnetic field strength.
- Introduction to shimming.

1. Why does one need to measure both the x and y-components of the nuclear magnetization?
2. What is accomplished by phasing the spectrum?
3. Relate the zero-order phase correction to the starting location of the spin magnetization.
4. How does varying the magnetic field strength influence the FID and the spectrum.
5. What is the influence of shimming on the FID and the spectrum?

6. Relate the shape of the spectrum to the field distribution across the sample.