

## Phase Correction – How It Works

- There are Two FIDs: The Real (X) and Imaginary (Y)
- Fourier Transform of These FIDs Gives Two Spectra: The Real Spectrum and the Imaginary Spectrum
- Initially, Neither One is Correctly Phased
- Phase Correction is the Process of Making a Linear Combination of the Two Spectra:

$$\text{Spectrum} = \text{Real} * \cos\Theta + \text{Imaginary} * \sin\Theta$$

- The Angle Theta “Rotates” the Real Spectrum into the Absorptive (Phase Corrected) Spectrum
- The Angle Theta Depends on Chemical Shift in a Linear Fashion:

$$\Theta = [\text{First-Order Corr.}] * \delta + [\text{Zero-Order Corr.}]$$

where  $\delta$  is the Chemical Shift