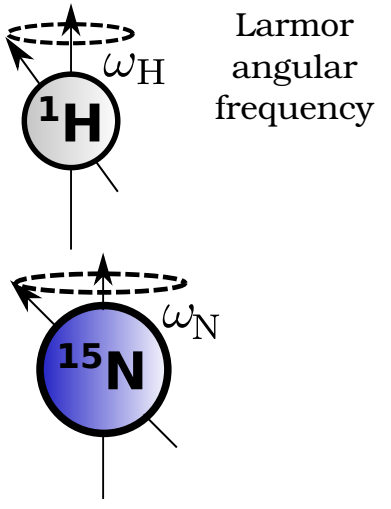
Redfield equations

Dipolar coupling constant

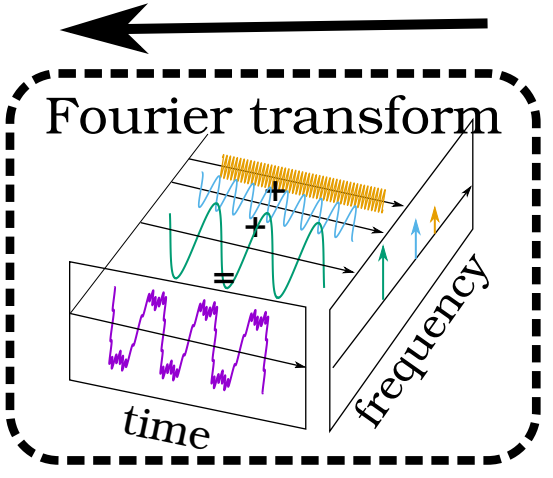
$$\frac{1}{T_1} = \frac{d_{\mathrm{NH}}^2}{20}[J(\omega_{\mathrm{H}} - \omega_{\mathrm{N}}) + 3J(\omega_{\mathrm{N}}) + 6J(\omega_{\mathrm{H}} + \omega_{\mathrm{N}})]$$

$$\frac{1}{T_2} = \frac{1}{2}\frac{d_{\mathrm{NH}}^2}{20}[4J(0) + J(\omega_{\mathrm{H}} - \omega_{\mathrm{N}}) + 3J(\omega_{\mathrm{N}}) + 3J(\omega_{\mathrm{H}}) + 6J(\omega_{\mathrm{H}} + \omega_{\mathrm{N}})]$$

$$\mathrm{NOE} = 1 + \frac{d_{\mathrm{NH}}^2}{20}[J(\omega_{\mathrm{H}} + 6J(\omega_{\mathrm{H}} + \omega_{\mathrm{N}})]\frac{\gamma_{\mathrm{H}} T_1}{\gamma_{\mathrm{N}}}$$



Larmor angular frequency

spectral density

$$J(\omega) = 2\int_0^\infty C(t)cos(\omega t)\mathrm{d}t$$