

Week 2 Q&A

1. The applied magnetic field, B_0 , induces the electrons to circulate in their atomic orbits, generating a small magnetic field in the same direction as B_0 .
 - a. True
 - b. False**
2. A magnetic field can induce two kinds of electronic currents in a molecule: diamagnetic and paramagnetic.
 - a. The two currents flow in opposite directions and give rise to nuclear shielding and deshielding, respectively.**
 - b. Both currents flow in the same direction giving rise to nuclear shielding.
 - c. The two currents flow in opposite directions and give rise to nuclear deshielding and shielding, respectively.
 - d. Both currents flow in the same direction giving rise to nuclear deshielding.
3. The Larmor frequency, ν_0 , of a nucleus depends on
 - a. The applied magnetic field, B_0**
 - b. The chemical shielding, σ**
 - c. The strength of the rf pulse, ν_1
 - d. The gyromagnetic ratio, γ**
4. Why are NMR spectra plotted with inverted x-axis (i.e., more positive values are on the left)?
 - a. Chemists are really bad at math
 - b. For historical reasons**
 - c. To confuse undergraduate students
 - d. They're not, the axis should be plotted as normal, with more positive values on the right
5. What is the common compound used for referencing ^1H and ^{13}C spectra?
 - a. It depends on the research group.
 - b. TMS**
 - c. D_2O
 - d. Water