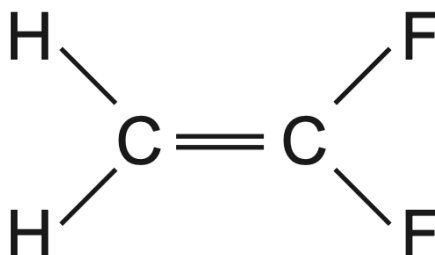


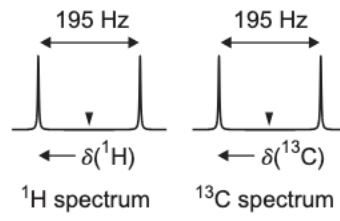
Week 3 Q&A

1. Other than displaying different multiplet patterns, quadrupolar nuclei behave the same as spin $I = \frac{1}{2}$ nuclei.
 - a. True
 - b. False**

2. The two protons in this molecule below are



- a. Neither chemically nor magnetically equivalent
 - b. Chemically equivalent but not magnetically equivalent**
 - c. Magnetically equivalent but not chemically equivalent
 - d. Both chemically and magnetically equivalent
3. The Fermi contact interaction is:
 - e. Proportional to the gyromagnetic ratios of the two nuclei involved
 - f. Responsible for scalar couplings**
 - g. Averaged to zero in solutions due to rapid molecular motion
 - h. None of the above
 4. Dipolar and scalar coupling are through space and through bonds, respectively.
 - a. True**
 - b. False
 5. Below we have the ^1H and ^{13}C spectra of $\text{H}^{13}\text{CO}_2^-$ showing the doublets produced by ^1H - ^{13}C J-coupling. The arrowheads indicate the chemical shift positions at the centre of each doublet. If this is recorded in a 500MHz spectrometer, the split between the doublets in ppm units will be the same. Note: $\gamma(^1\text{H}) \approx 4 \gamma(^{13}\text{C})$



- a. True
- a. **False**