

The structure of a molecule can be predicted using NMR spectroscopy. However, the interpretation of the signals in an NMR spectrum relies on several factors. One of the factors affecting the location of the peaks in an NMR spectrum is Chemical shift. The location of the peaks is important in discovering how many protons there are in a molecule, as well as other information about the surrounding electronic environment. In addition to knowing where the peaks are, on the chemical shift scale, and what influences the delta value, one must also consider the fact that the peaks in an NMR spectrum are not always a singlet. ^{[1][2]} In fact, the interactions between different types of protons present in the

molecule cause a single peak on an NMR spectrum to split into doublet, triplet, or multiplet, a phenomenon known as the spin-spin coupling. There could also be other complex peak splitting patterns. The spin-spin coupling phenomenon, at its core, involves spinning nuclei.