

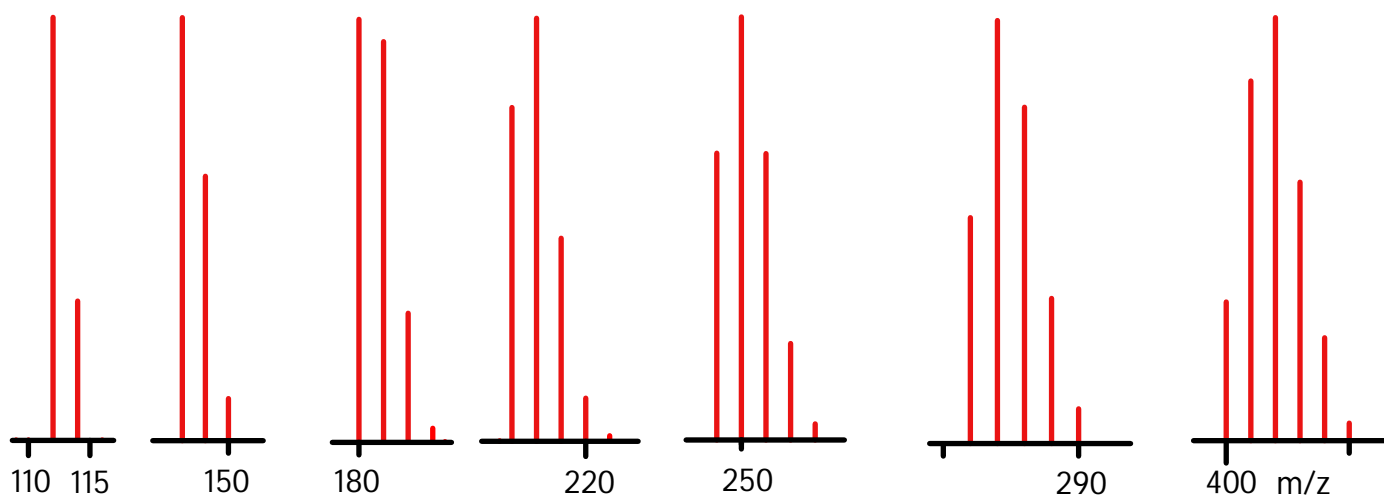
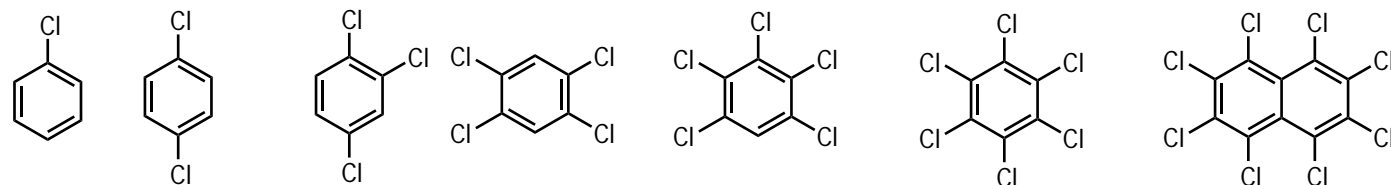
Effect of Isotopes on Mass Spectra

You have already seen how Cl and Br isotopes affect MS.

What about ^{13}C ? How does ^{13}C affect MS data?

At first you might think the contributions of ^{13}C can be neglected. After all, ^{13}C is only 1.1% of natural abundance.

Before we look at its cumulative affect, let's review the affect of $^{35}\text{Cl}/^{37}\text{Cl}$



Do you see a pattern here?

(1) The number of peaks within a given set of isotopologues increases with the total # of chlorines according to the $n+1$ rule

By the time reach $n=5$ (pentachlorobenzene) the amounts of some of the isotopologues are too small to be seen

(2) The cluster of peaks gets broader and relative peak heights change significantly:

$$@ n=4 \quad M+2 > M$$

$$@ n=8 \quad M+3 > M+2$$

a broad envelope of isotopologue peaks form

