

Physical chemistry

[Science](#), [Chemistry](#)



Periodicity can be found in ionization energies and electronic affinities along with the groups in the periodic table (Atkins). This prediction can be made because of the arrangement of atoms on the basis of valence shell electrons in the periodic table.

In heteronuclear molecules, some atoms are more electronegative than others. The electron pair in a bond in such a molecule is shared unequally. The more electronegative atom attracts the shared electron pair, causing a polarity in the bond. The more electronegative atom has a partial negative charge, while the other atom has a partial positive charge. Molecules where the difference in electronegativities is low ($\Delta\chi < 0.5$) are nonpolar, while those with greater differences are polar (see Figure 1). In molecules with very high electronegativity differences, the bonds are ionic as the electrons are with the electronegative atom.