

## Misconceptions in Inorganic Chemistry

Inorganic Chemistry is made up of:

Main Group

Structure and Bonding

Transition Metals - Coordination Chemistry and Organometallics

Bioinorganic

Materials

These sub-sub-disciplines of the sub-discipline of the discipline of chemistry is too much specialization. Does this lead to misconceptions about the nature of chemistry?

Range in inorganic chemistry is broader than in organic chemistry.

You can't memorize all the properties and reactivity of 118 elements.

Does the fact that gas-phase Cr is  $[\text{Ar}] 4s^1 3d^5$  really matter?

Does the ordering of orbitals in the gas-phase lead naturally to the fact that Fe is  $[\text{Ar}] 4s^2 3d^6$  and that  $\text{Fe}^{2+}$  is  $[\text{Ar}] 3d^6$ ?

Other issues:

Knowledge transfer from organic to physical chemistry.

H, C, N, O are weird elements-no others act this way.

$\text{CO}_2$  and  $\text{SiO}_2$  are different.

Ionic vs. covalent (bonds)

Ionic vs. molecular (compounds)

Metal vs. non-metal