Atomic Radius

Atomic Radius Increases

s – Block
d – Block
p – Block
f – Block

*Lanthanide series

**Actinide series
Ionization Energy ($I$)

$X (g) \rightarrow X^+ (g) + e^- (g)$

$I = E (A^+, g) - E (A, g)$

First Ionization Energy Increases

- **s – Block**
- **p – Block**
- **d – Block**
- **f – Block**
Electronegativity

Electronegativity Increases

Covalent Bond

Polar Covalent Bond

Increasing Electronegativity Difference

* Lanthanide series

** Actinide series

s – Block  p – Block  d – Block  f – Block
Polarizability

Atom Not Polarized

Atom Polarized

Polarizability Increases

s – Block
p – Block
d – Block
f – Block
Basic Intermolecular Interactions

London Dispersion Forces

Dipole Induced Dipole

Dipole-Dipole

Hydrogen Bonding

Relative Strength

In Atoms

In Molecules