

LECTURE 17 POLARIZABILITY

I. Polarizability α

- A. Relationship to strength of London dispersion interaction

II. Liquids and Intermolecular Attractions

- A. Liquification of gases
 - 1. Kinetic energy of molecules
 - 2. Correlation between boiling point (BP) and well depth, ϵ
 - 3. Correlation between BP and number of electrons
 - 4. Correlation between BP and shape of molecules

III. Intermolecular Interactions

- A. Polar Molecules
- B. Ions
- C. Origin of a Bad Hair Day
 - 1. Hydrogen bonding

IV. Bond Energies / Bond Enthalpies

- A. Bond enthalpies
 - 1. Enthalpy of a chemical reaction
- B. Heat of formation ΔH_f°
- C. Hess's Law
- D. Entropy ΔS° for reactions