Chapter VI: Electronic Structure and Periodic Properties of Elements

Outline of lecture material

A. Light and other forms of electromagnetic radiation
   1. light waves: wavelength and frequency
   2. speed and energy of a wave
   3. the electromagnetic spectrum
   4. dual nature of matter
      a. photons

B. Interaction of light and matter
   1. absorption and emission spectra
   2. quantization of energy

C. Energy levels
   1. energy levels and ionization energies
   2. shells, subshells, and orbitals

D. Electron configurations
   1. spin
      a. the Pauli Exclusion Principle
   2. Hund’s rule
      a. unpaired electrons
   3. ion configurations

E. Periodicity and atomic size
   1. ionic size
   2. isoelectronic series

F. Trends in ionization energies

Reading assignment
Chapter 6