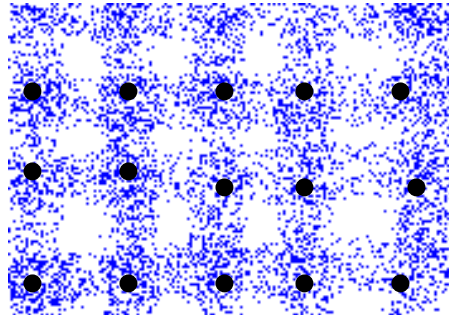


# Physics 113 -Lecture 15

## Chemical Bonding (Cont.)

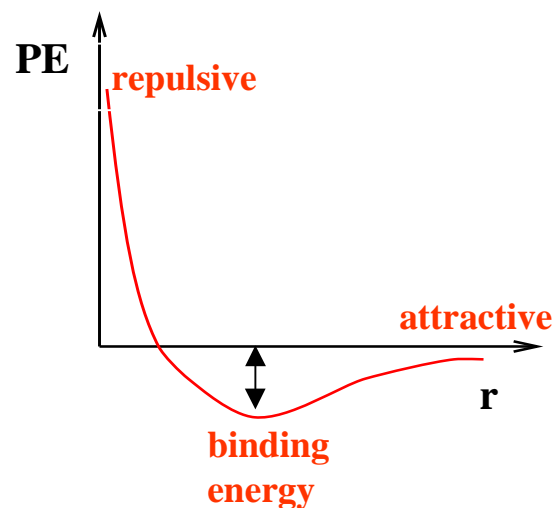
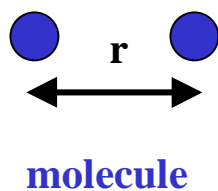
### Metallic Bonds

Electrons shared over large distances in the lattice. This explains good current conduction.



Bond angles determined by valence orbitals

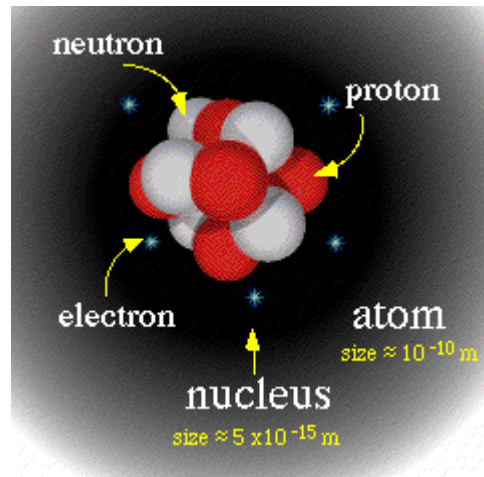
### Potential Energy Diagrams for Molecules



When atoms bind light and heat (molecular motion) are released.

# The Nucleus

**Nucleus about 1/100,000<sup>th</sup> size of atom ( a baseball in Yankee Stadium)**



Notation :  ${}^A_Z X$

$A \equiv$  atomic mass number = # p + # n

$Z \equiv$  atomic number = # p

**Isotope: Same Z different A**

**Size:  $V \propto A$  Stacked like billiard balls**

$$r \approx (1.2 \times 10^{-15} \text{ m}) A^{\frac{1}{3}}$$

**A New Force**

**Strong (short range)**

**Electromagnetic**

**Gravity**

**Binding PE ~ 5 MeV**