

Lecture 5 — Metallic Bonding

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- Formation of Metallic Bonds
 - Electron Delocalization: Metal atoms lose their valence electrons, which become part of a delocalized electron cloud
 - Lattice Formation: Positive metal ions arrange themselves in a closely packed lattice structure
 - Electrostatic Attraction: The “sea of electrons” binds the metal ions together, creating a cohesive and stable structure
- Energy Bands in Metals
 - In metals, atomic orbitals overlap to form continuous bands of energy levels
 - Conduction Band: Contains energy levels where electrons are free to move and conduct electricity
 - Valence Band: Occupied by electrons involved in bonding