

LECTURE 28
TRANSITION METALS: CRYSTAL FIELD THEORY

I. Crystal Field and Ligand Field Theories

II. Crystal Field Theory

- A. Octahedral field splitting energy, Δ_o
- B. Octahedral crystal field splitting diagram
- C. High spin
- D. Low spin
- E. Examples:
 - 1. $[\text{Cr}(\text{NH}_3)_3\text{Br}_3]$
 - 2. $[\text{Mn}(\text{H}_2\text{O})_6]\text{Cl}_3$
 - 3. Co^{2+} in an octahedral coordination complex