

LECTURE 13 BREAKDOWN OF OCTET RULE

I. Breakdown of Octet Rule

A. Odd number of valence electrons

1. Example 1: $\bullet\text{CH}_3$

2. Example 2: $\bullet\text{NO}$

B. Octet deficient molecules

C. Valence shell expansion

1. Example 1: PCl_5

2. Example 2: CrO_4^{-2}

3. Example 3: IF_4^-

II. Ionic Bonds – Classical Model and Mechanism

A. Harpoon Mechanism

B. Limitations of the model

C. Energy of Interaction vs. r_e