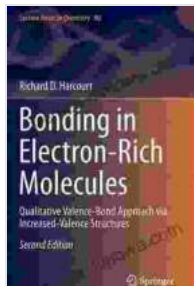


Bonding In Electron Rich Molecules: A Comprehensive Guide



Bonding in Electron-Rich Molecules: Qualitative Valence-Bond Approach via Increased-Valence Structures (Lecture Notes in Chemistry Book 90)

by Domingos H U Marchetti

★★★★☆ 4.4 out of 5

Language : English

File size : 12857 KB

Screen Reader : Supported

Print length : 341 pages

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Bonding In Electron Rich Molecules is a comprehensive guide to the theory and application of chemical bonding in electron rich molecules. The book covers a wide range of topics, including molecular orbital theory, valence bond theory, resonance theory, and the application of these theories to the prediction and explanation of molecular structures and properties.

The book is written in a clear and concise style, and it is well-illustrated with diagrams and examples. It is an essential resource for students and researchers in chemistry and related fields.

Table of Contents

-
- Molecular Orbital Theory

- Valence Bond Theory
- Resonance Theory
- Applications

In this chapter, we will introduce the basic concepts of chemical bonding. We will discuss the different types of chemical bonds, and we will explain how to use Lewis structures to represent molecules.

Molecular Orbital Theory

Molecular Orbital Theory is a quantum mechanical theory of chemical bonding. It describes the electrons in a molecule as occupying molecular orbitals, which are the solutions to the Schrödinger equation for the molecule.

Molecular Orbital Theory is a powerful tool for understanding the electronic structure of molecules. It can be used to predict the molecular geometry, the bond lengths, and the bond strengths.

Valence Bond Theory

Valence Bond Theory is a classical theory of chemical bonding. It describes the electrons in a molecule as occupying atomic orbitals, which are the solutions to the Schrödinger equation for the individual atoms.

Valence Bond Theory is a simple and intuitive theory of chemical bonding. It can be used to predict the molecular geometry and the bond lengths, but it is not as accurate as Molecular Orbital Theory.

Resonance Theory

Resonance Theory is a theory of chemical bonding that combines features of both Molecular Orbital Theory and Valence Bond Theory. It describes the electrons in a molecule as occupying resonance hybrids, which are linear combinations of molecular orbitals.

Resonance Theory is a powerful tool for understanding the electronic structure of molecules. It can be used to predict the molecular geometry, the bond lengths, and the bond strengths. Resonance Theory is particularly useful for understanding the electronic structure of molecules that have multiple bonds.

Applications

Chemical bonding is a fundamental concept in chemistry. It is used to explain the properties of molecules and to predict the reactions that they will undergo.

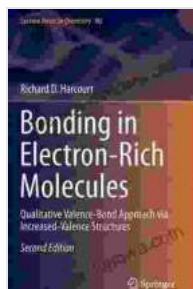
Bonding In Electron Rich Molecules provides a comprehensive overview of the theory and application of chemical bonding in electron rich molecules. The book is an essential resource for students and researchers in chemistry and related fields.

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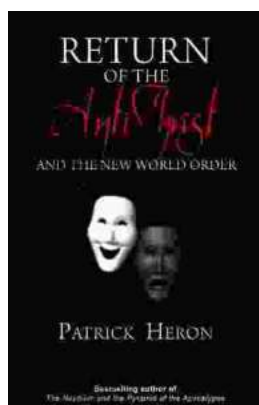
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