



Models for Bonding in Chemistry (Hardback)

By Valerio Magnasco

John Wiley and Sons Ltd, United States, 2010. Hardback. Condition: New. New. Language: English . Brand New Book. A readable little book assisting the student in understanding, in a nonmathematical way, the essentials of the different bonds occurring in chemistry. Starting with a short, self-contained, introduction, Chapter 1 presents the essential elements of the variation approach to either total or second-order molecular energies, the system of atomic units (au) necessary to simplify all mathematical expressions, and an introductory description of the electron distribution in molecules. Using mostly 2x2 Huckel secular equations, Chapter 2, by far the largest part of the book because of the many implications of the chemical bond, introduces a model of bonding in homonuclear and heteronuclear diatomics, multiple and delocalized bonds in hydrocarbons, and the stereochemistry of chemical bonds in polyatomic molecules, in a word, a model of the strong first-order interactions originating the chemical bond. In Chapter 3 the Huckel model of the linear polyene chain is used to explain the origin of band structure in the 1-dimensional crystal. Chapter 4 deals with a simple two-state model of weak interactions, introducing the reader to understand second-order electric properties of molecules and VdW bonding between closed shells. Lastly,...

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