

1. Record Nr.	UNINA9910254043603321
Autore	Harcourt Richard D
Titolo	Bonding in Electron-Rich Molecules : Qualitative Valence-Bond Approach via Increased-Valence Structures // by Richard D. Harcourt
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-16676-X
Edizione	[2nd ed. 2016.]
Descrizione fisica	1 online resource (328 p.)
Collana	Lecture Notes in Chemistry, , 0342-4901 ; ; 90
Disciplina	541.224
Soggetti	Chemistry, Physical and theoretical Atomic structure Molecular structure Organic chemistry Theoretical and Computational Chemistry Atomic/Molecular Structure and Spectra Organic Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	From the Contents: Atomic Orbitals, Electron Spin, Linear Combinations -- Pauling '3-Electron Bonds', 4-Electron 3-Centre Bonding, and the Need for an 'Increased Valence' Theory -- Wave-Functions and Valence-Bond Structures for 1-Electron Bonds, Electron-Pair Bonds, Pauling '3-Electron Bonds' and 'No Bonds' -- Valence-Bond Structures for Some Diatomic Molecules.
Sommario/riassunto	This second edition was updated to include some of the recent developments, such as "increased-valence" structures for 3-electron-3-centre bonding, benzene, electron conduction and reaction mechanisms, spiral chain O4 polymers and recoupled-pair bonding. The author provides qualitative molecular orbital and valence-bond descriptions of the electronic structures for primarily electron-rich molecules, with strong emphasis given to the valence-bond approach that uses "increased-valence" structures. He describes how "long-bond" Lewis structures as well as standard Lewis structures are incorporated into "increased-valence" structures for electron-rich

molecules. "Increased-valence" structures involve more electrons in bonding than do their component Lewis structures, and are used to provide interpretations for molecular electronic structure, bond properties and reactivities. Attention is also given to Pauling "3-electron bonds", which are usually diatomic components of "increased-valence" structures for electron-rich molecules.
