1. Record Nr. UNINA9910786156503321

Titolo	Robotics and automation in the food industry : current and future technologies / / edited by Darwin G. Caldwell
Pubbl/distr/stampa	Cambridge, UK : , : Woodhead Publishing Limited, , 2013
ISBN	0-85709-576-5
Edizione	[1st edition]
Descrizione fisica	1 online resource (527 p.)
Collana	Woodhead Publishing series in food science, technology and nutrition, , 2042-8049 ; ; number 236
Altri autori (Persone)	CaldwellD. G (Darwin G.)
Disciplina	664.00284
Soggetti	Food processing machinery - Automatic control Food industry and trade - Automation Food industry and trade - Technological innovations Robotics - Industrial applications Robotics
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 and index.
Nota di contenuto	part I. Introduction, key technologies and significant areas of development -- part II. Robotics and automation in particular unit operations and industry sectors.
Sommario/riassunto	The implementation of robotics and automation in the food sector offers great potential for improved safety, quality and profitability by optimising process monitoring and control. Robotics and automation in the food industry provides a comprehensive overview of current and emerging technologies and their applications in different industry sectors.Part one introduces key technologies and significant areas of development, including automatic process control and robotics in the food industry, sensors for automated quality and safety control, and the development of machine vision systems.

2. Record Nr. UNINA9910815525803321

Autore	Magnasco Valerio
Titolo	Models for bonding in chemistry / / Valerio Magnasco
Pubbl/distr/stampa	Hoboken, : Wiley, 2010
ISBN	9786612773129 9781282773127 1282773127 9781119957348 1119957346 9781119971986 1119971985 9780470669754 0470669756
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (234 p.)
Disciplina	541/.224
Soggetti	Chemical bonds Molecular structure - Mathematical models
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 and index.
Nota di contenuto	Models for Bonding in Chemistry; Contents; Preface; 1 Mathematical Foundations; 1.1 MATRICES AND SYSTEMS OF LINEAR EQUATIONS; 1.2 PROPERTIES OF EIGENVALUES AND EIGENVECTORS; 1.3 VARIATIONAL APPROXIMATIONS; 1.4 ATOMIC UNITS; 1.5 THE ELECTRON DISTRIBUTION IN MOLECULES; 1.6 EXCHANGE-OVERLAP DENSITIES AND THE CHEMICAL BOND; Part 1: Short-range Interactions; 2 The Chemical Bond; 2.1 AN ELEMENTARY MOLECULAR ORBITAL MODEL; 2.2 BOND ENERGIES AND PAULI REPULSIONS IN HOMONUCLEAR DIATOMICS; 2.2.1 The Hydrogen Molecular Ion H+2 (N = 1); 2.2.2 The Hydrogen Molecule H2 (N = 2) 2.2.3 The Helium Molecular Ion He+2 (N = 3)2.2.4 The Helium Molecule He2 (N = 4); 2.3 MULTIPLE BONDS; 2.3.1 s2p2 Description of the Double Bond; 2.3.2 B 2 1 B 2 2 Bent (or Banana) Description of the Double Bond; 2.3.3 Hybridization Effects; 2.3.4 Triple Bonds; 2.4 THE

THREE-CENTRE DOUBLE BOND IN DIBORANE; 2.5 THE HETEROPOLAR BOND; 2.6 STEREOCHEMISTRY OF POLYATOMIC MOLECULES; 2.6.1 The Molecular Orbital Model of Directed Valency; 2.6.2 Analysis of the MO Bond Energy; 2.7 sp-HYBRIDIZATION EFFECTS IN FIRST-ROW HYDRIDES; 2.7.1 The Methane Molecule; 2.7.2 The Hydrogen Fluoride Molecule
2.7.3 The Water Molecule2.7.4 The Ammonia Molecule; 2.8 DELOCALIZED BONDS; 2.8.1 The Ethylene Molecule; 2.8.2 The Allyl Radical; 2.8.3 The Butadiene Molecule; 2.8.4 The Cyclobutadiene Molecule; 2.8.5 The Benzene Molecule; 2.9 APPENDICES; 2.9.1 The Second Derivative of the H€uckel Energy; 2.9.2 The Set of Three Coulson's Orthogonal Hybrids; 2.9.3 Calculation of Coefficients of Real MOs for Benzene; 3 An Introduction to Bonding in Solids; 3.1 THE LINEAR POLYENE CHAIN; 3.1.1 Butadiene N = 4; 3.2 THE CLOSED POLYENE CHAIN; 3.2.1 Benzene N = 6; 3.3 A MODEL FOR THE ONE-DIMENSIONAL CRYSTAL
3.4 ELECTRONIC BANDS IN CRYSTALS3.5 INSULATORS, CONDUCTORS, SEMICONDUCTORS AND SUPERCONDUCTORS; 3.6 APPENDIX: THE TRIGONOMETRIC IDENTITY; Part 2: Long-Range Interactions; 4 The van der Waals Bond; 4.1 INTRODUCTION; 4.2 ELEMENTS OF RAYLEIGH-SCHRODINGER (RS) PERTURBATION THEORY; 4.3 MOLECULAR INTERACTIONS; 4.3.1 Non-expanded Energy Corrections up to Second Order; 4.3.2 Expanded Energy Corrections up to Second Order; 4.4 THE TWO-STATE MODEL OF LONG-RANGE INTERACTIONS; 4.5 THE van der WAALS INTERACTIONS; 4.5.1 Atom-Atom Dispersion; 4.5.2 Atom-Linear Molecule Dispersion
4.5.3 Atom-Linear Dipolar Molecule10 Induction4.6 THE C6 DISPERSIONCOEFFICIENT FOR THE H-H INTERACTION; 4.7 THE van der WAALS BOND; 4.8 THE KEESOM INTERACTION; 5 The Hydrogen Bond; 5.1 A MOLECULAR ORBITAL MODEL OF THE HYDROGEN BOND; 5.2 ELECTROSTATIC INTERACTIONS AND THE HYDROGEN BOND; 5.2.1 The Hydrogen Fluoride Dimer (HF)2; 5.2.2 The Water Dimer (H2O)2; 5.3 THE ELECTROSTATIC MODEL OF THE HYDROGEN BOND; 5.4 THE Rg-HF HETERODIMERS; References; Author Index; Subject Index

Sommario/riassunto

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 implicat