1. Record Nr. UNINA9910144301203321

Titolo	Clusters and colloids [[electronic resource]] : from theory to applications / / edited by Gunter Schmid
Pubbl/distr/stampa	Weinheim ; ; New York, : VCH, c1994
ISBN	1-281-75885-X 9786611758851 3-527-61607-1 3-527-61606-3
Descrizione fisica	1 online resource (573 p.)
Altri autori (Persone)	SchmidGunter <1937->
Disciplina	541.3
Soggetti	Microclusters Colloids Molecular theory Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes bibliographical references and index.
Nota di contenuto	Clusters and Colloids; Contents; 1 General Introduction; 2 Electronic Structure of Metal Clusters and Cluster Compounds; 2.1 Introduction; 2.2 The Description of the Clusters Electronic Structure; 2.2.1 Wave Function Based Methods; 2.2.2 Density Functional Methods; 2.2.3 Simplified Methods; 2.3 Structure and Properties of Naked Clusters; 2.3.1 The Theoretical Description of Metal Clusters; 2.3.2 Structure, Bonding, and Stability; 2.3.2.1 Geometrical Structures; 2.3.2.2 The Jellium Model; 2.3.2.3 Fluxionality; 2.3.2.4 Stability and Fragmentation; 2.3.2.5 Bond Lengths 2.3.2.6 Electron Delocalization in Clusters2.3.3 Ionization Potentials and Electron Affinities; 2.3.4 Electronic States, "Band Structure", and Band Gap; 2.3.5 Optical Responses; 2.3.6 Clusters in External Fields; 2.3.6.1 Magnetic Behavior; 2.3.6.2 Electric Polarizability; 2.4 Structure and Properties of Ligated Clusters; 2.4.1 The Metal - Ligand Interactions; 2.4.2 Structures and Bond Lengths; 2.4.2.1 Geometrical Structures; 2.4.2.2 Metal - Metal Bond Lengths; 2.4.2.3 The Ligand Polyhedron; 2.4.3 Topological Relationships and Simplified Bonding

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Sommario/riassunto

This book offers a comprehensive overview of the rapidly developing field of cluster science. In an interdisciplinary approach, basic concepts as well as recent developments in research and practical applications are authoritatively discussed by leading authors. Topics covered include 'naked' metal clusters, clusters stabilized by ligands, clusters in solids, and colloids.The reader will find answers to questions like:* How many metal atoms must a particle have to exhibit metallic properties?* How can the large specific surface of clusters and colloids be employed in catalysts?