1. Record Nr. UNINA9910254029803321

Autore	Voloshin Yan
Titolo	The Encapsulation Phenomenon : Synthesis, Reactivity and Applications of Caged Ions and Molecules / / by Yan Voloshin, Irina Belaya, Roland Krämer
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-27738-3
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (653 p.)
Disciplina	540
Soggetti	Organic chemistry Inorganic chemistry Nanochemistry Catalysis Physical chemistry Organic Chemistry Inorganic Chemistry Physical 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	Introduction, and the classification of caging ligands and cage complexes -- Encapsulation by covalent capsules -- Encapsulation by hydrogen-bonded and other supramolecular capsules -- Encapsulation by coordination capsules -- Reactivity of encapsulated species -- Practical applications of cage complexes.
Sommario/riassunto	This fundamental book presents the most comprehensive summary of the current state of the art in the chemistry of cage compounds. It introduces different ways of how ions and molecules can be encapsulated by three-dimensional caging ligands to form molecular and polymeric species: covalent, supramolecular, and coordination capsules. The authors introduce their classification, reactivity, and selected practical applications. Because encapsulation can isolate caged ions and molecules from external factors, the encapsulated species can exhibit unique physical and chemical properties. The resulting specific

reactivity and selectivity can open up a range of applications, including chemical separation, recognition, chiral separation, catalysis, applications as sensors or probes, as molecular or supramolecular devices, or molecular carriers (cargo). A particularly strong emphasis in this book is on the summary and review of the synthesis of various types of cage compounds. Readers will find over 850 literature references summarized and clearly represented in over 600 schemes and illustrations. The book is structured by the types of caging ligands (covalent, supramolecular, or coordination capsules). The authors further arranged the chapters by ligand classes and types of encapsulated species (neutral molecules, anions, or cations). Readers will hence find an exhaustive reference resource and summary of the current state of research into encapsulated species, nowadays almost a separated realm of modern chemistry.