

Stereochemistry Of Coordination Compounds

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Spectroscopic Analyses - Eram Sharmin 2017-12-06

The book presents developments and applications of these methods, such as NMR, mass, and others, including their applications in pharmaceutical and biomedical analyses. The book is divided into two sections. The first section covers spectroscopic methods, their applications, and their significance as characterization tools; the second section is dedicated to the applications of spectrophotometric methods in pharmaceutical and biomedical analyses. This book would be useful for students, scholars, and scientists engaged in synthesis, analyses, and applications of materials/polymers.

Coordination Chemistry - Stanley Kirschner 2013-11-11

Iridium(III) in Optoelectronic and Photonics Applications - Eli Zysman-Colman 2017-03-07

The fundamental photophysical properties of iridium(III) materials make this class of materials the pre-eminent transition metal complex for use in optoelectronic applications. Iridium(III) in Optoelectronic and Photonics Applications represents the definitive account of photoactive iridium complexes and their use across a wide variety of applications. This two-volume set begins with an overview of the synthesis of these complexes and discusses their photophysical properties. The text highlights not only mononuclear complexes but also the properties of multinuclear and polymeric iridium-based materials and the assembly of iridium complexes into larger supramolecular architectures such as MOFs and soft materials. Chapters devoted to the use of these iridium-based materials in diverse optoelectronic applications follow, including: electroluminescent devices such as organic light emitting diodes (OLEDs) and light-emitting electrochemical cells (LEECs); electrochemiluminescence (ECL); bioimaging; sensing; light harvesting in the context of solar cell applications; in photoredox catalysis and as components for solar fuels. Although primarily targeting a chemistry audience, the wide applicability of these compounds transcends traditional disciplines, making this text also of use to physicists, materials scientists or biologists who have interests in these areas.

Stereochemistry - Workbook - Karl-Heinz Hellwich 2006-10-11

This workbook in stereochemistry is designed for students, lecturers and scientists in chemistry, pharmacy, biology and medicine who deal with chiral chemical compounds and their properties. It serves as a supplement to textbooks and seminars and thus provides selected examples for students to practice the use of the conventions and terminology for the exact three-dimensional description of chemical compounds. It contains 191 problems with extended solutions.

Inorganic Chemistry - Gary Wulfsberg 2000-03-16

Both elementary inorganic reaction chemistry and more advanced inorganic theories are presented in this one textbook, while showing the relationships between the two.

Advanced Inorganic Chemistry - Narayan S. Hosmane 2017-04-27

Advanced Inorganic Chemistry: Applications in Everyday Life connects key topics on the subject with actual experiences in nature and everyday life. Differing from other foundational texts with this emphasis on applications and examples, the text uniquely begins with a focus on the shapes (geometry) dictating intermolecular forces of attractions, leading to reactivity between molecules of different shapes. From this foundation, the text explores more advanced topics, such as: Ligands and Ligand Substitution Processes with an emphasis on Square-Planar Substitution and Octahedral Substitution Reactions in Inorganic

Chemistry and Transition Metal Complexes, with a particular focus on Crystal-Field and Ligand-Field Theories, Electronic States and Spectra and Organometallic, Bioinorganic Compounds, including Carboranes and Metallacarboranes and their applications in Catalysis, Medicine and Pollution Control. Throughout the book, illustrative examples bring inorganic chemistry to life. For instance, biochemists and students will be interested in how coordination chemistry between the transition metals and the ligands has a direct correlation with cyanide or carbon monoxide poisoning (strong-field Cyanide or CO ligand versus weak-field Oxygen molecule). Engaging discussion of key concepts with examples from the real world Valuable coverage from the foundations of chemical bonds and stereochemistry to advanced topics, such as organometallic, bioinorganic, carboranes and environmental chemistry Uniquely begins with a focus on the shapes (geometry) dictating intermolecular forces of attractions, leading to reactivity between molecules of different shapes

Introduction to Stereochemistry - Kurt Mislow 2012-06-11

Introductory text reviews molecular architecture, classifies stereoisomers according to symmetry properties and nature of barriers, and explores conceptual basis of asymmetric syntheses and kinetic resolutions. Exercises with answers. 1965 edition.

The Chemistry of Coordination Complexes and Transition Metals - P. L. SONI SONI (VANDNA.) 2021-06

This book covers all important nomenclature, theories of bonding and stereochemistry of coordination complexes. The authors have made an effort to inscribe the ideas knowledge, clearly and in an interesting way to benefit the readers. The complexities of Molecular Orbital theory have been explained in a very simple and easy manner. It also deals with transition and inner transition metals. Conceptually, all transition and inner transition elements form complexes which have definite geometry and show interesting properties. General and specific methods of preparation, physical and chemical properties of each element has been discussed at length. Group wise study of elements in d-block series have been explained. Important compounds, complexes and organometallic compounds of metals in different oxidation states have been given explicitly. Note: T&F does not sell or distribute the Hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka.

The Chemistry of Coordination Complexes and Transition Metals - P.L. Soni 2021-05-14

This book covers all important nomenclature, theories of bonding and stereochemistry of coordination complexes. The authors have made an effort to inscribe the ideas knowledge, clearly and in an interesting way to benefit the readers. The complexities of Molecular Orbital theory have been explained in a very simple and easy manner. It also deals with transition and inner transition metals. Conceptually, all transition and inner transition elements form complexes which have definite geometry and show interesting properties. General and specific methods of preparation, physical and chemical properties of each element has been discussed at length. Group wise study of elements in d-block series have been explained. Important compounds, complexes and organometallic compounds of metals in different oxidation states have been given explicitly. Note: T&F does not sell or distribute the Hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka.

Environmental Health Perspectives - 1993

Chirality in Transition Metal Chemistry - Hani Amouri 2008-11-20

Chirality in Transition Metal Chemistry is an essential introduction to this increasingly important field for students and researchers in inorganic chemistry. Emphasising applications and real-world examples, the book begins with an overview of chirality, with a discussion of absolute configurations and system descriptors, physical properties of enantiomers, and principles of resolution and preparation of enantiomers. The subsequent chapters deal with the specifics of chirality as it applies to transition metals. Some reviews of Chirality in Transition Metal Chemistry "...useful to students taking an advanced undergraduate course and particularly to postgraduates and academics undertaking research in the areas of chiral inorganic supramolecular complexes and materials." Chemistry World, August 2009 "...the book offers an extremely exciting new addition to the study of inorganic chemistry, and should be compulsory reading for students entering their final year of undergraduate studies or starting a Ph.D. in structural inorganic chemistry." Applied Organometallic Chemistry Volume 23, Issue 5, May 2009 "...In conclusion the book gives a wonderful overview of the topic. It is helpful for anyone entering the field through systematic and detailed introduction of basic information. It was time to publish a new and topical text book covering the important aspect of coordination chemistry. It builds bridges between Inorganic, organic and supramolecular chemistry. I can recommend the book to everybody who is interested in the chemistry of chiral coordination compounds ." Angew. chem. Volume 48, Issue 18, April 2009 About the Series Chirality in Transition Metal Chemistry is the latest addition to the Wiley Inorganic Chemistry Advanced Textbook series. This series reflects the pivotal role of modern inorganic and physical chemistry in a whole range of emerging areas such as materials chemistry, green chemistry and bioinorganic chemistry, as well as providing a solid grounding in established areas such as solid state chemistry, coordination chemistry, main group chemistry and physical inorganic chemistry.

Elements of Stereochemistry - Ernest Ludwig Eliel 1969

Memorial Issue Dedicated to Dr. Howard D. Flack - Catherine E Housecroft 2021-08-31

The book is dedicated to the work and achievements of Howard Flack. It combines articles which describe his own work and the advances he made in the field of crystallography, with original research articles which focus on aspects related to Howard Flack's interests.

Introduction to Theoretical Stereochemistry - Viacheslav Ivanovich Sokolov 1991

First published in 1991. Routledge is an imprint of Taylor & Francis, an informa company.

Coordination Chemistry - D. Banerjee 2013-10-22

Coordination Chemistry is a collection of invited lectures presented at the 20th International Conference on Coordination Chemistry held in Calcutta, India, on December 10-14, 1979, and organized by the International Union of Pure and Applied Chemistry in cooperation with India's National Science Academy and the Department of Science & Technology. The conference covers a wide range of topics relating to coordination chemistry, including the stereochemistry of coordination compounds; the mechanism of the base hydrolysis of octahedral cobalt(III) complexes; and metal chelates as anticancer agents. This book consists of 26 chapters and opens with a discussion on some developments in the stereochemistry of coordination complexes, including the creation of "sepulchrates" ions of cobalt, chromium, ruthenium, and platinum; the preparation of planar complexes containing ligands spanning trans-positions; and the separation of optical and configurational isomers of octahedral complexes containing unsymmetrical and asymmetric ligands. The following chapters explore complex chemistry and the mimicry of metalloenzymes; metal complexes with functionalized macrocyclic ligands; binuclear complexes in electron transfer reactions; and application of coordination chemistry in biology and medicine. The synthetic and structural chemistry of transition metals is also considered, along with linear free energy relationships in coordination chemistry. This monograph will be a valuable source of information for practitioners and research workers in the field of pure and applied chemistry, particularly coordination chemistry.

An Introduction to the Chemistry of Complex Compounds - Aleksander Abramovich Grinberg 2013-10-22

An Introduction to the Chemistry of Complex Compounds discusses the fundamental concepts that are essential in understanding the underlying principles of complex compounds. The coverage of the book includes the compounds of the hexa, penta, and tetrammine type; compounds of the tri, dl, monoamine and

hexacido types for the coordination number of 6; and complex compounds with a coordination number of 4. The text also covers the effects and chemical properties of complex compounds, such as the nature of the force of complex formation; the mutual effects of coordinated groups; and acid-base properties, oxidation-reduction properties, and solution equilibria of complex compounds. The book will be of great use to chemists and chemical engineers.

Pincer Compounds - David Morales-Morales 2018-04-11

Pincer Compounds: Chemistry and Applications offers valuable state-of-the-art coverage highlighting highly active areas of research—from mechanistic work to synthesis and characterization. The book focuses on small molecule activation chemistry (particularly H₂ and hydrogenation), earth abundant metals (such as Fe), actinides, carbene-pincers, chiral catalysis, and alternative solvent usage. The book covers the current state of the field, featuring chapters from renowned contributors, covering four continents and ranging from still-active pioneers to new names emerging as creative strong contributors to this fascinating and promising area. Over a decade since the publication of Morales-Morales and Jensen's The Chemistry of Pincer Compounds (Elsevier 2007), research in this unique area has flourished, finding a plethora of applications in almost every single branch of chemistry—from their traditional application as very robust and active catalysts all the way to potential biological and pharmaceutical applications. Describes the chemistry and applications of this important class of organometallic and coordination compounds Includes contributions from global leaders in the field, featuring pioneers in the area as well as emerging experts conducting exciting research on pincer complexes Highlights areas of promising and active research, including small molecule activation, earth abundant metals, and actinide chemistry

Progress in Inorganic Chemistry - F. Albert Cotton 2009-09-17

This comprehensive series of volumes on inorganic chemistry provides inorganic chemists with a forum for critical, authoritative evaluations of advances in every area of the discipline. Every volume reports recent progress with a significant, up-to-date selection of papers by internationally recognized researchers, complemented by detailed discussions and complete documentation. Each volume features a complete subject index and the series includes a cumulative index as well.

Electronic Structure and Properties of Transition Metal Compounds - Isaac B. Bersuker 2010-12-01

With more than 40% new and revised materials, this second edition offers researchers and students in the field a comprehensive understanding of fundamental molecular properties amidst cutting-edge applications. Including ~70 Example-Boxes and summary notes, questions, exercises, problem sets, and illustrations in each chapter, this publication is also suitable for use as a textbook for advanced undergraduate and graduate students. Novel material is introduced in description of multi-orbital chemical bonding, spectroscopic and magnetic properties, methods of electronic structure calculation, and quantum-classical modeling for organometallic and metallochemical systems. This is an excellent reference for chemists, researchers and teachers, and advanced undergraduate and graduate students in inorganic, coordination, and organometallic chemistry.

Structural Chemistry of Inorganic Actinide Compounds - Sergey Krivovichev 2006-12-08

Structural Chemistry of Inorganic Actinide Compounds is a collection of 13 reviews on structural and coordination chemistry of actinide compounds. Within the last decade, these compounds have attracted considerable attention because of their importance for radioactive waste management, catalysis, ion-exchange and absorption applications, etc. Synthetic and natural actinide compounds are also of great environmental concern as they form as a result of alteration of spent nuclear fuel and radioactive waste under Earth surface conditions, during burn-up of nuclear fuel in reactors, represent oxidation products of uranium mines and mine tailings, etc. The actinide compounds are also of considerable interest to material scientists due to the unique electronic properties of actinides that give rise to interesting physical properties controlled by the structural architecture of respective compounds. The book provides both general overview and review of recent developments in the field, including such emergent topics as nanomaterials and nanoparticles and their relevance to the transfer of actinides under environmental conditions. * Covers over 2,000 actinide compounds including materials, minerals and coordination polymers * Summarizes recent achievements in the field * Some chapters reveal (secret) advances made by the Soviet Union during the 'Cold war'

Inorganic Stereochemistry - D. L. Kepert 2012-01-16

Molecular stereochemistry is a fundamental aspect of all areas of chemistry. It is especially important in inorganic chemistry where the coordination numbers are variable and occasionally quite high. The present book evolved naturally from a series of articles written by Professor Kepert for *Progress in Inorganic Chemistry*, elucidating aspects of the stereochemistry of inorganic compounds of coordination numbers 4-12. In the present volume, Professor Kepert has added new sections and synthesized these individual chapters into a unified treatment, updating his references when necessary to the most recent contributions in the literature, and interweaving the various themes as deemed appropriate. The result is a major contribution, describing the stereochemistry of coordination compounds having both unidentate and multidentate ligands. The viability of the repulsion approach to stereochemistry is tested to the limit in this treatise and shown to be an extremely good way of rationalizing a diverse body of data.

Stereochemistry and Bonding in Inorganic Chemistry - J. E. Fergusson 1974

A chronicle of Jamestown, the first English colony to survive in the wilderness of the New World.

Low-Frequency Vibrations of Inorganic and Coordination Compounds - John R. Ferraro 2012-12-06

During the course of far-infrared investigations of inorganic and coordination compounds at Argonne National Laboratory in the years 1962-1966, it became apparent that no suitable book existed which correlated and discussed the important vibrations occurring in this region for these molecules. Early in 1967 the initial steps were taken to write such a book. Then, in 1968, an excellent text by Professor David M. Adams entitled *Metal-Ligand and Related Vibrations* was published. At this point serious consideration was given to discontinuing work on this book. However, upon examination of Adams' book, it became clear that the references covered only the period to 1966. This field of research is accelerating so tremendously, and the period 1966-1969 has seen so many new studies, that upon reconsideration it was decided to continue writing this text. The references in this book, particularly in the last several chapters, include many papers published in 1969. However, the proliferation of the far-infrared literature has made it impossible to present all the published material that has any bearing on the subject. Many titles do not pertain primarily to the far-infrared region as such, and some of this research has been omitted for this reason. Organometallic compounds have been neglected since the author feels that adequate reviews of that subject are available. Other studies may be missing simply because, owing to space limitations, only the more important researches could be considered. Of course, "importance" may, in this case, reflect the author's interest and prejudices.

Coordination Chemistry - P. L. Soni 2013-04-09

This book has been written in a simple and lucid language to help students understand the intricate theories of co-ordination chemistry. Divided into two parts, the first part reviews all the recent developments in the fields of organometallics and co-ordination chemistry. The second part deals with transition and inner transition metals including the study of f-block elements. It was developed with a focus on the need to demystify coordination complexes and transition metals.

Chains, Clusters, Inclusion Compounds, Paramagnetic Labels, and Organic Rings - P. Zanello 2012-12-02

The role of stereochemistry to elucidate reaction patterns and physico-chemical properties in topical subjects ranging from inorganic to organic chemistry are treated in the fifth and final volume of this series. Detailed accounts are given to study: chaining in polyphosphates, electron-transfers in carbonyl clusters, inclusion of organometallic molecules in cyclodextrins, stereochemistry of paramagnetic metal complexes by labeling with nitroxyl radicals, stereocontrol in organic syntheses assisted by inorganic complexes.

Topics in Inorganic and Organometallic Stereochemistry - Gregory L. Geoffroy 2009-09-17

This volume is devoted entirely to inorganic and organometallic stereochemical subjects. Discusses the systematic notations that have been developed to satisfy the needs for a rational and systematic stereochemical nomenclature. Reviews the stereochemical aspects of the changes of bonding at carbon centers induced by metals, either catalytically or stoichiometrically. Also reviews the major achievements in current stereochemical research—the synthesis of asymmetric compounds mediated by transition metals. Discusses the structures of transition metal carbonyl clusters, summarizing recent progress in this expanding area and providing a semiquantitative rationalization of the structures for these clusters.

Stereochemistry of Coordination Compounds - Alexander von Zelewsky 1996-06-03

This well-illustrated and well-referenced book provides a systematic introduction to the modern aspects of the topographical stereochemistry of coordination compounds, which are made up of metal ions surrounded by other non-metal atoms, ions and molecules.

Practical Inorganic Chemistry - G. Pass 2013-03-09

In revising the text opportunity has been taken to introduce SI units throughout. An Appendix has been included which contains tables of SI units and a table of conversion factors for use when consulting data in non-SI units. Chapter 19 now includes experiments demonstrating the use of ion-exchange and solid-liquid chromatography. Exercises involving colorimetry have been included in Chapter 17. These techniques are introduced as part of a complementary exercise where their relevance is seen as part of a complete piece of work. Minor improvements have been made to some of the experimental procedures and we are grateful to those who have made helpful suggestions in this respect. G. PASS H. SUTCLIFFE iii Preface to the First Edition The student of inorganic chemistry is fortunate in having a wide choice of textbooks covering the descriptive and theoretical aspects of the subject. There is no comparable choice of textbooks covering practical inorganic chemistry. Moreover, there is a tendency for many students to draw an unfortunate distinction between chemistry taught in the lecture room, and laboratory work. Consideration of these points prompted the preparation of this book, in which we have attempted to emphasize the relationship between theory and practice.

Topics in Stereochemistry - Ernest L. Eliel 2009-09-17

This seminal series, first edited by Ernest Eliel, responsible for some of the major advances in stereochemistry and the winner of the ACS Priestley Medal in 1996, provides coverage of the major developments of the field of stereochemistry. The scope of this series is broadly defined to encompass all fields of chemical and biological sciences that are founded on molecular and supramolecular interactions. Insofar as chemical, physical, and biological properties are determined by molecular shape and structure, the importance of stereochemistry is fundamental to and consequential for all natural sciences. *Topics in Stereochemistry* serves as a multidisciplinary series that enriches all of chemistry. Aimed at advanced students, university professors and teachers as well as researchers in pharmaceutical, agricultural, biotechnological, polymer, materials, and fine chemical industries, *Topics in Stereochemistry* publishes definitive and scholarly reviews in stereochemistry and has long been recognized as the gold standard reference work in this field. Covering the effect of chirality on all aspects of molecular interaction from the fundamental physical chemical properties of molecules and their molecular physics to the application of chirality in new areas such as its applications in materials science, *Topics in Stereochemistry* explores a wide variety of properties, both physical and chemical of isomers with a view to their applications in a number of disciplines from biochemistry to materials science.

Spectroscopic Properties of Inorganic and Organometallic Compounds - G. Davidson 1990

Spectroscopic Properties of Inorganic and Organometallic Compounds provides a unique source of information on an important area of chemistry. Divided into sections mainly according to the particular spectroscopic technique used, coverage in each volume includes: NMR (with reference to stereochemistry, dynamic systems, paramagnetic complexes, solid state NMR and Groups 13-18); nuclear quadrupole resonance spectroscopy; vibrational spectroscopy of main group and transition element compounds and coordinated ligands; and electron diffraction. Reflecting the growing volume of published work in this field, researchers will find this Specialist Periodical Report an invaluable source of information on current methods and applications. Specialist Periodical Reports provide systematic and detailed review coverage in major areas of chemical research. Compiled by teams of leading experts in their specialist fields, this series is designed to help the chemistry community keep current with the latest developments in their field. Each volume in the series is published either annually or biennially and is a superb reference point for researchers. www.rsc.org/spr

A Textbook of Inorganic Chemistry - Volume 1 - Mandeep Dalal 2017-01-01

An advanced-level textbook of inorganic chemistry for the graduate (B.Sc) and postgraduate (M.Sc) students of Indian and foreign universities. This book is a part of four volume series, entitled "A Textbook of Inorganic Chemistry - Volume I, II, III, IV". CONTENTS: Chapter 1. Stereochemistry and Bonding in Main Group Compounds: VSEPR theory, sp - sp bonds, Bent rule and energetic of hybridization. Chapter 2.

Metal-Ligand Equilibria in Solution: Stepwise and overall formation constants and their interactions, Trends in stepwise constants, Factors affecting stability of metal complexes with reference to the nature of metal ion and ligand, Chelate effect and its thermodynamic origin, Determination of binary formation constants by pH-metry and spectrophotometry. Chapter 3. Reaction Mechanism of Transition Metal Complexes - I: Inert and labile complexes, Mechanisms for ligand replacement reactions, Formation of complexes from aquo ions, Ligand displacement reactions in octahedral complexes- acid hydrolysis, Base hydrolysis, Racemization of tris chelate complexes, Electrophilic attack on ligands. Chapter 4. Reaction Mechanism of Transition Metal Complexes - II: Mechanism of ligand displacement reactions in square planar complexes, The trans effect, Theories of trans effect, Mechanism of electron transfer reactions - types; Outer sphere electron transfer mechanism and inner sphere electron transfer mechanism, Electron exchange. Chapter 5. Isopoly and Heteropoly Acids and Salts: Isopoly and Heteropoly acids and salts of Mo and W: structures of isopoly and heteropoly anions. Chapter 6. Crystal Structures: Structures of some binary and ternary compounds such as fluorite, antiferite, rutile, antirutile, cristobalite, layer lattices- CdI₂, BiI₃; ReO₃, Mn₂O₃, corundum, perovskite, Ilmenite and Calcite. Chapter 7. Metal-Ligand Bonding: Limitation of crystal field theory, Molecular orbital theory, octahedral, tetrahedral or square planar complexes, π -bonding and molecular orbital theory. Chapter 8. Electronic Spectra of Transition Metal Complexes: Spectroscopic ground states, Correlation and spin-orbit coupling in free ions for 1st series of transition metals, Orgel and Tanabe-Sugano diagrams for transition metal complexes (d¹ - d⁹ states), Calculation of Dq, B and β parameters, Effect of distortion on the d-orbital energy levels, Structural evidence from electronic spectrum, Jahn-Teller effect, Spectrochemical and nephelauxetic series, Charge transfer spectra, Electronic spectra of molecular addition compounds. Chapter 9. Magnetic Properties of Transition Metal Complexes: Elementary theory of magneto - chemistry, Guoy's method for determination of magnetic susceptibility, Calculation of magnetic moments, Magnetic properties of free ions, Orbital contribution, effect of ligand-field, Application of magneto-chemistry in structure determination, Magnetic exchange coupling and spin state cross over. Chapter 10. Metal Clusters: Structure and bonding in higher boranes, Wade's rules, Carboranes, Metal Carbonyl Clusters - Low Nuclearity Carbonyl Clusters, Total Electron Count (TEC). Chapter 11. Metal- π Complexes: Metal carbonyls, structure and bonding, Vibrational spectra of metal carbonyls for bonding and structure elucidation, Important reactions of metal carbonyls; Preparation, bonding, structure and important reactions of transition metal nitrosyl, dinitrogen and dioxygen complexes; Tertiary phosphine as ligand.

Inorganic Stereochemistry - D. L. Kepert 2012-12-06

Molecular stereochemistry is a fundamental aspect of all areas of chemistry. It is especially important in inorganic chemistry where the coordination numbers are variable and occasionally quite high. The present book evolved naturally from a series of articles written by Professor Kepert for Progress in Inorganic Chemistry, elucidating aspects of the stereochemistry of inorganic compounds of coordination numbers 4-12. In the present volume, Professor Kepert has added new sections and synthesized these individual chapters into a unified treatment, updating his references when necessary to the most recent contributions in the literature, and interweaving the various themes as deemed appropriate. The result is a major contribution, describing the stereochemistry of coordination compounds having both unidentate and multidentate ligands. The viability of the repulsion approach to stereochemistry is tested to the limit in this treatise and shown to be an extremely good way of rationalizing a diverse body of data.

Stereochemistry of Organic Compounds - V. K. Ahluwalia 2022

This textbook provides a simple approach to understand the various complex aspects of stereochemistry. It deals with basic static stereochemistry and gives an overview of the different isomeric forms and nomenclatures. With simple writing style and many examples, this book covers the topics such as stereochemistry of hydrocarbons, alkenes, cycloalkenes, optically active compounds, trivalent carbon, fused, bridged and caged rings and related compounds. This textbook also covers the additional topics such as optical rotatory dispersion and circular dichroism, stereochemistry of elimination reactions, substitution reactions, rearrangement reactions and pericyclic reactions. The book includes pedagogical features like end-of-chapter problems and key concepts to help students in self-learning. The textbook is extremely useful for the senior undergraduate and postgraduate students pursuing course in chemistry, especially

organic chemistry. Besides, this book will also be a useful reference book for professionals working in various chemical industries, biotechnology, bioscience and pharmacy.

Chelating Agents and Metal Chelates - F Dwyer 2012-12-02

Chelating Agents and Metal Chelates focuses on the structure and properties of metal chelates, as well as bond types, stereochemistry, and optical phenomena. The selection first offers information on historical background and fundamental concepts and the nature of metal-ligand bond. Discussions focus on the structure and stability of metal chelates, bond types and characteristic properties, classes of acceptor metal atoms, and metal-metal bonds in complex compounds. The text also touches on bidentate chelates, design and stereochemistry of multidentate chelating agents, and optical phenomena in metal chelates. The publication ponders on oxidation-reduction potentials as functions of donor atom and ligand and metal chelates of ethylenediaminetetraacetic acid and related substances. Topics include liquid junction potentials, reversibility, measurement of redox potentials, ethylenediaminetetraacetato chelate couples, and metal chelates of ethylenediaminetetraacetic acid. The text also takes a look at metal chelates in biological systems and physical and coordination chemistry of tetrapyrrole pigments. The manuscript is a vital reference for senior students, research workers, biologists, and medical scientists interested in the chemistry of metal chelates.

Topics in Stereochemistry, Volume 25 - Scott E. Denmark 2006-05-05

Topics in Stereochemistry, previously edited by "the father of stereochemistry" Ernest L. Eliel, is a longstanding, successful series covering the most important advances in the field. The much-anticipated Volume 25 includes chapters on the following topics: * Stereochemistry of Molecules in Inclusion Crystals * Torsional Motion of Stilbene-type Molecules in Crystals * Supramolecular Networks of Porphyrins * Homo- and Heterochirality in Crystals * Supramolecular Synthesis of 1D Chains and 2D Layers in Hydrogen Bond Networks of Ureas and 2-D Pyrimidinones * Chiral Auxiliaries Powerful for Both Enantioresolution and Determination of Absolutely Stereochemistry by X-Ray Crystallograph * Engineering Stereospecific Reactions in Crystals: Synthesis of Compounds with Adjacent Stereogenic Quaternary Centers by Photodecarbonylation of Crystalline Ketones * The CH/ Hydrogen Bond: An Important Molecular Force in Controlling the Crystal Conformation of Organic Compounds and Three-Dimensional Structure of Biopolymers * Stereoselective Thermal Solid-State Reactions * Crystal Structures and Functionalities of Platinum (II) Complexes Controlled by Various Intermolecular Interactions

Comprehensive Coordination Chemistry II - J. A. McCleverty 2003-12-03

Comprehensive Coordination Chemistry II (CCC II) is the sequel to what has become a classic in the field, Comprehensive Coordination Chemistry, published in 1987. CCC II builds on the first and surveys new developments authoritatively in over 200 newly commissioned chapters, with an emphasis on current trends in biology, materials science and other areas of contemporary scientific interest.

The Anomeric Effect - Eusebio Juaristi 1994-10-12

This book provides a comprehensive review of the structural, conformational, and chemical manifestations of the anomeric effect. In order to present a cogent discussion of this most fundamental and relevant phenomenon, three chapters examine our present understanding of the origin of this conformational effect, based upon a wealth of theoretical and physical data. Equally important, however, are three additional chapters that deal with the general consequences of the stereoelectronic interactions that are associated with the basis of the anomeric effect. The remainder of the book is devoted to new areas of development in the topic-such as differentiation of the endo and exo anomeric interactions, specific analysis of the enthalpic component of anomeric effects, critical evaluation of the kinetics and reverse anomeric effects, discovery of a new substantial effect in second- and lower-row anomeric segments, and others.

Stereochemistry of Organic Compounds - Ernest L. Eliel 1994-09-28

Stereochemistry of Organic Compounds The first fully referenced, comprehensive book on this subject in more than thirty years, Stereochemistry of Organic Compounds contains up-to-date coverage and insightful exposition of all important new concepts, developments, and tools in the rapidly advancing field of stereochemistry, including: * Asymmetric and diastereoselective synthesis * Conformational analysis * Properties of enantiomers and racemates * Separation and analysis of enantiomers and diastereoisomers * Developments in spectroscopy (including NMR), chromatography, and molecular mechanics as applied to

stereochemistry * Prostereoisomerism * Conceptual foundations of stereochemistry, including terminology and symmetry concepts * Chiroptical properties Written by the leading authorities in the field, the text includes more than 4,000 references, 1,000 illustrations, and a glossary of stereochemical terms.

Introduction to Coordination Chemistry - Geoffrey A. Lawrance 2013-03-15

At the heart of coordination chemistry lies the coordinate bond, in its simplest sense arising from donation of a pair of electrons from a donor atom to an empty orbital on a central metalloid or metal. Metals overwhelmingly exist as their cations, but these are rarely met 'naked' - they are clothed in an array of other atoms, molecules or ions that involve coordinate covalent bonds (hence the name coordination compounds). These metal ion complexes are ubiquitous in nature, and are central to an array of natural and synthetic reactions. Written in a highly readable, descriptive and accessible style Introduction to Coordination Chemistry describes properties of coordination compounds such as colour, magnetism and reactivity as well as the logic in their assembly and nomenclature. It is illustrated with many examples of the importance of coordination chemistry in real life, and includes extensive references and bibliography. Introduction to Coordination Chemistry is a comprehensive and insightful discussion of one of the primary fields of study

in Inorganic Chemistry for both undergraduate and non-specialist readers.

Basic Organic Stereochemistry - Ernest L. Eliel 2001-04-11

A Practical Introduction to Stereochemistry Stereoisomers are compounds with the same chemical formula and connectivity but with different arrangements of their atoms in 3-dimensional space. Stereochemistry encompasses the study of stereoisomers and their properties. Despite having an identical chemical formula, stereoisomers can have drastically different biological, medicinal, and chemical properties. Basic Organic Stereochemistry explains in clear, concise terms the concepts and properties of stereoisomers. Ideal both as a text for advanced undergraduate or graduate students and as a handy guide for researchers in industry, this superb text covers: * Polarimetry and optical rotation * Internal coordinates, configuration, and conformation * Nature of stereoisomers * Barriers between stereoisomers and residual stereoisomers * Symmetry operators and symmetry point groups * Properties of stereoisomers and stereoisomer discrimination * Separation of stereoisomers, resolution, and racemization Suitable for students in organic and biological chemistry, Basic Organic Stereochemistry is unparalleled as a convenient text.