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Hydroboration and Organic Synthesis Ranjit S. Dhillon 2007-05-01 This book offers a systematic compilation of the vast data available to synthetic chemists. It provides easy access to the necessary information required for chemical transformations.

Open-channel Hydraulics Ven Te Chow 2009 *Open-Channel Hydraulics*, originally published in 1959, deals with the design for flow in open channels and their related structures. Covering both theory and practice, it attempts to bridge the gap that generally exists between the two. Theory is introduced first and is then applied to design problems. In many cases the application of theory is illustrated with practical examples. Theory is frequently simplified by adopting theoretically less rigorous treatments with sound concepts, by avoiding use of advanced mathematical manipulations, or by replacing such manipulations with practical numerical procedures. To facilitate understanding of the subject matter, the treatment is mostly based on the condition of one- or two-dimensional flow. The book deals mainly with American practice but also includes related information from many countries throughout the world. Material is divided into five main sections for an orderly and logical treatment of the subject: *Basic Principles, Uniform Flow, Varied Flow, Rapidly Varied Flow, and Unsteady Flow*. There are 67 illustrative examples, 282 illustrations, 319 problems, and 810 references. This classic textbook was the first English-language book on the subject in two decades. *Open-Channel Hydraulics* is a valuable text for students of engineering mechanics, hydraulics, civil, agricultural, sanitary, and mechanical engineering, and a helpful compendium for practicing engineers. Dr. Ven Te Chow was a Professor of Hydraulic Engineering and led the hydraulic engineering research and teaching programs at the University of Illinois. Through many years of experience as a teacher, engineer, researcher, writer, lecturer, and consultant, he became an internationally recognized leader in the fields of hydraulics, hydrology and hydraulic engineering. Dr. Ven Te Chow authored two technical books and more than 60 articles and papers in scientific an engineering magazines and journals. He was a member of IAHR, ASCE, AGU, AAAS, SEE, and Sigma Xi, and had been Chairman of the American Geophysical Union's Permanent Research Committee on Runoff.

Asymmetric Catalysis In Organic Synthesis Ryoji Noyori 1994-02-03 Deals with basic principles of asymmetric catalysis focusing on its synthetic significance. Covers homogeneous asymmetric hydrogenation, asymmetric catalysis via chiral metal complexes, heterogeneous catalysis and non-organometallic catalysis. The collection of a range of stereoselective reactions illustrate various strategies and methodologies as well as their general utility.

Genes and Genomes R.S. Verma 1998-06-03 The laws of inheritance were considered quite superficial until 1903, when the chromosome theory of heredity was established by Sutton and Boveri. The discovery of the double helix and the genetic code led to our understanding of gene structure and function. For the past quarter of a century, remarkable progress has been made in the characterization of the human genome in order to search for coherent views of genes. The unit of inheritance termed factor or gene, once upon a time thought to be a trivial an imaginary entity, is now perceived clearly as the precise unit of inheritance that has continually deluged us with amazement by its complex identity and behaviour, sometimes bypassing the universality of Mendel's law. The aim of the fifth volume, entitled *Genes and Genomes*, is to cover the topics ranging from the structure of DNA itself to the structure of the complete genome, along with everything in between, encompassing 12 chapters. These chapters relate much of the information accumulated on the role of DNA in the organization of genes and genomes per se. Several distinguished scientists, all pre-eminent authorities in each field to share their expertise. Obviously, since the historical report on the double helix configuration in 1953, voluminous reports on the meteoric advances in genetics have been accumulated, and to cover every account in a single volume format would be a Herculean task. Therefore, only a few topics are chosen, which are of great interest to molecular geneticists. This volume is intended for advanced graduate students who would wish to keep abreast with the most recent trends in genome biology.

PCI Express System Architecture Ravi Budruk 2004 ••PCI EXPRESS is considered to be the most general purpose bus so it should appeal to a wide audience in this arena. •Today's buses are becoming more specialized to meet the needs of the particular system applications, building the need for this book. •Mindshare and their only competitor in this space, Solari, team up in this new book.

Activation of Small Molecules William B. Tolman 2006-12-13 The first to combine both the bioinorganic and the organometallic view, this handbook provides all the necessary knowledge in one convenient volume. Alongside a look at CO₂ and N₂ reduction, the authors discuss O₂, NO and N₂O binding and reduction, activation of H₂ and the oxidation catalysis of O₂. Edited by the highly renowned William Tolman, who has won several awards for his research in the field.

Chiroptical Spectroscopy Prasad L. Polavarapu 2016-10-03 This book details chiroptical spectroscopic methods: electronic circular dichroism (ECD), optical rotatory dispersion (ORD), vibrational circular dichroism (VCD), and vibrational Raman optical activity (VROA). For each technique, the text presents experimental methods for measurements and theoretical methods for analyzing the experimental data. It also includes a set of experiments that can be adopted for undergraduate teaching laboratories. Each chapter is written in an easy-to-follow format for novice readers, with necessary theoretical formalism in appendices for advanced readers.

Holland-Frei Cancer Medicine Robert C. Bast, Jr. 2017-03-13 *Holland-Frei Cancer Medicine*, Ninth Edition, offers a balanced view of the most current knowledge of cancer science and clinical oncology practice. This all-new edition is the consummate reference source for medical oncologists, radiation oncologists, internists, surgical oncologists, and others who treat cancer patients. A translational

perspective throughout, integrating cancer biology with cancer management providing an in depth understanding of the disease An emphasis on multidisciplinary, research-driven patient care to improve outcomes and optimal use of all appropriate therapies Cutting-edge coverage of personalized cancer care, including molecular diagnostics and therapeutics Concise, readable, clinically relevant text with algorithms, guidelines and insight into the use of both conventional and novel drugs Includes free access to the Wiley Digital Edition providing search across the book, the full reference list with web links, illustrations and photographs, and post-publication updates

Electrospun Nanofibers Mehdi Afshari 2016-09-13 *Electrospun Nanofibers* covers advances in the electrospinning process including characterization, testing and modeling of electrospun nanofibers, and electrospinning for particular fiber types and applications. *Electrospun Nanofibers* offers systematic and comprehensive coverage for academic researchers, industry professionals, and postgraduate students working in the field of fiber science. Electrospinning is the most commercially successful process for the production of nanofibers and rising demand is driving research and development in this field. Rapid progress is being made both in terms of the electrospinning process and in the production of nanofibers with superior chemical and physical properties. Electrospinning is becoming more efficient and more specialized in order to produce particular fiber types such as bicomponent and composite fibers, patterned and 3D nanofibers, carbon nanofibers and nanotubes, and nanofibers derived from chitosan. Provides systematic and comprehensive coverage of the manufacture, properties, and applications of nanofibers Covers recent developments in nanofibers materials including electrospinning of bicomponent, chitosan, carbon, and conductive fibers Brings together expertise from academia and industry to provide comprehensive, up-to-date information on nanofiber research and development Offers systematic and comprehensive coverage for academic researchers, industry professionals, and postgraduate students working in the field of fiber science

Photochemistry And Pericyclic Reactions J. Singh 2005-01-01 *This Book Is Especially Designed According To The Model Curriculum Of M.Sc. (Prev.) (Pericyclic Reactions) And M.Sc. (Final) (Photochemistry Compulsory Paper Viii) Suggested By The University Grants Commission, New Delhi. As Far As The Ugc Model Curriculum Is Concerned, Most Of The Indian Universities Have Already Adopted It And The Others Are In The Process Of Adopting The Proposed Curriculum. In The Present Academic Scenario, We Strongly Felt That A Comprehensive Book Covering Modern Topics Like Pericyclic Reactions And Photochemistry Of The Ugc Model Curriculum Was Urgently Needed. This Book Is A Fruitful Outcome Of Our Aforesaid Strong Feeling. Besides M.Sc. Students, This Book Will Also Be Very Useful To Those Students Who Are Preparing For The Net (Csir), Slet, Ias, Pcs And Other Competitive Examinations. The Subject Matter Has Been Presented In A Comprehensive, Lucid And Systematic Manner Which Is Easy To Understand Even By Self Study. The Authors Believe That Learning By Solving Problems Gives More Competence And Confidence In The Subject. Keeping This In View, Sufficiently Large Number Of Varied Problems For Self Assessment Are Given In Each Chapter. Hundred Plus Problems With Solutions In The Last Chapter Is An Important Feature Of This Book.*

Introduction to Polymer Science and Chemistry Manas Chanda 2006-03-28 With such a wide diversity of properties and applications, is it any wonder that industry and academia have such a fascination with polymers? A solid introduction to such an enormous and important field is critical to the modern polymer scientist-to-be, but most of the available books do not stress practical problem solving or include recent advances. Serving as the polymer book for the new millennium, *Introduction to Polymer Science and Chemistry: A Problem Solving Approach* unites the fundamentals of polymer science and polymer chemistry in a seamless presentation. Emphasizing polymerization kinetics, the author uses a unique question-and-answer approach when developing theory or introducing new concepts. The first four chapters introduce polymer science, focusing on physical and molecular properties, solution behavior, and molecular weights. The remainder of the book explores polymer chemistry, devoting individual, self-contained chapters to the main types of polymerization reactions: condensation; free radical; ionic; coordination; and ring-opening. It introduces recent advances such as supramolecular polymerization, hyperbranching, photoemulsion polymerization, the grafting-from polymerization process, polymer brushes, living/controlled radical polymerization, and immobilized metallocene catalysts. With numerical problems accompanying the discussion at every step along with numerous end-of-chapter exercises, *Introduction to Chemical Polymer Science: A Problem Solving Approach* is an ideal introductory text and self-study vehicle for mastering the principles and methodologies of modern polymer science and chemistry.

Mechanics of Pneumatic Tires United States. National Highway Traffic Safety Administration 1981

The Organometallic Chemistry of the Transition Metals Robert H. Crabtree 2005-06-14 Fully updated and expanded to reflect recent advances, this Fourth Edition of the classic text provides students and professional chemists with an excellent introduction to the principles and general properties of organometallic compounds, as well as including practical information on reaction mechanisms and detailed descriptions of contemporary applications.

Urban Transportation Networks Yosef Sheffi 1984

Protein Degradation R. John Mayer 2005-04-15 The first volume in a new series dedicated to protein degradation, this book lays the foundations of targeted protein breakdown via the ubiquitin pathway. The outstanding importance of the ubiquitin pathway has been recognized with the 2004 Nobel Prize in Chemistry for Aaron Ciechanover, Avram Hershko, and Irwin Rose. Aaron Ciechanover is one of the editors of this series, and Avram Hershko has contributed to the opening chapter of the present volume. Drawing on the the expertise of two Nobel prize winners, this handy reference compiles information on the initial steps of the ubiquitin pathway. Starting out with a broad view of protein degradation and its functions in cellular regulation, it then goes on to examine the molecular mechanisms of ubiquitin conjugation and recycling in detail. All currently known classes of ubiquitin protein ligases are treated here, including latest structural data on these enzymes. Further volumes in the series cover the function of the proteasome, and the roles of the ubiquitin pathway in regulating key cellular processes, as well as its pathophysiological disease states. Required reading for molecular biologists, cell biologists and physiologists with an interest in protein degradation.

Molecular Biology of the Cell Bruce Alberts 2004

Basic Principles of Organic Chemistry John D. Roberts 1977 Introduction what is organic chemistry all about?; Structural organic chemistry the shapes of molecules functional groups; Organic nomenclature; Alkanes; Stereoisomerism of organic molecules; Bonding in organic molecules atomic-orbital models; More on nomenclature compounds other than hydrocarbons; Nucleophilic substitution and

elimination reactions; Separation and purification identification of organic compounds by spectroscopic techniques; Alkenes and alkynes. Ionic and radical addition reactions; Alkenes and alkynes; Oxidation and reduction reactions; Acidity or alkynes.

Dipole Moments in Organic Chemistry V. I. Minkin 2012-12-06 In accordance with the aims of the series "Physical Methods in Organic Chemistry," of which this book forms part, the authors' main aim was a systematic account of the most important methods of using the method of dipole moments in organic chemistry and interpreting its results in practice. Since 1955, when two monographs devoted to the fundamentals and applications of the dipole moment method appeared simultaneously (C. P. Smyth, *Dielectric Behavior and Structure*, McGraw-Hill, New York; and J. W. Smith, *Electric Dipole Moments*, Butterworths, London), no generalizing studies of this type have appeared in the Russian and foreign literature. Nevertheless, it is just in this period that almost half of all publications on the structure and properties of organic compounds by means of the dipole moment method have appeared. During this time, the principles of the method of measurement and the physical theory of the method have not undergone fundamental changes. Consequently, in giving an account of these matters we considered it sufficient to give a very short introduction to the theory of the method that is not burdened with details of the mathematical derivations and the strict formalism of the theory of dielectrics which are hardly used in the applications of the method that are of interest to the organic chemist (Chapter I).

The Stille Reaction Vittorio Farina 1998-09-18 A guide to making optimal use of one of the most important tools available to today's synthetic organic chemist. Compatible with virtually all functional groups without protection and capable of forming carbon-carbon bonds under neutral conditions—often with complete stereospecificity—the Stille reaction is an indispensable component of the synthetic organic chemist's toolkit. In the years since Stille's pioneering work, chemists have developed a vast number of applications for this incredibly versatile metal-catalyzed cross-coupling reaction. This paperback edition of the 50th volume in the definitive *Organic Reactions* series describes many of those uses. Drawing upon their considerable experience as professional synthetic organic chemists who have worked extensively with the Stille reaction, the authors approach their subject from the preparative viewpoint, paying particular attention throughout to limitations, interfering influences, effects of structure, and the selection of experimental techniques. Focusing primarily on the single reaction of the Stille reaction, they provide comprehensive coverage of: * Experimental conditions and selecting optimal experimental parameters * Traditional and recently developed experimental procedures * Side reactions and techniques for avoiding them * Documented reactions—33 tables list 570 reactions, complete with conditions, yields, structures of major products, and common failures * Easy-to-follow recipes for casual users of the Stille reaction. The Stille Reaction is an indispensable working resource for all synthetic organic chemists, especially medicinal chemists. It is also an excellent graduate-level text for students of organic and medicinal chemistry.

Structure and Reactivity Joel F. Liebman 1988

The Tribology Handbook Michael J Neale 1995-12-15 The renowned reference work is a practical guide to the selection and design of the components of machines and to their lubrication. It has been completely revised for this second edition by leading experts in the area.

The Conservation of Orbital Symmetry R. B. Woodward 2013-10-22 The Conservation of Orbital Symmetry examines the principle of conservation of orbital symmetry and its use. The central content of the principle was that reactions occur readily when there is congruence between orbital symmetry characteristics of reactants and products, and only with difficulty when that congruence does not obtain—or to put it more succinctly, orbital symmetry is conserved in concerted reaction. This principle is expected to endure, whatever the language in which it may be couched, or whatever greater precision may be developed in its application and extension. The book opens with a review of the elementary aspects of the molecular orbital theory of bonding. This is followed by separate chapters on correlation diagrams, the conservation of orbital symmetry, theory of electrocyclic reactions, theory of cycloadditions and cycloreversions, and theory of sigmatropic reactions. Subsequent chapters deal with group transfers and eliminations; secondary conformational effects in concerted cycloaddition reactions; and generalized selection rules for pericyclic reactions.

Stereochemistry of Organic Compounds D. Nasipuri 1991 This text deals with the new concepts and terminology that have been introduced into the treatment of organic stereochemistry over the last decade. Organic reaction mechanisms, as they relate to stereochemistry, are included, and the pericyclic reaction using the frontier molecular orbital approach is explained. The text does not assume a strong grounding in organic chemistry and will therefore be useful to a broader spectrum of students - both graduate and undergraduate. The volume features numerous illustrations and programmed problems.

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.

Transcription Factors in Eukaryotes Athanasios Papavassiliou 1997

Metal Hydrides Gust Bambakidis 2013-11-11 In the last five years, the study of metal hydrides has expanded enormously due to the potential technological importance of this class of materials in hydrogen based energy conversion schemes. The scope of this activity has been worldwide among the industrially advanced nations. There has been a consensus among researchers in both fundamental and applied areas that a more basic understanding of the properties of metal/hydrogen systems is required in order to provide a rational basis for the selection of materials for specific applications. The current worldwide need for and interest in research in metal hydrides indicated the timeliness of an Advanced Study Institute to provide an in-depth view of the field for those active in its various aspects. The inclusion of speakers from non-NATO countries provided the opportunity for cross-fertilization of ideas for future research. While the emphasis of the Institute was on basic properties, there was a conscious effort to stimulate interest in the application of metal hydrides to solar/hydrogen energy conversion schemes in land areas where solar energy has promise as a primary energy source. In addition to the lectures, several

seminars were given which treated topics of special interest in greater detail.

Optical Properties of Solids Frederick Wooten 2013-10-22 *Optical Properties of Solids* covers the important concepts of intrinsic optical properties and photoelectric emission. The book starts by providing an introduction to the fundamental optical spectra of solids. The text then discusses Maxwell's equations and the dielectric function; absorption and dispersion; and the theory of free-electron metals. The quantum mechanical theory of direct and indirect transitions between bands; the applications of dispersion relations; and the derivation of an expression for the dielectric function in the self-consistent field approximation are also encompassed. The book further tackles current-current correlations; the fluctuation-dissipation theorem; and the effect of surface plasmons on optical properties and photoemission. People involved in the study of the optical properties of solids will find the book invaluable.

Handbook of Biomass Downdraft Gasifier Engine Systems Thomas B. Reed 1988

Stereochemistry P. S. Kalsi 1990-06-14 Presents a new nomenclature and covers recently discovered systems. Includes a detailed study of conformational analysis of acyclic and alicyclic compounds, the relation between conformation and reactivity, and other aspects of stereochemistry, such as substitution, addition and elimination reactions. Includes numerous examples and illustrations from the Natural Product Area.

Greene's Protective Groups in Organic Synthesis Peter G. M. Wuts 2012-12-20

Fundamentals of Air Pollution Engineering Richard C. Flagan 2012 A rigorous and thorough analysis of the production of air pollutants and their control, this text is geared toward chemical and environmental engineering students. Topics include combustion, principles of aerosol behavior, theories of the removal of particulate and gaseous pollutants from effluent streams, and air pollution control strategies. 1988 edition. Reprint of the Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1988 edition.

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.

Advanced Oxidation Processes for Water Treatment Mihaela I. Stefan 2017-09-15 Advanced Oxidation Processes (AOPs) rely on the efficient generation of reactive radical species and are increasingly attractive options for water remediation from a wide variety of organic micropollutants of human health and/or environmental concern. *Advanced Oxidation Processes for Water Treatment* covers the key advanced oxidation processes developed for chemical contaminant destruction in polluted water sources, some of which have been implemented successfully at water treatment plants around the world. The book is structured in two sections; the first part is dedicated to the most relevant AOPs, whereas the topics covered in the second section include the photochemistry of chemical contaminants in the aquatic environment, advanced water treatment for water reuse, implementation of advanced treatment processes for drinking water production at a state-of-the-art water treatment plant in Europe, advanced treatment of municipal and industrial wastewater, and green technologies for water remediation. The advanced oxidation processes discussed in the book cover the following aspects: - Process principles including the most recent scientific findings and interpretation. - Classes of compounds suitable to AOP treatment and examples of reaction mechanisms. - Chemical and photochemical degradation kinetics and modelling. - Water quality impact on process performance and practical considerations on process parameter selection criteria. - Process limitations and byproduct formation and strategies to mitigate any potential adverse effects on the treated water quality. - AOP equipment design and economics considerations. - Research studies and outcomes. - Case studies relevant to process implementation to water treatment. - Commercial applications. - Future research needs. *Advanced Oxidation Processes for Water Treatment* presents the most recent scientific and technological achievements in process understanding and implementation, and addresses to anyone interested in water remediation, including water industry professionals, consulting engineers, regulators, academics, students. Editor: Mihaela I. Stefan - Trojan Technologies - Canada

Stereochemistry of Organic Compounds Ernest L. Eliel 1994-09-30 *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.

Protective Groups in Organic Synthesis Theodora W. Greene 1981-05-14 Provides comprehensive information on the most useful protective groups for the hydroxyl, amino, carboxyl, carbonyl, and sulfhydryl groups. Discusses the chemistry of the classes of protective groups, as well as that of the individual protective groups within the class using structures, equations and references. Reactivity Charts for each class of protective group serve as an aid in their appropriate choice and provide estimates of their relative reactivities toward 108 prototype reagents.

A Textbook of Inorganic Chemistry – Volume I 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, $d^2 - p^2$ 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, crystalite, 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 ($d^1 - d^9$ states), Calculation of Dq , B and Δ parameters, Effect of distortion on the d -orbital energy levels, Structural evidence from electronic spectrum, John-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.

Catalytic Asymmetric Synthesis Iwao Ojima 2013-03-14 Praise for the previous editions "An excellent text . . . will no doubt provide the benchmark for comparative works for many years." —Journal of the American Chemical Society "An excellent state-of-the-art compilation of catalytic asymmetric chemistry . . . should be included in any chemistry reference collection." —Choice "This is a tremendous resource and an excellent read. I recommend immediate purchase." —Perkin Transactions Since this important work was first published in 1993, the field of catalytic asymmetric synthesis has grown explosively, spawning effective new methods for obtaining enantiomerically pure compounds on a large scale and stimulating new applications in diverse fields—from medicine to materials science. Catalytic Asymmetric Synthesis, Third Edition addresses these rapid changes through contributions from highly recognized world leaders in the field. This seminal text presents detailed accounts of the most important catalytic asymmetric reactions known today, and discusses recent advances and essential information on the initial development of certain processes. An excellent working resource for academic researchers and industrial chemists alike, the Third Edition features: Six entirely new chapters focusing on novel approaches to catalytic asymmetric synthesis including non-conventional media/conditions, organocatalysis, chiral Lewis and Bronsted acids, CH activation, carbon-heteroatom bond-forming reactions, and enzyme-catalyzed asymmetric synthesis A new section focusing on the important new reaction, asymmetric metathesis, in carbon-carbon bond-forming reactions Updated chapters on hydrogenation, carbon-carbon bond-forming reactions, hydrosilylations, carbonylations, oxidations, amplifications and autocatalysis, and polymerization reactions Retaining the best of its predecessors but now thoroughly up to date, Catalytic Asymmetric Synthesis, Third Edition serves as an excellent desktop reference and text for researchers and students from the upper-level undergraduates through experienced professionals in industry or academia.

Software Testing and Quality Assurance Kshirasagar Naik 2011-09-23 A superior primer on software testing and quality assurance, from integration to execution and automation This important new work fills the pressing need for a user-friendly text that aims to provide software engineers, software quality professionals, software developers, and students with the fundamental developments in testing theory and common testing practices. Software Testing and Quality Assurance: Theory and Practice equips readers with a solid understanding of: Practices that support the production of quality software Software testing techniques Life-cycle models for requirements, defects, test cases, and test results Process models for units, integration, system, and acceptance testing How to build test teams, including recruiting and retaining test engineers Quality Models, Capability Maturity Model, Testing Maturity Model, and Test Process Improvement Model Expertly balancing theory with practice, and complemented with an abundance of pedagogical tools, including test questions, examples, teaching suggestions, and chapter summaries, this book is a valuable, self-contained tool for professionals and an ideal introductory text for courses in software testing, quality assurance, and software engineering.

Lanthanide Single Molecule Magnets Jinkui Tang 2015-04-24 This book begins by providing basic information on single-molecule magnets (SMMs), covering the magnetism of lanthanide, the characterization and relaxation dynamics of SMMs and advanced means of studying lanthanide SMMs. It then systematically introduces lanthanide SMMs ranging from mononuclear and dinuclear to polynuclear complexes, classifying them and highlighting those SMMs with high barrier and blocking temperatures – an approach that provides some very valuable indicators for the structural features needed to optimize the contribution of an Ising type spin to a molecular magnet. The final chapter presents some of the newest developments in the lanthanide SMM field, such as the design of multifunctional and stimuli-responsive magnetic materials as well as the anchoring and organization of the SMMs on surfaces. In addition, the crystal structure and magnetic data are clearly presented with a wealth of illustrations in each chapter, helping newcomers and experts alike to better grasp ongoing trends and explore new directions. Jinkui Tang is a professor at Changchun Institute of Applied Chemistry, Chinese Academy of Sciences. Peng Zhang is currently pursuing his PhD at Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, with a specific focus on the molecular magnetism of lanthanide compounds under the supervision of Prof. Jinkui Tang.

Oxidation in Organic Chemistry Kenneth B. Wiberg 1965 Oxidation in Organic Chemistry 5-C ...

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