Bioanorganische Chemie

Bioinorganic Chemistry Nils Metzler-Nolte 2009 This book presents a unique introduction into the field of bioinorganic chemistry through practical laboratory experiments. Topics include many aspects of modern bioinorganic chemistry such as model systems for metalloenzymes, biosensors, metal bioconjugates and metal-based drugs. Each chapter contains a brief introduction, followed by detailed experimental procedures, completed with all necessary background information for the student as well as their instructors. A valuable supplement to standard textbooks of inorganic and bioinorganic chemistry. Essential for all instructors teaching laboratory courses in general and inorganic chemistry.

Activating Unreactive Substrates Carsten Bolm 2009-03-23

The use of secondary interactions for the activation of non-reactive substrates constitutes a new and modern approach in catalysis. This first comprehensive treatment of this important research field covers the entire field and reveals the links between the various chemical disciplines. It thus adopts an interdisciplinary approach, making it of interest to the whole chemical community. A must for organic, inorganic, catalytic and complex chemists, as well as those working with/on organometallics.

Bioorganische Chemie Sonja Herres-Pawlis 2017-06-30

Mit dieser Einführung in die faszinierende Welt der Metalloproteine lernen Chemiker, Biochemiker und Biotechnologen Mechanismen, Methoden und Modellvorstellungen der bioorganischen Chemie kennen.


Issues in Biochemistry and Geochemistry: 2011 Edition 2012-01-09 Issues in Biochemistry and Geochemistry / 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Biochemistry and Geochemistry. The editors have built Issues in Biochemistry and Geochemistry: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Biochemistry and Geochemistry in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Biochemistry and Geochemistry / 2011 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

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Bionanorg anische Chemie Brigitte Schwederski 2013-03-09

Die Bedeutung “anorganischer” Elemente in Lebensprozessen wird auf dem gegenwärtigen Wissensstand beschrieben, besonderer Wert wird dabei auf Erkenntnisse der Funktion bestimmter Elemente in ihren spezifischen Verbindungen für chemisch-biochemische Prozesse gelegt.

High Resolution EPR Graeme Hanson 2009-06-19

Metalloproteins comprise approximately 30% of all known proteins, and are involved in a variety of biologically important processes, including oxygen transport, biosynthesis, electron transfer, biodegradation, drug metabolism, proteolysis, and hydrolysis of amides and esters, environmental sulfur and nitrogen cycles, and disease mechanisms. EPR spectroscopy has an important role in not only the geometric structural characterization of the redox cofactors in metalloproteins but also their electronic structure, as this is crucial for their reactivity. The advent of x-ray crystallographic snapshots of the active site redox cofactors in metalloenzymes in conjunction with high-resolution EPR spectroscopy has provided detailed structural insights into their catalytic mechanisms. This volume was conceived in 2005 at the Rocky Mountain Conference on Analytical Chemistry (EPR Symposium) to...
highlight the importance of high-resolution EPR spectroscopy to the structural (geometric and electronic) characterization of redox active cofactors in metalloproteins. We have been fortunate to have enlisted internationally recognized experts in this joint venture to provide the scientific community with an overview of high-resolution EPR and its application to metals in biology. This volume, High-Resolution EPR: Applications to Metalloenzymes and Metals in Medicine, covers high-resolution EPR methods, iron proteins, nickel and copper enzymes, and metals in medicine. An eloquent synopsis of each chapter is provided by John Pilbrow in the Introduction. A second volume, Metals in Biology: Applications of High-Resolution EPR to Metalloenzymes, will appear later this year covering the complement of metalloenzymes. The pioneers in the development of pulsed EPR and its application to metalloproteins was Arthur Schweiger, whose contribution we include in this volume. Unfortunately, he passed away suddenly during the preparation of this volume. The editors and coauthors are extremely honored to dedicate this volume to the memory of Arthur Schweiger in recognition of his technical advances and insights into pulsed EPR and its application to metalloproteins. Arthur was extremely humble and treated everyone with equal respect. He was a gifted educator with an ability to explain complex phenomena in terms of simple intuitive pictures, had a delightful personality, and continues to be sadly missed by the community. It is an honor for the editors to facilitate the dissemination of these excellent contributions to the scientific community. Suggestions for future volumes are always appreciated.

Advances in Plant Physiology (Vol. 17) A. Hemantaranjan 2017-04-01 The conception of Volume 17 of the International Treatise Series on Advances in Plant Physiology has been made possible entirely due to worthy contributions from World Scientists, teachers and researchers of eminence in unequivocal fields. Scientists are well in search of specific and complete literature pertaining to meaningful research for the holistic development of agriculture. The undertaking of this Treatise Series on Plant Physiology is to genuinely categorize the insufficiencies in view of mounting consequential researches for increasing productivity, prosperity and sustainability of agriculture through influential and developing technologies for restructuring metabolic limitations most responsive to abiotic stress factors. Certainly, our idea is to recognize innovative science of value across the broad disciplinary range of the treatise. The aim is to make stronger the distinctive outcome of conscientious research in some of the very sensitive areas of Plant Physiology-Plant Molecular Physiology/ Molecular Biology that broadly highlights the recent developments and mechanisms underlying plant resilience to changing environments. This volume brings collectively much needed twenty-one review articles by fifty-one dedicated contributors from relevant sections, viz., Section I: Abiotic Stresses & Plant Productivity: Physiological & Molecular Perspectives; Section II: Plant Trace Elements in Plant Physiology; Section III: Plant Functions Research in Agricultural Progression; Section IV: Physiological Basis of Yield; Section V: Nutraceuticals, Medicinal & Aromatic Plant Wealth. This is commendable that the Volume 17 deals with challenges of ongoing international concern over the abiotic stresses under changing climate besides vital aspects related to image-based plant phenotyping; physiological basis of yield variation; medicinal and aromatic plants and so on. Apart from fulfilling the acute need of this kind of select edition in different volumes for research teams and scientists engaged in various facets of plant sciences research in traditional and agricultural universities, institutes and research laboratories throughout the world, it would be extremely a constructive book and a voluminous reference material for acquiring advanced knowledge by post-graduate and Ph.D. scholars in response to the innovative courses in Plant Physiology, Plant Biochemistry, Plant Molecular Biology, Plant Biotechnology, Environmental Sciences, Plant Pathology, Microbiology, Soil Science & Agricultural Chemistry, Agronomy, Horticulture, and Botany.

Advances in Deltaproteobacteria Research and Application: 2011 Edition 2012-01-09 Advances in Deltaproteobacteria Research and Application: 2011 Edition is a ScholarlyPaper™ that delivers timely, authoritative, and comprehensive information about Deltaproteobacteria in a compact format. The editors have built Advances in Deltaproteobacteria Research and Application: 2011 Edition on the vast information databases of ScholarlyNews™. You can expect the information about Deltaproteobacteria in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Advances in Deltaproteobacteria Research and Application: 2011 Edition has been the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Issues in Chemistry and General Chemical Research: 2011 Edition 2012-01-09 Issues in Chemistry and General Chemical Research: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Chemistry and General Chemical Research. The editors have built Issues in Chemistry and General Chemical Research: 2011 Edition on the vast information databases of ScholarlyNews™. You can expect the information about Chemistry and General Chemical Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Chemistry and General Chemical Research: 2011 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Chemical Elements in Plants and Soil: Parameters Controlling Essentiality 2012-12-18 Earlier works on plant essential elements have revealed a series of complicated, counter-intuitive relationships among various chemical elements in different plant species, due to both unlike usage of certain elements in plants and to different carriers effecting resorption and transport. In an attempt to provide a more coherent theory behind plant mineral nutrition, this groundbreaking book adopts a very different approach from the existing literature, presenting an explanation of the essentiality of chemical elements in biological systems and the application of stoichiometric network analysis (SNA) to the biological system of elements. Starting with data from biochemical environmental analysis, and a discussion of the phenomena involved in metal ion partition and autocatalytic behaviour, conditions and criteria controlling the partition of metals into biomass are investigated. Several rules are...
derived and investigated in terms of their interaction both in comparisons among contemporary organisms and in terms of evolution. This allows the construction, for example of a map which directly traces the biological feature of essentiality to parameters of coordination chemistry. The book will have worldwide appeal for researchers interested in fields such as soil/plant interactions, bioinorganic chemistry, plant nutrition, phytomining, bioremediation, biogeochemistry, nutrient cycling, soil chemistry, and cellular physiology.

Introduction to Environmental Engineering Stefan Fröhle 2012-03-26 Building on the first principles of environmental chemistry, engineering, and ecology, this volume fills the need for an advanced textbook introducing the modern, integrated environmental management with a focus on long-term sustainability and within the framework of international regulations. As such, it presents the classic technologies alongside innovative ones that are just now coming into widespread use, such as photochemical technologies and carbon dioxide sequestration. Numerous case studies from the fields of air, water and soil engineering describe real-life solutions to problems in pollution prevention and remediation, as an aid to practicing professional skills. With its tabulated data, comprehensive chapters, and a glossary of terms, this book doubles as a reference for environmental engineers and consultants.

Biogas from Waste and Renewable Resources Dieter Deubel 2011-08-15 The leading book on the market just got better: With its unique approach covering all aspects of setting up and running a biogas plant, this new edition has been expanded to include recent advances in biomass processing. The author is a key player in the field, who has designed numerous small- and industrial-scale biogas plants, and who is also a long-time lecturer on biogas production, thus combining didactical skill with real-life expertise. As such, he covers both the biological and technical aspects of biogas generation. The full range of biogas substrates and processing modes is explained, from agricultural and industrial waste to marine algae and sediment. On-site use of biogas for conversion into electricity, fuel and heat is also discussed, as are safety and regulatory issues. Many real-life examples of European biogas plants already in operation illustrate the contents, as do numerous schemes, diagrams and summary tables. For this new edition, biogas analytics and quality control required for feeding biogas into natural gas networks are included, as is a completely new chapter on the microbiology of biogas-producing bacterial communities.

Photosystem II T. Wydrzynski 2006-01-27 The most mysterious part of photosynthesis yet the most important for all aerobic life on Earth (including ourselves) is how green plants, algae and cyanobacteria make atmospheric oxygen from water. This thermodynamically difficult process is only achieved in Nature by the unique pigment/protein complex known as Photosystem II, using sunlight to drive the present oxygen evolution. The present volume contains 34 comprehensive chapters authored by 75 scientific experts from around the world. It gives an up-to-date account on all what is currently known about the molecular biology, biochemistry, biophysics and physiology of Photosystem II. The book is divided into several parts detailing the protein constituents, functional sites, tertiary structure, molecular dynamics, and mechanisms of homeostasis. The book ends with a comparison of Photosystem II with other related enzymes and bio-mimetic systems. Since the unique water-splitting chemistry catalyzed by Photosystem II leads to the production of pure oxygen gas and has the potential for making hydrogen gas, a primary goal of this book is to provide a molecular guide to future protein engineers and bio-mimetic chemists in the development of biocatalysts for the generation of clean, renewable energy from sunlight and water.

Primary Processes of Photosynthesis G. Renger 2008 This volume forms part of a two-volume set and is not available for individual purchase. Please view the complete pack (ISBN: 978-8-85404-364-4) for purchase options.

Molecular Physiology of Abiotic Stresses in Plant Productivity A. Hemantaranjan 2018-01-01 This book is the outcome of global dedication for researches at physiological and molecular levels that substantially deals with challenges of ongoing international concern over the abiotic stress research, which as the major environmental factors affects plant growth-development. On the other hand, this book also highlights focused researches of significance on image-based plant phenotyping; physiological breeding; trace elements; plant functions; physiological basis of yield variation; medicinal and aromatic plants and so on. The aim is to make stronger the distinctive outcome of conscientious research in some of the very sensitive areas of Plant Physiology. Plant Molecular Physiology/ Molecular Biology that broadly highlights the recent developments and mechanisms underlying plant resilience to changing environments. This book brings collectively much needed twenty-one review articles commendably dealing with challenges of ongoing international concern over the abiotic stresses under changing climate besides vital aspects related to image-based plant phenotyping; phenomics and its application in physiological breeding; trace elements; plant functions; physiological basis of yield variation; medicinal and aromatic plants and so on. Apart from fulfilling the acute need of this kind of select theme by research teams and scientists engaged in various facets of plant sciences research in traditional and agricultural universities, institutes and research laboratories throughout the world, it would be extremely a constructive book for acquiring advanced knowledge by post-graduate and Ph.D. scholars in response to the innovative courses in Plant Physiology, Plant Biochemistry, Plant Molecular Physiology, Plant Biotechnology, Environmental Sciences, Plant Pathology, Microbiology, Soil Science & Agricultural Chemistry, Agronomy, Horticulture, and Botany.

Guainides as Reagents and Catalysts II Philipp Selig 2017-04-12 The series Topics in Heterocyclic Chemistry presents critical reviews on present and future trends in the research of heterocyclic compounds. Overall the scope is to cover topics dealing with all areas within heterocyclic chemistry, both experimental and theoretical, of interest to the general heterocyclic chemistry community. The series consists of topic related volumes edited by renowned editors with contributions of experts in the field. All chapters from Topics in Heterocyclic Chemistry are published Online First with an individual DOI. In references, Topics in Heterocyclic Chemistry is abbreviated as Top Heterocycl Chem and cited as a journal. Medicinal Organometallic Chemistry Gérard Jaouen 2018-09-14 Contents: Gérard Jaouen, Nils Metzler-Nolte : Introduction ; Stéphane GIBAUD and Gérard JAOUEN: Arsenic - based drugs: from Fowler’s solution to modern anticancer chemotherapy; Ana M. Pizarro, Abraha Habtemariam and Peter J. Sadler : Activation Mechanisms for Organometallic Anticancer Complexes; Angela Casini, Christian G. Hartinger, Alexey A. Nazarov, Paul J. Dyson : Organometallic antitumour agents with alternative modes of action; Elizabeth A. Hillard, Anne Vessières, Gerard Jaouen : Ferrocene functionalized endocrine modulators for the treatment of cancer; Megan Hogan and Matthias Tacke : Titanocenes – Cytotoxic and Anti-Angiogenic Chemotherapy Against Advanced Renal-Cell Cancer; Seann P. Mulcahy and Eric Meggers : Organometallics as Structural Scaffolds for Enzyme Inhibitor Design; Christophe Biot and Daniel Dive :

The Siamese-Twin Porphyrin and Its Copper and Nickel Complexes: A Non-Innocent Twist Lina K. Blusch 2013-10-16 This thesis describes the first and long-sought successful synthesis of a new pyrazole-expanded porphyrin, a higher analog of porphyrin. This "Siamese-Twin Porphyrin" provides two conjoined porphyrin-like coordination spheres, thus being able to accommodate two metal ions within the same ligand. In her thesis, Lina Blusch not only explains the challenging synthesis and characterization of the ligand system, but also its application on the vast information databases of bio-, and heterobimetallic Ni and Cu complexes. She observes interesting metal-metal-interactions in the complexes, that lead to a non-innocent multistep redox chemistry. The ligand system and its complexes show an intriguing twisted geometry, giving rise to helical chirality and other fascinating properties. This study explores the first steps and opens up a new chemistry of expanded porphyrins with the potential to biomimetic applications.

Photosynthesis. Energy from the Sun John F. Allen 2008-09-28 The Proceedings of the 14th International Congress on Photosynthesis is a record of the most recent advances and emerging themes in the discipline. This volume contains over 350 contributions from some 800 participants attending the meeting in Glasgow, UK in July 2007. These range from summary overview presentations from plenary speakers to expanded content of posters presented by students and their supervisors featuring the most recent achievements in photosynthesis research. In the words of Professor Eva-Mari Aro, President of the International Society of Photosynthesis Research 2004-7, "Having been taken for granted for centuries, research in photosynthesis has now become a matter of utmost importance for the future of planet Earth...Major initiatives are underway that will use research into natural and artificial photosynthesis for sustainable energy production....". These volumes thus provide a glimpse of the future, from the molecule to the biosphere.

Inorganic Syntheses 2010-08-13 The Inorganic Syntheses series provides all users of inorganic substances with detailed and foolproof procedures for the preparation of important and timely compounds. Includes complete, up-to-date procedures involving important inorganic substances Contains subject, contributor, and formula indexes.

Proteins—Advances in Research and Application: 2012 Edition 2012-12-26 Proteins—Advances in Research and Application: 2012 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Proteins. The editors have built Proteins—Advances in Research and Application: 2012 Edition on the vast information databases of ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/. Inorganic Chemistry 2001 Egon Wiberg Inorganic Chemistry easily surpasses its competitors in sheer volume and depth of information. Readers are presented with summaries that ease exam preparation, an extensive index, numerous references for further study, six invaluable appendixes, and over 150 tables that provide important data on the quick glance. Now in its 101st printing, Inorganic Chemistry provides an authoritative and comprehensive reference for graduate students, as well as chemists and scientists in fields related to chemistry such as physics, biology, geology, pharmacy, and medicine. Translated for the first time into English, Hollemann and Wiberg's book is a bestseller in Germany, where every chemist knows and values it. Prior to this translation, there was no equivalent to Hollemann and Wiberg's book in English.

Recent Trends in Radiation Chemistry 2013 James F. Wishart 2010 This volume is a review of the trends in the field of radiation chemistry research. It covers a broad spectrum of topics, ranging from the historical perspective, instrumentation of accelerators in the nanosecond to femtosecond region, through the use of radiation chemical methods in the study of...
antioxidants and nanomaterials, radiation-induced DNA damage by ionizing radiation involving both direct and indirect effects, to ultrafast events in free electron transfer, radiation-induced processes at solid-liquid interfaces and the recent work on infrared spectroscopy and radiation chemistry. The book is unique in that it covers a wide spectrum of topics that will be of great interest to beginners as well as experts. Recent data on ultrafast phenomena from the recently established world-class laser-driven accelerators facilities in the US, France and Japan are reviewed.

Modern Mössbauer Spectroscopy.Yutaka Yoshida 2021-01-19

This book presents an overview of the latest Mössbauer spectroscopy research. It sheds light on various cutting-edge research subjects: (i) nuclear resonance scattering experiments implemented at synchrotron radiation facilities, e.g., ESRF, DESY and Spring-8; (ii) multidisciplinary materials research related to chemistry, biology, geoscience, molecular magnetism of metal complexes, batteries, and magnetism; (iii) novel imaging techniques based on probing diffusion in solids using Mössbauer spectroscopy. The first three chapters introduce recent research on modern Mössbauer spectroscopy, including nuclear resonant scattering experiments and development of related techniques at synchrotron accelerator facilities. Chapters 4 and 5 then demonstrate the applications of such pioneering techniques to chemistry, biology and geoscience. Chapters 6 and 7 describe the applications to new functional materials, i.e., metal complexes and Li- and Na-ion batteries, while the final two chapters are devoted to two important measuring techniques: Mössbauer spectroscopy under external magnetic fields, and microscopic Mössbauer techniques on diffusion in solids, which are expected to play an essential role in the investigation and characterization of magnetic structures and microstructures in materials. The cutting-edge content provides readers with quick updates on the latest research topics in the field, while the tutorial-style descriptions allow readers unfamiliar with Mössbauer spectroscopy to learn and implement the techniques. As such, the book is especially useful for advanced undergraduate and early graduate students who have recently been assigned to a laboratory.