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High-energy Chemistry BoD – Books on Demand

The book summarizes important aspects of cheminformatics that are relevant for natural product research. It highlights cheminformatics tools that help to match natural products with their respective biological targets or off-targets, and discusses the potential and limitations of this approach.

Chemistry of Natural Protein Fibers CRC Press

Advances in Stem Cells and Their Niches addresses stem cells during development, homeostasis, and disease/injury of the respective organs, presenting new developments in the field, including new data on disease and clinical applications. Video content illustrates such areas as protocols, transplantation techniques, and work with mice. Explores not only reviews of research, but also shares methods, protocols, and transplantation techniques Contains video content to illustrate such areas as protocols, transplantation techniques, and work with mice Each volume concentrates on one organ, making this a unique publication

Chemistry, Matter and Life Elsevier

A report on the technological possibilities of high-energy chemistry using methods of energy supply rather than heat for the initiation of chemical processes. These methods include electronic, ionic, atomic, molecular and photon supply, the application of electric fields and mechanical action.

The Popular Science News and Boston Journal of Chemistry

Oxford University Press

Images and text capture the astonishing beauty of the chemical processes that create snowflakes, bubbles, flames, and other wonders of nature. Chemistry is not just about microscopic atoms doing

inscrutable things; it is the process that makes flowers and galaxies. We rely on it for bread-baking, vegetable-growing, and producing the materials of daily life. In stunning images and illuminating text, this book captures chemistry as it unfolds. Using such techniques as microphotography, time-lapse photography, and infrared thermal imaging, The Beauty of Chemistry shows us how chemistry underpins the formation of snowflakes, the science of champagne, the colors of flowers, and other wonders of nature and technology. We see the marvelous configurations of chemical gardens; the amazing transformations of evaporation, distillation, and precipitation; heat made visible; and more.

Nature of Science in General Chemistry Textbooks Univ of California Press

Philosophy of Chemistry investigates the foundational concepts and methods of chemistry, the science of the nature of substances and their transformations. This groundbreaking collection, the most thorough treatment of the philosophy of chemistry ever published, brings together philosophers, scientists and historians to map out the central topics in the field. The 33 articles address the history of the philosophy of chemistry and the philosophical importance of some central figures in the history of chemistry; the nature of chemical substances; central chemical concepts and methods, including the chemical bond, the periodic table and reaction mechanisms; and chemistry's relationship to other disciplines such as physics, molecular biology, pharmacy and chemical engineering. This volume serves as a detailed introduction for those new to the field as well as a rich source of new insights and potential research agendas for those already engaged with the philosophy of chemistry. Provides a bridge between philosophy and current scientific findings Encourages multi-disciplinary dialogue Covers theory and applications

Polymer Mechanochemistry MIT Press

From mating and parenting to foraging and

self-defense, a survey of chemical ecology introduces readers to plant and animal activities that are accomplished largely by the secretion or exchange of organic chemicals.

Nature-Inspired Computing Pelagic Publishing Ltd

'Total Synthesis of Natural Products' is written and edited by some of today's leaders in organic chemistry. Eleven chapters cover a range of natural products, from steroids to alkaloids. Each chapter contains an introduction to the natural product in question, descriptions of its biological and pharmacological properties and outlines of total synthesis procedures already carried out. Particular emphasis is placed on novel methodologies developed by the respective authors and their research groups. This text is ideal for graduate and advanced undergraduate students, as well as organic chemists in academia and industry.

Philosophy of Chemistry Royal Society of Chemistry

This text provides a comprehensive summary of where natural product chemistry is today in drug discovery. It covers emerging technologies and case studies and is a source of up-to-date information on the topical subject of natural products.

Total Synthesis of Natural Products World Scientific Publishing Company

Nature-Inspired Computing: Physics and Chemistry-Based Algorithms provides a comprehensive introduction to the methodologies and algorithms in nature-inspired computing, with an emphasis on applications to real-life engineering problems. The research interest for Nature-inspired Computing has grown considerably exploring different phenomena observed in nature and basic principles of physics, chemistry, and biology. The discipline has reached a mature stage and the field has been well-established. This endeavour is another attempt at investigation into various computational schemes inspired from nature, which are presented in this book with the development of a suitable framework and industrial applications. Designed for senior undergraduates, postgraduates, research students, and professionals, the book is written at a comprehensible level for students who have some basic knowledge of calculus and differential equations, and some exposure to optimization theory. Due to the focus on

search and optimization, the book is also appropriate for electrical, control, civil, industrial and manufacturing engineering, business, and economics students, as well as those in computer and information sciences. With the mathematical and programming references and applications in each chapter, the book is self-contained, and can also serve as a reference for researchers and scientists in the fields of system science, natural computing, and optimization.

Nature Springer Science & Business Media The Frontiers in Chemistry Editorial Office team are delighted to present the inaugural “Frontiers in Chemistry: Rising Stars” article collection, showcasing the high-quality work of internationally recognized researchers in the early stages of their independent careers. All Rising Star researchers featured within this collection were individually nominated by the Journal’s Chief Editors in recognition of their potential to influence the future directions in their respective fields. The work presented here highlights the diversity of research performed across the entire breadth of the chemical sciences, and presents advances in theory, experiment and methodology with applications to compelling problems. This Editorial features the corresponding author(s) of each paper published within this important collection, ordered by section alphabetically, highlighting them as the great researchers of the future. The Frontiers in Chemistry Editorial Office team would like to thank each researcher who contributed their work to this collection. We would also like to personally thank our Chief Editors for their exemplary leadership of this article collection; their strong support and passion for this important, community-driven collection has ensured its success and global impact. Laurent Mathey, PhD Journal Development Manager [Nature](#) Springer

Can we emulate nature's technology in chemistry? Through billions of years of evolution, Nature has generated some remarkable systems and substances that have made life on earth what it is today. Increasingly, scientists are seeking to mimic Nature's systems and processes in the lab in order to harness the power of Nature for the benefit of society. *Bioinspiration and Biomimicry in Chemistry* explores the chemistry of Nature and how we can replicate what Nature does in abiological settings. Specifically, the book focuses on wholly artificial, man-made systems that employ or are inspired by principles of Nature, but which do not use materials of biological origin. Beginning with a general overview of the concept of bioinspiration and biomimicry in chemistry, the book tackles such topics as: Bioinspired molecular machines Bioinspired catalysis Biomimetic amphiphiles and vesicles Biomimetic principles in macromolecular science Biomimetic cavities and bioinspired receptors Biomimicry in organic synthesis

Written by a team of leading international experts, the contributed chapters collectively lay the groundwork for a new generation of environmentally friendly and sustainable materials, pharmaceuticals, and technologies. Readers will discover the latest advances in our ability to replicate natural systems and materials as well as the many impediments that remain, proving how much we still need to learn about how Nature works. *Bioinspiration and Biomimicry in Chemistry* is recommended for students and researchers in all realms of chemistry. Addressing how scientists are working to reverse engineer Nature in all areas of chemical research, the book is designed to stimulate new discussion and research in this exciting and promising field.

Roald Hoffmann on the Philosophy, Art, and Science of Chemistry Oxford University Press

"Write Like a Chemist (2nd ed.) is a one-of-a-kind volume, written to serve as a textbook and resource for chemistry students, post-docs, faculty, and other chemistry professionals. The book focuses on four types of chemistry writing: the journal article, conference abstract, scientific poster, and research proposal. The book includes numerous excerpts from American Chemical Society (ACS) journal articles, ACS conference abstracts, and successful NSF proposals, all serving as excellent models of scientific writing. A model poster is also included. Write Like a Chemist's read-analyze-write approach underscores the importance of reading authentic texts, analyzing them, and using them as models for disciplinary writing. Analyses focus on conciseness, level of detail, and formality; organization; writing conventions; grammar and punctuation; and content expressed in prose and graphics. Exercises are included in each chapter. Together, these features turn the complex process of writing into graduated, achievable tasks. Additional features of the book include the formatting of figures, tables, citations, and references. ACS chemistry writing conventions, as advocated in the ACS Guide to Scholarly Communication (Banik et al., 2020), are modelled throughout. The final chapter provides language tips for "troublesome" aspects of writing. Separate companion websites include materials for students and faculty. For students, "writing on your own" guidance, a downloadable poster template, self-study exercises (with answer keys), and proofreading tips are included. For chemistry faculty, answer keys for book exercises, sample grading rubrics, and teaching tips are provided"--

Why We Love John Wiley & Sons Notoriously cumbersome to isolate and challenging to synthesize, the path of natural products to viable drugs is an arduous journey. Yet compounds isolated from nature may possess fascinating structures, biological profiles and pharmaceutical potential far greater than anything made by man. Natural

Products Chemistry: Sources, Separations and Structures presents a practical guide to sourcing, isolating, and discovering new compounds from nature many of which become pharmaceutical drugs. This book emphasizes the challenges and advantages of products acquired from nature, compared to those obtained from combinatorial chemistry. A basic introduction, the book describes the whole cycle from farm to final compound, backed up by case studies drawn from industry and research applications. It broadens the scope of applications and draws upon examples from various sources. Natural products chemistry, as taught today, draws its examples mainly from marine chemistry or plant chemistry; however, there is also a fascinating and rich world of fermented (microbial and algal) products leading to complex structures. Thus, the book draws upon examples from the microbial world and from insects too. Therefore, this is a source of bioactive metabolites, not traditionally available in academic settings, more the mainstay of the pharmaceutical industry. Providing a roadmap of the process of collecting a compound from nature, isolating the active ingredient, and determining the chemical structure, this book provides a unique approach to the world of natural products.

Better Posters Springer Nature

The inspiration provided by biologically active natural products to conceive of hybrids, congeners, analogs and unnatural variants is discussed by experts in the field in 16 highly informative chapters. Using well-documented studies over the past decade, this timely monograph demonstrates the current importance and future potential of natural products as starting points for the development of new drugs with improved properties over their progenitors. The examples are chosen so as to represent a wide range of natural products with therapeutic relevance among others, as anticancer agents, antimicrobials, antifungals, antisense nucleosides, antidiabetics, and analgesics. From the content: * Part I: Natural Products as Sources of Potential Drugs and Systematic Compound Collections * Part II: From Marketed Drugs to Designed Analogs and Clinical Candidates * Part III: Natural Products as an Incentive for Enabling Technologies * Part IV: Natural Products as Pharmacological Tools * Part V: Nature: The Provider, the Enticer, and the Healer

Letters to a Young Chemist Prentice Hall A groundbreaking exploration of our most complex and mysterious emotion Elation, mood swings, sleeplessness, and obsession—these are the tell-tale signs of someone in the throes of romantic passion. In this revealing new book, renowned anthropologist Helen Fisher explains why this experience—which cuts across time, geography, and gender—is a force as powerful as the need for food or sleep. *Why We Love* begins by presenting the results of a scientific study in which Fisher scanned the brains of people who had just fallen madly in love. She proves, at last, what researchers had only suspected:

when you fall in love, primordial areas of the brain "light up" with increased blood flow, creating romantic passion. Fisher uses this new research to show exactly what you experience when you fall in love, why you choose one person rather than another, and how romantic love affects your sex drive and your feelings of attachment to a partner. She argues that all animals feel romantic attraction, that love at first sight comes out of nature, and that human romance evolved for crucial reasons of survival. Lastly, she offers concrete suggestions on how to control this ancient passion, and she optimistically explores the future of romantic love in our chaotic modern world. Provocative, enlightening, and persuasive, *Why We Love* offers radical new answers to the age-old question of what love is and thus provides invaluable new insights into keeping love alive.

Nature Chemical Society Supplement
Elsevier

This volume arose originally from the complaints of the editor's students, both undergraduate and postgraduate, that there was no modern book on protein fibers which told enough about protein science and chemical technologies related to fibers. By and large this is probably a reasonable *cri de coeur*. The undergraduate on a technological course, lacking information on the basic scientific techniques used to carry out the research on which his fiber technology is based, can find it difficult to obtain this information. The pure science undergraduate often lacks knowledge of the application of these techniques in protein fiber technology. The young graduates, commencing research related to some aspect of protein fibers, are drawn from a wide range of scientific disciplines, having been trained as biochemists, chemists, physicists, technologists, and histologists, to name but a few. Generally these new research workers pass through a preliminary "lost" period in which they have to evaluate their background in relation to the wide and differing fields of research in protein fiber science to which they are now exposed. As time goes on they then either develop a wide knowledge covering science and technology or remain in a specific part of their original discipline, with a narrow knowledge of its application in the field of the research degree they are taking.

Natural Products in Medicinal Chemistry CRC Press

The field of relativistic electronic structure theory is generally not part of theoretical chemistry education, and is therefore not covered in most quantum chemistry textbooks. This is due to the fact that only in the last two decades have we learned about the importance of relativistic effects in the chemistry of heavy and superheavy

elements. Developments in computer hardware together with sophisticated computer algorithms make it now possible to perform four-component relativistic calculations for larger molecules. Two-component and scalar all-electron relativistic schemes are also becoming part of standard *ab-initio* and density functional program packages for molecules and the solid state. The second volume of this two-part book series is therefore devoted to applications in this area of quantum chemistry and physics of atoms, molecules and the solid state. Part 1 was devoted to fundamental aspects of relativistic electronic structure theory whereas Part 2 covers more of the applications side. This volume opens with a section on the Chemistry of the Superheavy Elements and contains chapters dealing with Accurate Relativistic Fock-Space Calculations for Many-Electron Atoms, Accurate Relativistic Calculations Including QED, Parity-Violation Effects in Molecules, Accurate Determination of Electric Field Gradients for Heavy Atoms and Molecules, Two-Component Relativistic Effective Core Potential Calculations for Molecules, Relativistic *Ab-Initio* Model Potential Calculations for Molecules and Embedded Clusters, Relativistic Pseudopotential Calculations for Electronic Excited States, Relativistic Effects on NMR Chemical Shifts, Relativistic Density Functional Calculations on Small Molecules, Quantum Chemistry with the Douglas-Kroll-Hess Approach to Relativistic Density Functional Theory, and Relativistic Solid State Calculations. - Comprehensive publication which focuses on new developments in relativistic quantum electronic structure theory- Many leaders from the field of theoretical chemistry have contributed to the TCC series- Will no doubt become a standard text for scientists in this field.

Bioinspiration and Biomimicry in Chemistry Springer Nature

"Roald Hoffmann's contributions to chemistry are well known; this Nobel laureate has published more than 500 articles and two books. As an "applied theoretical chemist," he has made significant contributions to our understanding of chemical bonding and reactivity, and taught two generations of chemists how to use molecular orbitals for real chemistry. Less well known, however, are Hoffmann's important and insightful contributions to the areas of scholarship surrounding chemistry. Over a career that spans nearly fifty years, Roald Hoffmann has thought and written copiously about the broader context of chemistry and its relationship to the arts and poetry. This book contains Hoffmann's essays and is organized around several major themes: chemical reasoning and explanation, writing and communicating in science, ethics, art and science, and chemical education. A few are unpublished lectures that are valuable additions to the volume. The editors have the full cooperation of Roald Hoffmann in this project. Most of the published work will be reprinted verbatim, but a few of the essays will be revised to

eliminate redundancy. The unpublished lectures will also be edited since they were originally intended to be delivered orally at specific occasions. The editors will provide an introduction to the book, and some introductory material for each section. In introducing the material, they will highlight the intrinsic importance and interest of the ideas, as well as the places where Hoffmann's thought makes novel contributions to cognate areas"--

A Journal of Natural Philosophy, Chemistry, and the Arts ... Oxford University Press

This book presents specific key natural and artificial systems that are promising biocatalysts in the areas of health, agriculture, environment and energy. It provides a comprehensive account of the state of the art of these systems and outlines the significant progress made in the last decade using these systems to develop innovative, sustainable and environmentally friendly solutions. Chapters from expert contributors explore how natural enzymes and artificial systems tackle specific targets such as: climate change, carbon footprint and economy and carbon dioxide utilisation; nitrogen footprint and fixation and nitrous oxide mitigation; hydrogen production, fuel cells and energy from bacteria; biomass transformation and production of added-value compounds, as well as biosensors development. This book provides an important and inspiring account for the designing of new natural and artificial systems with enhanced properties, and it appeals not only to students and researchers working in the fields of energy, health, food and environment, but also to a wider audience of educated readers that are interested in these up-to-date and exciting subjects. Chapter "Carbon Dioxide Utilisation—The Formate Route" is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Relativistic Electronic Structure Theory John Wiley & Sons

Natural products play an integral and ongoing role in promoting numerous aspects of scientific advancement, and many aspects of basic research programs are intimately related to natural products. With articles written by leading authorities in their respective fields of research, *Studies in Natural Products Chemistry*, Volume 37 presents current frontiers and future guidelines for research based on important discoveries made in the field of bioactive natural products. It is a valuable source for researchers and engineers working in natural products and medicinal chemistry. Describes the chemistry of bioactive natural products Contains contributions by leading authorities in the field A valuable source for researchers and engineers working in natural product and medicinal chemistry