

The Chemistry Of Life

The Chemical Foundation of Life
Alkaloids - Secrets of Life: A Life Scientist's Guide to Physical Chemistry
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The Chemical Foundation of Life

Heterocycles in Life and Society is an introduction to the chemistry of heterocyclic compounds, focusing on their origin and occurrence in nature, biochemical significance and wide range of applications. Written in a readable and accessible style, the book takes a multidisciplinary approach to this extremely important area of organic chemistry. Topics covered include an introduction to the structure and properties of heterocycles; the key role of heterocycles in important life processes such as the transfer of hereditary information, how enzymes function, the storage and transport of bioenergy, and photosynthesis; applications of heterocycles in medicine, agriculture and industry; heterocycles in supramolecular chemistry; the origin of heterocycles on primordial Earth; and how heterocycles can help us solve 21st century challenges. For this second edition, Heterocycles in Life and Society has been completely revised and expanded, drawing on a decade of innovation in heterocyclic chemistry. The new edition includes discussions of the role of heterocycles in nanochemistry, green chemistry, combinatorial chemistry, molecular devices and sensors, and supramolecular chemistry. Impressive achievements include the creation of various molecular devices, the recording and storage of information, the preparation of new organic conductors, and new effective drugs and pesticides with heterocyclic structures. Much new light has been thrown on various life processes, while the chemistry of heterocycles has expanded to include new types of heterocyclic structures and reactions, and the use of heterocyclic molecules as ionic liquids and proton sponges. Heterocycles in Life and Society is an essential guide to this important field for students and researchers in chemistry, biochemistry, and drug discovery, and scientists at all levels wishing to expand their scientific horizon.

Alkaloids - Secrets of Life:

The field of Bioinorganic Chemistry has grown significantly in recent years; now one of the major sub-disciplines of Inorganic Chemistry, it has also pervaded other areas of the life sciences due to its highly interdisciplinary nature. Bioinorganic Chemistry: Inorganic Elements in the Chemistry of Life, Second Edition provides a detailed introduction to the role of inorganic elements in biology, taking a systematic element-by-element approach to the topic. The second edition of this classic text has been fully revised and updated to include new structure information, emerging developments in the field, and an increased focus on medical applications of inorganic compounds. New topics have been added including materials aspects of bioinorganic chemistry, elemental cycles, bioorganometallic chemistry, medical imaging and therapeutic advances. Topics covered include: Metals at the center of photosynthesis Uptake, transport, and storage of essential elements Catalysis through hemoproteins Biological functions of molybdenum, tungsten, vanadium and chromium Function and transport of alkaline and alkaline earth metal cations Biomineralization Biological functions of the non-metallic inorganic elements Bioinorganic chemistry of toxic metals Biochemical behavior of radionuclides and medical imaging using inorganic compounds Chemotherapy involving non-essential elements This full color text provides a concise and comprehensive review of bioinorganic chemistry for advanced students of chemistry, biochemistry, biology, medicine and environmental science.

A Life Scientist's Guide to Physical Chemistry

Chemistry: The Molecules of Life offers chemical insights within the context of health, pharmaceuticals, and the function of biological molecules. The contextualized presentation of topics gives students a broad introduction to chemistry and helps them to see the relevance of chemistry to their personal lives.

Chemical Ecology

Renowned Brazilian scientist Marcos Eberlin uncovers nature's artful solutions to major engineering challenges in chemistry and biology, solutions that point beyond blind evolution to the workings of an attribute unique to minds-foresight.

Chemistry of Life

For anyone with a background in general chemistry.

The Chemistry of Life

Conventionally, evolution has always been described in terms of species. The Chemistry of Evolution takes a novel, not to say revolutionary, approach and examines the evolution of chemicals and the use and degradation of energy, coupled to the environment, as the drive behind it. The authors address the major changes of life from bacteria to man in a systematic and unavoidable sequence, reclassifying organisms as chemotypes. Written by the authors of the bestseller The Biological Chemistry of the Elements - The Inorganic Chemistry of Life (Oxford University Press, 1991), the clarity and precision of The Chemistry of Evolution plainly demonstrate that life is totally interactive with the environment. This exciting theory makes this work an essential addition to the academic and public library. * Provides a novel analysis of evolution in chemical terms * Stresses Systems Biology * Examines the connection between life and the environment, starting with the 'big bang' theory * Reorientates the chemistry of life by emphasising the need to analyse the functions of 20 chemical elements in all organisms

Evolution's Destiny

Frost and Deal's General, Organic, and Biological Chemistry gives students a focused introduction to the fundamental and relevant connections between chemistry and life. Emphasizing the development of problem-solving skills with distinct Inquiry Questions and Activities, this text empowers students to solve problems in different and applied contexts relating to health and biochemistry. Integrated coverage of biochemical applications throughout keeps students interested in the material and allow for a more efficient progression through the topics. Concise, practical, and integrated, Frost's streamlined approach offers students a clear path through the content. Applications throughout the narrative, the visual program, and problem-solving support in each chapter improve their retention of the concepts and skills as they master them. General, organic, and biological chemistry topics are integrated throughout each chapter to create a seamless framework that immediately relates chemistry to students' future allied health careers and their everyday lives. Note: This is the standalone book, if you want the book/access card order the ISBN below: 0321802632 / 9780321802637 General, Organic, and Biological Chemistry Plus MasteringChemistry with eText -- Access Card Package Package consists of: 0321803035 / 9780321803030 General, Organic, and Biological Chemistry 0321833945 / 9780321833945 MasteringChemistry with Pearson eText -- ValuePack Access Card -- for General, Organic, and Biological Chemistry

Bioinorganic Chemistry -- Inorganic Elements in the Chemistry of Life

Chemical signals among organisms form "a vast communicative interplay, fundamental to the fabric of life," in the words of one expert. Chemical ecology is the the discipline that seeks to understand these interactions-to use biology in the search for new substances of potential benefit to humankind. This book highlights selected research areas of medicinal and agricultural importance. Leading experts review the chemistry of Insect defense and its applications to pest control. Phyletic

dominance--the survival success of insects. Social regulation, with ant societies as a model of multicomponent signaling systems. Eavesdropping, alarm, and deceit--the array of strategies used by insects to find and lure prey. Reproduction--from the gamete attraction to courtship and sexual selection. The chemistry of intracellular immunosuppression. Topics also include the appropriation of dietary factors for defense and communication; the use of chemical signals in the marine environment; the role of the olfactory system in chemical analysis; and the interaction of polydnviruses, endoparasites, and the immune system of the host.

Concepts of Biology

A World Beyond Physics

Motivating students to engage with physical chemistry through biological examples, this textbook demonstrates how the tools of physical chemistry can be used to illuminate biological questions. It clearly explains key principles and their relevance to life science students, using only the most straightforward and relevant mathematical tools. More than 350 exercises are spread throughout the chapters, covering a wide range of biological applications and explaining issues that students often find challenging. These, along with problems at the end of each chapter and end-of-term review questions, encourage active and continuous study. Over 130 worked examples, many deriving directly from life sciences, help students connect principles and theories to their own laboratory studies. Connections between experimental measurements and key theoretical quantities are frequently highlighted and reinforced. Answers to the exercises are included in the book. Fully worked solutions and answers to the review problems, password-protected for instructors, are available at www.cambridge.org/roussel.

Lavoisier and the Chemistry of Life

This book demonstrates that biology and geochemistry have continually influenced each other in the co-evolution of the Earth and all life.

Chemistry in Space

How did life start? Is the evolution of life describable by any physics-like laws? Stuart Kauffman's latest book offers an explanation--beyond what the laws of physics can explain--of the progression from a complex chemical environment to molecular reproduction, metabolism and to early protocells, and further evolution to what we recognize as life. Among the

estimated one hundred billion solar systems in the known universe, evolving life is surely abundant. That evolution is a process of "becoming" in each case. Since Newton, we have turned to physics to assess reality. But physics alone cannot tell us where we came from, how we arrived, and why our world has evolved past the point of unicellular organisms to an extremely complex biosphere. Building on concepts from his work as a complex systems researcher at the Santa Fe Institute, Kauffman focuses in particular on the idea of cells constructing themselves and introduces concepts such as "constraint closure." Living systems are defined by the concept of "organization" which has not been focused on in enough in previous works. Cells are autopoietic systems that build themselves: they literally construct their own constraints on the release of energy into a few degrees of freedom that constitutes the very thermodynamic work by which they build their own self creating constraints. Living cells are "machines" that construct and assemble their own working parts. The emergence of such systems-the origin of life problem-was probably a spontaneous phase transition to self-reproduction in complex enough prebiotic systems. The resulting protocells were capable of Darwin's heritable variation, hence open-ended evolution by natural selection. Evolution propagates this burgeoning organization. Evolving living creatures, by existing, create new niches into which yet further new creatures can emerge. If life is abundant in the universe, this self-constructing, propagating, exploding diversity takes us beyond physics to biospheres everywhere.

The Origin and Early Evolution of Life: Prebiotic Chemistry of Biomolecules

Why does chocolate taste so good? Why do we seek 'the one'? How do traits such as intelligence, creativity and violence arise and what purpose do they serve? This book links these characteristics to the origins of life, showing that the conditions necessary to bring life into existence echo through our modern day behaviour. The chemistry of the body is not only fascinating but also highly relevant to everyone, since we are all concerned with maximising our health and enjoyment of life. Currently, there are not many popular science books concerned with biochemistry. One reason for this might be the particularly complex nature of the science involved. This book starts with the fundamentals and then works towards a deeper understanding of the chemistry of human nature. Essential reading for anyone with an interest in this science and written at a level accessible to experts and non-experts alike.

The Chemistry of Plant Life

Seventy years ago, Erwin Schrödinger posed a profound question: 'What is life, and how did it emerge from non-life?' Scientists have puzzled over it ever since. Addy Pross uses insights from the new field of systems chemistry to show how chemistry can become biology, and that Darwinian evolution is the expression of a deeper physical principle.

Carbohydrates: The Essential Molecules of Life

This assembly of lectures should appeal to anyone with an interest in the history of science and the nature of living things. Seven of the eight lectures are by eminent biochemists and describe the development of their own subject 'from the inside'; the eighth is a more general one.

Chemistry and Life

CHEMISTRY IN DAILY LIFE

Ubiquitin and the Chemistry of Life

This book highlights the importance of chemistry in human well-being by introducing the readers to the basic usefulness of chemistry in everyday life. Chemistry has helped in creating valuable products that have transformed the lifestyle of people. Since we spend lots of money in buying our daily requirements, there is a need for us to understand the benefits and hazards of using consumer products which contain chemicals. In this context, this book will help readers to make reasoned choices and intelligent decisions in buying consumer products which contain chemicals. This text is divided into seventeen chapters devoted to the basic necessities of life like food, shelter, clothing, healthcare, and energy and consumer products. Topics on chemistry in environment, crime, warfare, arts, conservation, communications and transportation are also highlighted in individual chapters. All these topics are discussed with regard to the needs of modern society. In this third edition, the various chapters have been updated with current information keeping the language simple and friendly. Critical thinking exercises and questions have been included. The style of questions included in the book is to meet the requirement of various competitive examinations such as Indian Civil Services and entrance examinations in medicine and engineering.

Biology of Life

General, Organic, and Biological Chemistry

This volume contains the lectures presented at the second course of the International School of Space Chemistry held in Erice (Sicily) from October 20 - 30 1991 at the "E. Majorana Centre for Scientific Culture". The course was attended by 58

participants from 13 countries. The Chemistry of Life's Origins is well recognized as one of the most critical subjects of modern chemistry. Much progress has been made since the amazingly perceptive contributions by Oparin some 70 years ago when he first outlined a possible series of steps starting from simple molecules to basic building blocks and ultimate assembly into simple organisms capable of replicating, catalysis and evolution to higher organisms. The pioneering experiments of Stanley Miller demonstrated already forty years ago how easy it could have been to form the amino acids which are critical to living organisms. However we have since learned and are still learning a great deal more about the primitive conditions on earth which has led us to a rethinking of where and how the condition for prebiotic chemical processes occurred. We have also learned a great deal more about the molecular basis for life. For instance, the existence of DNA was just discovered forty years ago.

The Chemistry of Life

Antoine Lavoisier, the author of the "chemical revolution," also did much to establish the foundations for the fields of organic chemistry and biochemistry. Here, Frederic Lawrence Holmes gives us an intimate portrait of Lavoisier's investigations, ranging over twenty years, from 1773 to 1792, on respiration, fermentation, and plant and animal matter. These studies, Holmes finds, were not simply belated applications of Lavoisier's established chemical theories, but intimately bound from the beginning to his more widely known research on combustion and calcination.

Chemistry

A giant in the field and at times a polarizing figure, F. Albert Cotton's contributions to inorganic chemistry and the area of transition metals are substantial and undeniable. In his own words, *My Life in the Golden Age of Chemistry: More Fun than Fun* describes the late chemist's early life and college years in Philadelphia, his graduate training and research contributions at Harvard with Geoffrey Wilkinson, and his academic career from becoming the youngest ever full professor at MIT (aged 31) to his extensive time at Texas A&M. Professor Cotton's autobiography offers his unique perspective on the advances he and his contemporaries achieved through one of the most prolific times in modern inorganic chemistry, in research on the then-emerging field of organometallic chemistry, metallocenes, multiple bonding between transition metal atoms, NMR and ESR spectroscopy, hapticity, and more. Working during a time of generous government funding of science and strong sponsorship for good research, Professor Cotton's experience and observations provide insight into this prolific and exciting period of chemistry. Offers personal and often wry perspective from this prominent chemist and recipient of some of science's highest honors: the U.S. National Medal of Science (1982), the Priestley Medal (the American Chemical Society's highest recognition, 1998), membership in the U. S. National Academy of Sciences and corresponding international bodies, and 29 honorary doctorates Details the background behind the development and emergence of

groundbreaking research in organometallic chemistry and transition metals Provides beautifully-written and engaging insight into a "Golden Age of Chemistry" and the work of historically renowned chemists

Linus Pauling

This text describes the functional role of the twenty inorganic elements essential to life in living organisms.

Molecular Biology of the Cell

The Chemistry of Human Nature

Alkaloids, represent a group of interesting and complex chemical compounds, produced by the secondary metabolism of living organisms in different biotopes. They are relatively common chemicals in all kingdoms of living organisms in all environments. Two hundred years of scientific research has still not fully explained the connections between alkaloids and life. Alkaloids-Chemistry, Biological Significance, Applications and Ecological Role provides knowledge on structural typology, biosynthesis and metabolism in relation to recent research work on alkaloids. Considering an organic chemistry approach to alkaloids using biological and ecological explanation. Within the book several questions that persist in this field of research are approached as are some unresearched areas. The book provides beneficial text for an academic and professional audience and serves as a source of knowledge for anyone who is interested in the fascinating subject of alkaloids. Each chapter features an abstract. Appendices are included, as are a listing of alkaloids, plants containing alkaloids and some basic protocols of alkaloid analysis. * Presents the ecological role of alkaloids in nature and ecosystems * Interdisciplinary and reader friendly approach * Up-to-date knowledge

Chemistry in Action

Reflecting a rich technical and interdisciplinary exchange of ideas, Water and Life: The Unique Properties of H₂O focuses on the properties of water and its interaction with life. The book develops a variety of approaches that help to illuminate ways in which to address deeper questions with respect to the nature of the universe and our place within it. Grouped in five broad parts, this collection examines the arguments of Lawrence J. Henderson and other scholars on the "fitness" of water for life as part of the physical and chemical properties of nature considered as a foundational environment within which life has emerged and evolved. Leading authorities delve into a range of themes and questions that span key areas of ongoing debate and uncertainty. They draw from the fields of chemistry, biology, biochemistry, planetary and earth sciences,

physics, astronomy, and their subspecialties. Several chapters also deal with humanistic disciplines, such as the history of science and theology, to provide additional perspectives. Bringing together highly esteemed researchers from multidisciplinary fields, this volume addresses fundamental questions relating to the possible role of water in the origin of life in the cosmos. It supports readers in their own explorations of the origin and meaning of life and the role of water in maintaining life.

The Chemistry of Evolution

The field of Bioinorganic Chemistry has grown significantly in recent years; now one of the major sub-disciplines of Inorganic Chemistry, it has also pervaded other areas of the life sciences due to its highly interdisciplinary nature. Bioinorganic Chemistry: Inorganic Elements in the Chemistry of Life, Second Edition provides a detailed introduction to the role of inorganic elements in biology, taking a systematic element-by-element approach to the topic. The second edition of this classic text has been fully revised and updated to include new structure information, emerging developments in the field, and an increased focus on medical applications of inorganic compounds. New topics have been added including materials aspects of bioinorganic chemistry, elemental cycles, bioorganometallic chemistry, medical imaging and therapeutic advances. Topics covered include: Metals at the center of photosynthesis Uptake, transport, and storage of essential elements Catalysis through hemoproteins Biological functions of molybdenum, tungsten, vanadium and chromium Function and transport of alkaline and alkaline earth metal cations Biomineralization Biological functions of the non-metallic inorganic elements Bioinorganic chemistry of toxic metals Biochemical behavior of radionuclides and medical imaging using inorganic compounds Chemotherapy involving non-essential elements This full color text provides a concise and comprehensive review of bioinorganic chemistry for advanced students of chemistry, biochemistry, biology, medicine and environmental science.

Heterocycles in Life and Society

Covers chemical bonds and structures, chemical reactions, organic chemistry, polymers, chemistry and color, and chemical analysis

What is Life?

A tutorial that is intended to teach the essential concepts of chemistry to students encountering the subject for the first time, and those needing a review before continuing with their allied health coursework. This CD-ROM explains important concepts and principles such as atomic structure, properties of water, gases, pH, buffers, and more.

Chemistry was Their Life

This book provides the "nuts and bolts" background for a successful study of carbohydrates - the essential molecules that not only give you energy, but are an integral part of many biological processes. A question often asked is 'Why do carbohydrate chemistry?' The answer is simple: It is fundamental to a study of biology. Carbohydrates are the building blocks of life and enable biological processes to take place. Therefore the book will provide a taste for the subject of glycobiology. Covering the basics of carbohydrates and then the chemistry and reactions of carbohydrates this book will enable a chemist to gain essential knowledge that will enable them to move smoothly into the worlds of biochemistry, molecular biology and cell biology. * includes perspective from new co-author Spencer Williams, who enhances coverage of the connection between carbohydrates and life * describes the basic chemistry and biology of carbohydrates * reviews the concepts, synthesis, reactions, and biology of carbohydrates

The Chemistry of Life for Introductory Chemistry

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 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.

Introduction to the Chemistry of Life

First published in 1966, THE CHEMISTRY OF LIFE has held its own as a clear and authoritative introduction to the world of biochemistry. This fourth edition has been fully updated and revised to include the latest developments in DNA and protein synthesis, cell regulation, and their social and medical implications.

The Chemistry of Life's Origins

Biology of Life: Biochemistry, Physiology and Philosophy provides foundational coverage of the field of biochemistry for a different angle to the traditional biochemistry text by focusing on human biochemistry and incorporating related elements of evolution to help further contextualize this dynamic space. This unique approach includes sections on early human development, what constitutes human life, and what makes it special. Additional coverage on the differences between the biochemistry of prokaryotes and eukaryotes is also included. The center of life in prokaryotes is considered to be photosynthesis and sugar generation, while the center of life in eukaryotes is sugar use and oxidative phosphorylation. This unique reference will inform specialized biochemistry courses and researchers in their understanding of the role biochemistry has in human life. Contextualizes the field of biochemistry and its role in human life Includes dedicated sections on human reproduction and human brain development Provides extensive coverage on biochemical energetics, oxidative phosphorylation, photosynthesis, and carbon monoxide-acetate pathways

My Life in the Golden Age of Chemistry

British chemistry has traditionally been depicted as a solely male endeavour. However, this perspective is untrue: the allure of chemistry has attracted women since the earliest times. Despite the barriers placed in their path, women studied academic chemistry from the 1880s onwards and made interesting or significant contributions to their fields, yet they are virtually absent from historical records. Comprising a unique set of biographies of 141 of the 896 known women chemists from 1880 to 1949, this work attempts to address the imbalance by showcasing the determination of these women to survive and flourish in an environment dominated by men. Individual biographical accounts interspersed with contemporary quotes describe how women overcame the barriers of secondary and tertiary education, and of admission to professional societies. Although these women are lost to historical records, they are brought together here for the first time to show that a vibrant culture of female chemists did indeed exist in Britain during the late 19th and early 20th centuries.

Contents: Introduction Getting an Education: The Professional Societies The London Co-educational Colleges The London Women's Colleges English Provincial Universities The Cambridge and Oxford Women's Colleges Universities in Scotland and Wales Hoppy's 'Biochemical Ladies' Women Crystallographers Women in Pharmacy The Role of Chemists' Wives Women Chemists and the First World War The Interwar Period and Beyond Readership: Historians of science, chemists, those with an interest in women's studies, educationalists, and general readers.

Keywords: History; Chemistry; Science; Women; Education; University; School Key Features: Presents the only published account of the lives and contributions of British women chemists from 1880 to 1949 Examines the role of certain secondary schools and colleges/universities in encouraging women to choose a career in chemistry Highlights the role of certain males in championing the women chemists' cause and in mentoring individual women Discusses the reasons why women clustered in certain fields and the forgotten role of women chemists during the First World War Reviews: "Chemistry was Their Life has been very well researched and is extensively referenced ... It is of great interest also to read of the battle which these

women had to obtain recognition by professional societies.”Chemistry World “Chemistry was Their Life is an important contribution to the history of chemistry, providing a glimpse into the lives of pioneering British women. It has a lot of information about the women who worked in one or another capacity as chemists ... It is warmly recommended to all chemists, chemistry historians, and to scientists involved with gender studies.”Structural Chemistry

Bioinorganic Chemistry -- Inorganic Elements in the Chemistry of Life

The Chemical Foundation of Life Biology Elements in various combinations comprise all matter, including living things. Some of the most abundant elements in living organisms include carbon, hydrogen, nitrogen, oxygen, sulfur, and phosphorus. These form the nucleic acids, proteins, carbohydrates, and lipids that are the fundamental components of living matter. Biologists must understand these important building blocks and the unique structures of the atoms that comprise molecules, allowing for cells, tissues, organ systems, and entire organisms to form. Chapter Outline: Atoms, Isotopes, Ions, and Molecules: The Building Blocks Water Carbon The Open Courses Library introduces you to the best Open Source Courses.

The Chemistry of Common Life

Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand. We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

Water and Life

Studying the origin of life is one of man's greatest achievements over the last sixty years. The fields of interest encompassed by this quest are multiple and interdisciplinary: chemistry, physics, biology, biochemistry, mathematics, geology but also statistics, atmospheric science, meteorology, oceanography, and astrophysics. Recent scientific discoveries, such as water on Mars and the existence of super-Earths with atmospheres similar to primordial Earth, have pushed researchers to simulate prebiotic conditions in explaining the abiotic formation of molecules essential to life. This collection of articles offers an overview of recent discoveries in the field of prebiotic chemistry of biomolecules, their formation and selection, and the evolution of complex chemical systems.

The Biological Chemistry of the Elements

Foresight

Profiles the Nobel Prize-winning chemist who made important discoveries in the fields of quantum mechanics, immunology, and evolution, and used his scientific fame to help advance political causes.

The Chemistry of Life

The dynamic field of extraterrestrial chemistry brings together ideas of chemistry, astrophysics, and biology to the study of molecules between stars, around stars, and on planets. This book serves as an introduction to chemical processes under 'unearthly' and hence usually extreme conditions (temperature, pressure, high or low density, bombardment by cosmic rays), and their impact on the early development of our solar system, as well as providing a deeper understanding of processes in earthly regions where conditions approach those of extraterrestrial areas. A unique and extraordinary perspective written with chemists in mind. An excellent practical book for inorganic, and physical chemists, spectroscopists, astronomers, and libraries. From the contents: * Introduction and technical notes * Origin and development of the universe * Stars * The interstellar medium * The solar system * Exoplanets * The origin of life

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