

Molecules That Changed The World Hmauto

This popular science book shows that chemists do have a sense of humor, and this book is a celebration of the quirky side of scientific nomenclature. Here, some molecules are shown that have unusual, rude, ridiculous or downright silly names. Written in an easy-to-read style, anyone — not just scientists — can appreciate the content. Each molecule is illustrated with a photograph and/or image that relates directly or indirectly to its name and molecular structure. Thus, the book is not only entertaining, but also educational.

Identifies a molecule of great historical and social importance for each decade of the 20th century. Provides information about its discovery and synthesis, with art works and artifacts to show its historical and social significance.

Intended for students of intermediate organic chemistry, this text shows how to write a reasonable mechanism for an organic chemical transformation. The discussion is organized by types of mechanisms and the conditions under which the reaction is executed, rather than by the overall reaction as is the case in most textbooks. Each chapter discusses common mechanistic pathways and suggests practical tips for drawing them. Worked problems are included in the discussion of each mechanism, and "common error alerts" are scattered throughout the text to warn readers about pitfalls and misconceptions that bedevil students. Each chapter is capped by a large problem set.

Napoleon's Buttons is the fascinating account of seventeen groups of molecules that have greatly influenced the course of history. These molecules provided the impetus for early exploration, and made possible the voyages of discovery that ensued. The molecules resulted in grand feats of engineering and spurred advances in medicine and law; they determined what we now eat, drink, and wear. A change as small as the position of an atom can lead to enormous alterations in the properties of a substance—which, in turn, can result in great historical shifts. With lively prose and an eye for colorful and unusual details, Le Couteur and Bureson offer a novel way to understand the shaping of civilization and the workings of our contemporary world.

Classics in Total Synthesis

Portraits of Intriguing Materials in Everyday Life

And Other True Tales of Madness, Love, and the History of the World from the Periodic Table of the Elements

Giant Molecules

From Molecules to Elements: The Chemistry of Everyday Life

Molecular Biology of the Cell

Why You Feel the Way You Feel

When you're cooking, you're a chemist! Every time you follow or modify a recipe, you are experimenting with acids and bases, emulsions and suspensions, gels and foams. In your kitchen you denature proteins, crystallize compounds, react enzymes with substrates, and nurture desired microbial life while suppressing harmful bacteria and fungi. And unlike in a laboratory, you can eat your experiments to verify your hypotheses. In Culinary Reactions, author Simon Quellen Field turns measuring cups, stovetop burners, and mixing bowls into graduated cylinders, Bunsen burners, and beakers. How does altering the ratio of flour, sugar, yeast, salt, butter, and water affect how high bread rises? Why is whipped cream made with nitrous oxide rather than the more common carbon dioxide? And why does Hollandaise sauce call for "clarified" butter? This easy-to-follow primer even includes recipes to demonstrate the concepts being discussed, including: · Whipped Creamsicle Topping—a foam · Cherry Dream Cheese—a protein gel · Lemonade with Chameleon Eggs—an acid indicator

Acclaimed Caldecott Artist Molly Bang teams up with award-winning M.I.T. professor Penny Chisholm to present the fascinating, timely story of fossil fuels. What are fossil fuels, and how did they come to exist? This engaging, stunning book explains how coal, oil, and gas are really "buried sunlight," trapped beneath the surface of our planet for millions and millions of years. Now, in a very short time, we are digging them up and burning them, changing the carbon balance of our planet's air and water. What does this mean, and what should we do about it? Using simple language and breathtaking paintings, Bang and Chisholm present a clear, concise explanation of the fossil-fuel energy cycle that began with the sun and now runs most of our transportation and energy use in our world. Readers will be mesmerized by this engaging fourth book in the award-winning Sunlight Series by Bang and Chisholm.

A world-leading materials scientist presents an engrossing collection of stories that explain the science and history of materials, from the plastic in our appliances to the elastic in our underpants, revealing the miracles of engineering that seep into our everyday lives. 25,000 first printing.

K.C. Nicolaou - Winner of the Nemitsas Prize 2014 in Chemistry Here, the best-selling author and renowned researcher, K. C. Nicolaou, presents around 40 natural products that all have an enormous impact on our everyday life. Printed in full color throughout with a host of pictures, this book is written in the author's very enjoyable and distinct style, such that each chapter is full of interesting and entertaining information on the facts, stories and people behind the scenes.

Molecules covered span the healthy and useful, as well as the much-needed and extremely toxic, including Aspirin, urea, camphor, morphine, strychnine, penicillin, vitamin B12, Taxol, Brevetoxin and quinine. A veritable pleasure to read.

More Targets, Strategies, Methods

Napoleon's Buttons

World of the Elements

Molecules of Death

The Art of Writing Reasonable Organic Reaction Mechanisms

Botanical Miracles

Molecular Electronics

In his highly anticipated sequel to *The Elements*, Theodore Gray demonstrates how the elements of the periodic table combine to form the molecules that make up our world. Everything physical is made up of the elements and the infinite variety of molecules they form when they combine with each other. In *Molecules*, Theodore Gray takes the next step in the grand story that began with the periodic table in his best-selling book, *The Elements: A Visual Exploration of Every Known Atom in the Universe*. Here, he explores through fascinating stories and trademark stunning photography the most interesting, essential, useful, and beautiful of the millions of chemical structures that make up every material in the world. Gray begins with an explanation of how atoms bond to form molecules and compounds, as well as the difference between organic and inorganic chemistry. He then goes on to explore the vast array of materials molecules can create, including: soaps and solvents; goop and oils; rocks and ores; ropes and fibers; painkillers and dangerous drugs; sweeteners; perfumes and stink bombs; colors and pigments; and controversial compounds including asbestos, CFCs, and thimerosal. Big, gorgeous photographs

as well as diagrams of the compounds and their chemical bonds, rendered with never before seen beauty, fill the pages and capture molecules in their various states. As he did in *The Elements*, Gray shows us molecules as we've never seen them before. It's the perfect book for his loyal fans who've been eager for more and for anyone fascinated with the mysteries of the material world.

This is the only up-to-date book on the market to focus on the synthesis of the compounds in this particularly suitable way. A team of excellent international authors guarantees high-quality content, covering such topics as monodisperse carbon-rich oligomers, molecular electronic wires, polyaromatic hydrocarbons, nonconjugated small molecules, nanotubes, fullerenes, polyynes, macrocycles, dendrimers, phenylenes and diamondoid structures. The result is a must-have for everyone working in this expanding and interdisciplinary field, including organic and polymer chemists, materials scientists, and chemists working in industry. Explains the science behind the brain's opiate receptors and other evidence of the intimate connections between mind and body, and their meaning for the future of Western medicine

Offering comprehensive and up-to-date know-how in one compact book, an experienced editor and top authors cover every aspect of these important molecules from molecular recognition to cyclodextrins as enzyme models. Chapters include reactivity and chemistry, chromatography, X-ray, NMR plus other physicochemical methods, as well as model calculations, rotaxane and catenane structures, and applications in the pharmaceutical industry. The book also discusses other applications such as in the cosmetics, toiletries, textile and wrapping industries, agrochemistry, electrochemical sensors, and devices. A must for everyone working with these substances.

From Solid State to DNA and Drug Design

The Molecule of More

Structure-based Design of Drugs and Other Bioactive Molecules

Challenges for Chemistry and Chemical Engineering

Monkeys, Myths, and Molecules

Criminal Molecules and Classic Cases

Decoding the Secrets of the Air Around Us

Chemistry and chemical engineering have changed significantly in the last decade. They have broadened their scope into biology, nanotechnology, materials science, computation, and advanced methods of process systems engineering and control so much that the programs in most chemistry and chemical engineering departments now barely resemble the classical notion of chemistry. Beyond the Molecular Frontier brings together research, discovery, and invention across the entire spectrum of the chemical sciences from fundamental, molecular-level chemistry to large-scale chemical processing technology. This reflects the way the field has evolved, the synergy at universities between research and education in chemistry and chemical engineering, and the way chemists and chemical engineers work together in industry. The astonishing developments in science and engineering during the 20th century have made it possible to dream of new goals that might previously have been considered unthinkable. This book identifies the key opportunities and challenges for the chemical sciences, from basic research to societal needs and from terrorism defense to environmental protection, and it looks at the ways in

which chemists and chemical engineers can work together to contribute to an improved future.
An introduction to the mechanical bond -- The fundamentals of making mechanical bonds --
Making mechanical bonds under thermodynamic control -- Molecular topologies and
architectures with mechanical bonds -- The stereochemistry of the mechanical bond -- Molecular
switches and machines with mechanical bonds

“The stories are skillfully told and entirely entertaining . . . An expert, mostly feel-good book about modern medicine” from the award-winning author (Kirkus Reviews, starred review). Behind every landmark drug is a story. It could be an oddball researcher’s genius insight, a catalyzing moment in geopolitical history, a new breakthrough technology, or an unexpected but welcome side effect discovered during clinical trials. Piece together these stories, as Thomas Hager does in this remarkable, century-spanning history, and you can trace the evolution of our culture and the practice of medicine. Beginning with opium, the “joy plant,” which has been used for 10,000 years, Hager tells a captivating story of medicine. His subjects include the largely forgotten female pioneer who introduced smallpox inoculation to Britain, the infamous knockout drops, the first antibiotic, which saved countless lives, the first antipsychotic, which helped empty public mental hospitals, Viagra, statins, and the new frontier of monoclonal antibodies. This is a deep, wide-ranging, and wildly entertaining book. “[An] absorbing new book.” —The New York Times Book Review “[A] well-written and engaging chronicle.” —The Wall Street Journal “Lucidly informative and compulsively readable.” —Publishers Weekly “Entertaining [and] insightful.” —Booklist “Well-written, well-researched and fascinating to read Ten Drugs provides an insightful look at how drugs have shaped modern medical practices. Towards the end of the book Hager writes that he ‘came away surprised by some of the things he had learned.’ I had the very same reaction.” —Penny Le Couteur, coauthor of Napoleon’s Buttons: How 17 Molecules Changed History

As the shortcomings of purely synthetic approaches to biochemical discovery and development are becoming more apparent, a renaissance of interest in the chemistry of natural products as sources for new compounds is occurring. A unique approach to natural products chemistry, Botanical Miracles: Chemistry of Plants That Changed the World relates appl

Caesar's Last Breath

The Everyday Chemistry of Cooking

Separating Fact from Fiction in the Science of Everyday Life

How one man invented a colour that changed the world

An Introduction to Theory and Experiment

Cyclodextrins and Their Complexes

Molecules That Changed the World

Molecules and Medicine provides, for the first time ever, a completely integrated look at chemistry, biology, drug discovery, and medicine. It delves into the discovery, application, and mode of action of more than one hundred of the most significant molecules in use in modern medicine. Opening sections of the book provide a unique, clear, and concise introduction, which enables readers to understand chemical formulas.

Drug design is a complex, challenging and innovative research area. Structure-based molecular design has transformed the drug discovery approach in modern medicine. Traditionally, focus has been placed on computational, structural or synthetic methods only in isolation. This one-of-a-kind guide integrates all three skill sets for a complete picture of contemporary structure-based design. This practical approach

provides the tools to develop a high-affinity ligand with drug-like properties for a given drug target for which a high-resolution structure exists. The authors use numerous examples of recently developed drugs to present "best practice" methods in structurebased drug design with both newcomers and practicing researchers in mind. By way of a carefully balanced mix of theoretical background and case studies from medicinal chemistry applications, readers will quickly and efficiently master the basic skills of successful drug design. This book is aimed at new and active medicinal chemists, biochemists, pharmacologists, natural product chemists and those working in drug discovery in the pharmaceutical industry. It is highly recommended as a desk reference to guide students in medicinal and chemical sciences as well as to aid researchers engaged in drug design today.

From New York Times bestselling author Sam Kean comes incredible stories of science, history, finance, mythology, the arts, medicine, and more, as told by the Periodic Table. Why did Gandhi hate iodine (I, 53)? How did radium (Ra, 88) nearly ruin Marie Curie's reputation? And why is gallium (Ga, 31) the go-to element for laboratory pranksters? The Periodic Table is a crowning scientific achievement, but it's also a treasure trove of adventure, betrayal, and obsession. These fascinating tales follow every element on the table as they play out their parts in human history, and in the lives of the (frequently) mad scientists who discovered them. THE DISAPPEARING SPOON masterfully fuses science with the classic lore of invention, investigation, and discovery--from the Big Bang through the end of time. *Though solid at room temperature, gallium is a moldable metal that melts at 84 degrees Fahrenheit. A classic science prank is to mold gallium spoons, serve them with tea, and watch guests recoil as their utensils disappear.*

Explains molecular psychology and why it may change the way people look at the world

Mauve

Targets, Strategies, Methods

Classics in Total Synthesis III

Further Targets, Strategies, Methods

Molecules at an Exhibition

From Molecules to Materials

The Nature of the Mechanical Bond

Classics in Total Synthesis II is the long awaited sequel to Classics in Total Synthesis, a book that has made its mark as a superb tool for educating students and practitioners alike in the art of organic synthesis since its introduction in 1996. In this highly welcomed second volume, K.C. Nicolaou and Scott A. Snyder discuss in detail

the most impressive accomplishments in natural product total synthesis during the 1990s and the first years of the 21st century. While all of the features that made the first volume of Classics so popular and unique as a teaching tool have been maintained, in this new treatise the authors seek to present the latest techniques and advance in organic synthesis as they beautifully describe the works of some of the most renowned synthetic organic chemists of our time. Key features include: Systematically develops domino reactions, cascade sequences, biomimetic strategies, and asymmetric catalysis through the chosen synthesis Discusses cutting edge synthetic technologies in terms of mechanism and scope Presents new reactions, such as olefin metathesis, in mini-review style Includes abundant references for further reading CD with useful teaching material for lecturers is included with hardback version (ISBN 3-527-30685-4) Graduate students, educators, and researchers in the fields of synthetic and medicinal chemistry will wish to have a copy of this book in their collection as an indispensable companion that both augments and supplements the original Classics in Total Synthesis. From the reviews: "... a volume, (...) which any chemist with an interest in synthetic organic chemistry will wish to acquire." -JACS (on the previous volume) "...this superb book (...) will be an essential purchase for many organic chemists." -Nature (on the previous volume) "...Classics II is undoubtedly an excellent bargain that is highly recommended to everybody interested in advanced organic chemistry. One of my co-workers confessed that Classics I was the book on his bedside table while he prepared his thesis defense. Isn't that the highest distinction for a monograph? I have every reason to believe that Classics II will equally stand the selection process by students (and probably their supervisors too)." -Angewandte Chemie, 2004 "Well, there is a new pleasant read for the advanced student and even the experienced. It is the second volume to the established Classics in Total Synthesis and it continues the series extremely well." -ChemBioChem, 2004 "...the real innovation of this volume is the inclusion of alternative pathways to the same target molecule by other researchers. This enables the reader to appreciate that there are also other solutions to certain structural problems than those of the original synthesis. ... Let us hope that K. C. Nicolaou and his associates will present us with these future achievements in the same clear, informative and innovative format they have with the previous two volumes." -Applied Organometallic Chemistry

This book provides a comprehensive overview of the rapidly developing field of molecular electronics. It focuses on our present understanding of the electrical conduction in single-molecule circuits and provides a thorough introduction to the experimental techniques and theoretical concepts. It will also constitute as the

first textbook-like introduction to both the experiment and theory of electronic transport through single atoms and molecules. In this sense, this publication will prove invaluable to both researchers and students interested in the field of nanoelectronics and nanoscience in general. Molecular Electronics is self-contained and unified in its presentation. It may be used as a textbook on nanoelectronics by graduate students and advanced undergraduates studying physics and chemistry. In addition, included are previously unpublished material that will help researchers gain a deeper understanding into the basic concepts involved in the field of molecular electronics.

Understanding Molecular Simulation: From Algorithms to Applications explains the physics behind the "recipes" of molecular simulation for materials science. Computer simulators are continuously confronted with questions concerning the choice of a particular technique for a given application. A wide variety of tools exist, so the choice of technique requires a good understanding of the basic principles. More importantly, such understanding may greatly improve the efficiency of a simulation program. The implementation of simulation methods is illustrated in pseudocodes and their practical use in the case studies used in the text. Since the first edition only five years ago, the simulation world has changed significantly -- current techniques have matured and new ones have appeared. This new edition deals with these new developments; in particular, there are sections on:

- Transition path sampling and diffusive barrier crossing to simulate rare events**
- Dissipative particle dynamic as a coarse-grained simulation technique**
- Novel schemes to compute the long-ranged forces**
- Hamiltonian and non-Hamiltonian dynamics in the context constant-temperature and constant-pressure molecular dynamics simulations**
- Multiple-time step algorithms as an alternative for constraints**
- Defects in solids**
- The pruned-enriched Rosenbluth sampling, recoil-growth, and concerted rotations for complex molecules**
- Parallel tempering for glassy Hamiltonians**

Examples are included that highlight current applications and the codes of case studies are available on the World Wide Web. Several new examples have been added since the first edition to illustrate recent applications. Questions are included in this new edition. No prior knowledge of computer simulation is assumed.

A fascinating deep dive on innovation from the New York Times bestselling author of How We Got To Now and Unexpected Life The printing press, the pencil, the flush toilet, the battery--these are all great ideas. But where do they come from? What kind of environment breeds them? What sparks the flash of brilliance? How do we generate the breakthrough technologies that push forward our lives, our society, our culture? Steven Johnson's answers are

revelatory as he identifies the seven key patterns behind genuine innovation, and traces them across time and disciplines. From Darwin and Freud to the halls of Google and Apple, Johnson investigates the innovation hubs throughout modern time and pulls out the approaches and commonalities that seem to appear at moments of originality.

Where Good Ideas Come From

The Disappearing Spoon

How Plants, Powders, and Pills Have Shaped the History of Medicine

The Quantum Theory of Atoms in Molecules

Stuff Matters

From Algorithms to Applications

Exploring the Marvelous Materials That Shape Our Man-Made World

This book has been developed over many years from several popular courses taught to students at both Birmingham and London universities. It provides an important step in introducing principles and concepts within the field of toxicology. The underlying mechanisms of toxicity are highlighted through examples taken from gases, minerals, plants, fungi, bacteria, marine creatures, industrial chemicals and pharmacological agents. In this second edition, the text has been completely revised and expanded with the addition of six new chapters ? carbon monoxide, hydrofluoric acid, lead, mushroom, toxins, paracetamol, paraquat and diquat. Each chapter is self-sufficient, enabling readers to dip into chapters of interest at random without any lack of understanding. The book is informative, with numerous clinical details, and will appeal to those who wish to delve into this fascinating subject.

?? Giant molecules are important in our everyday life. But, as pointed out by the authors, they are also associated with a culture. What Bach did with the harpsichord, Kuhn and Flory did with polymers. We owe a lot of thanks to those who now make this music accessible ??Pierre-Gilles de Gennes Nobel Prize laureate in Physics (Foreword for the 1st Edition, March 1996) This book describes the basic facts, concepts and ideas of polymer physics in simple, yet scientifically accurate, terms. In both scientific and historic contexts, the book shows how the subject of polymers is fascinating, as it is behind most of the wonders of living cell machinery as well as most of the newly developed materials. No mathematics is used in the book beyond modest high school algebra and a bit of freshman calculus, yet very sophisticated concepts are introduced and explained, ranging from scaling and reptations to protein folding and evolution. The new edition includes an extended section on polymer preparation methods, discusses knots formed by molecular filaments, and presents new and updated materials on such contemporary topics as single molecule experiments with DNA or polymer properties of proteins and their roles in biological evolution.

Why are we obsessed with the things we want only to be bored when we get them? Why is addiction perfectly logical to an addict? Why does love change so quickly from passion to indifference? Why are some people die-hard liberals and others hardcore conservatives? Why are we always hopeful for solutions even in the darkest times—and so good at figuring them out? The answer is found in a single chemical in your brain: dopamine. Dopamine ensured the survival of early man. Thousands of years later, it is the source of our most basic behaviors and cultural ideas—and progress itself. Dopamine is the chemical of desire that always asks for more—more stuff, more stimulation, and more surprises. In pursuit of these things, it is undeterred by emotion, fear, or morality. Dopamine is the source of our every urge, that little bit of biology that makes an ambitious business professional sacrifice everything in pursuit of success, or that drives a satisfied spouse to risk it all for the thrill of someone new. Simply put, it is why we seek and succeed; it is why we discover and prosper. Yet, at the same time, it's why we gamble and squander. From dopamine's point of view, it's not the having that matters. It's getting something—anything—that's new. From this understanding—the difference between possessing something versus anticipating it—we can understand in a revolutionary new way why we behave as we do in love, business, addiction, politics, religion—and we can even predict those behaviors in ourselves and others. In *The Molecule of More: How a Single Chemical in Your Brain Drives Love, Sex, and Creativity—and will Determine the Fate of the Human Race*, George Washington University professor and psychiatrist Daniel Z. Lieberman, MD, and Georgetown University lecturer Michael E. Long present a potentially life-changing proposal: Much of human life has an unconsidered component that explains an array of behaviors previously thought to be unrelated, including why winners cheat, why geniuses often suffer with mental illness, why nearly all diets fail, and why the brains of liberals and conservatives really are different.

Molecules of Murder is about infamous murderers and famous victims; about people like Harold Shipman, Alexander Litvinenko, Adelaide Bartlett, and Georgi Markov. Few books on poisons analyse these crimes from the viewpoint of the poison itself, doing so throws a new light on how the murders or attempted murders were carried out and ultimately how the perpetrators were uncovered and brought to justice. Part I includes molecules which occur naturally and were originally used by doctors before becoming notorious as murder weapons. Part II deals with unnatural molecules, mainly man-made, and they too have been dangerously misused in famous crimes. The book ends with the most famous poisoning case in recent years, that of Alexander Litvinenko and his death from polonium chloride. The first half of each chapter starts by looking at the target molecule itself, its discovery, its history, its chemistry, its use in

medicine, its toxicology, and its effects on the human body. The second half then investigates a famous murder case and reveals the modus operandi of the poisoner and how some were caught, some are still at large, and some literally got away with murder. Molecules of Murder will explain how forensic chemists have developed cunning ways to detect minute traces of dangerous substances, and explain why some of these poisons, which appear so life-threatening, are now being researched as possible life-savers. Award winning science writer John Emsley has assembled another group of true crime and chemistry stories to rival those of his highly acclaimed Elements of Murder.

The Elements and the Architecture of Everything

Elements of the World

How 17 Molecules Changed History

Tools and Strategies

Here, There, and Everywhere

Molecules of Emotion

Culinary Reactions

A wonderful tool for learning and teaching, and a must-have for all current and future organic, medicinal and biological chemists. --Book Jacket.

Diamondoids are cage-like, ultra stable, saturated ringed hydrocarbons, which have a diamond-like structure consisting of a number of six-member carbon rings fused together.

Adamantane is the cage compound prototype and the simplest diamondoid molecule. Diamondoids Molecules aims to present these fascinating substances in a novel fashion. The more intriguing facets of diamondoid molecules are comprehensively exposed and discussed, bringing state-of-the-art information to the reader, along with the history, fundamentals and perspectives of diamondoid science and technology. This groundbreaking book, especially devoted to diamondoid molecules, is of critical importance to the global techno-scientific community, and will be of great interest in many research fields such as chemistry, physics, material science, geology, and biological sciences.

Moreover, it will attract readers from industrial, government and environmental agencies as well as scholars.

K.C. Nicolaou - Winner of the Nemitsas Prize 2014 in Chemistry At long last, the mechanism-based and application-oriented handbook of combinatorial chemistry. Since its very beginning, research in this field has continued to develop at a rapid rate. Increasingly elegant methods are being invented and an even wider range of possible applications is

still being discovered, such that combinatorial chemistry is now an integral part of industrial and academic research. The high-class editorial team - K. C. Nicolaou of The Scripps Institute and UCSD, and R. Hanco and W. Hartwig from Bayer - ensure comprehensive coverage and top quality contributions. This two-volume work deals with synthetic chemistry in all its forms, applications from life sciences, chemistry and material sciences, all there is to know about compound library design and synthesis, and, of course, the general basics - making it an indispensable reference for synthetic, organic and medicinal chemists, chemical biologists as well as material scientists.

You know that you need oxygen to breathe, that neon can glow and chrome shines? But did you know that your cell phone contains arsenic, your spectacles contain rhodium and that the tin pest is not a disease? And can you name just three researchers whom we have to thank for all these results? Here, Professor Quadbeck-Seeger, a long-serving member of the board at BASF, goes in search of these and other questions. Based on the periodic table, the key reference source for any natural scientist, he explains the criteria that define an element's position in the table and are responsible for its particular characteristics. In a clear and concise manner, he describes for each element the story behind its discovery, its physical and chemical properties as well as its role in our everyday lives. Enriched by a wealth of interesting details, this beautifully designed book in full color represents not only varied reading, but also a treasure trove of surprising facts. Ideally combined with the "Historical Periodic Table" poster, this book is aimed at younger audiences and is thus particularly suitable for schools, lectures and other courses.

Carbon-Rich Compounds

Armchair Chemistry

Ten Drugs

Chemistry, Analytical Methods, Applications

Molecules and Medicine

Molecules that Matter

Handbook of Combinatorial Chemistry

K.C. Nicolaou - Winner of the Nemitsas Prize 2014 in Chemistry
This book is a must for every synthetic chemist. With didactic skill and clarity, K. C. Nicolaou and E. Sorensen present the most remarkable and ingenious total syntheses from

outstanding synthetic organic chemists. To make the complex strategies more accessible, especially to the novice, each total synthesis is analyzed retrosynthetically. The authors then carefully explain each synthetic step and give hints on alternative methods and potential pitfalls. Numerous references to useful reviews and the original literature make this book an indispensable source of further information. Special emphasis is placed on the skillful use of graphics and schemes: Retrosynthetic analyses, reaction sequences, and stereochemically crucial steps are presented in boxed sections within the text. For easy reference, key intermediates are also shown in the margins. Graduate students and researchers alike will find this book a gold mine of useful information essential for their daily work. Every synthetic organic chemist will want to have a copy on his or her desk.

The Guardian's Best Science Book of 2017: the fascinating science and history of the air we breathe. It's invisible. It's ever-present. Without it, you would die in minutes. And it has an epic story to tell. In Caesar's Last Breath, New York Times bestselling author Sam Kean takes us on a journey through the periodic table, around the globe, and across time to tell the story of the air we breathe, which, it turns out, is also the story of earth and our existence on it. With every breath, you literally inhale the history of the world. On the ides of March, 44 BC, Julius Caesar died of stab wounds on the Senate floor, but the story of his last breath is still unfolding; in fact, you're probably inhaling some of it now. Of the sextillions of molecules entering or leaving your lungs at this moment, some might well bear traces of Cleopatra's perfumes, German mustard gas, particles exhaled by dinosaurs or emitted by atomic bombs, even remnants of stardust from the universe's creation. Tracing the origins and ingredients of our atmosphere, Kean reveals how the alchemy of air reshaped our continents, steered human progress, powered revolutions, and continues to influence everything we do. Along the way, we'll swim with radioactive pigs, witness the most important chemical reactions humans have discovered, and join the crowd at the Moulin Rouge for some of the crudest performance art of all time. Lively, witty, and filled with the astounding science of ordinary life, Caesar's Last Breath illuminates the science stories swirling around us every second.

Discusses interesting chemicals, such as the smelliest, most lethal, and most versatile, in a non-technical style that covers

each chemical's importance without using formulas, equations, or diagrams

1856. Eighteen-year-old chemistry student William Perkin's experiment has gone horribly wrong. But the deep brown sludge his botched project has produced has an unexpected power: the power to dye everything it touches a brilliant purple. Perkin has discovered mauve, the world's first synthetic dye, bridging a gap between pure chemistry and industry which will change the world forever. From the fetching ribbons soon tying back the hair on every fashionable head in London, to the laboratories in which scientists first scrutinized the human chromosome under the microscope, leading all the way to the development of modern vaccines against cancer and malaria, Simon Garfield's landmark work swirls together science and social history to tell the story of how one colour became a sensation.

Beyond the Molecular Frontier

Classics in Total Synthesis II

Understanding Molecular Simulation

Molecules of Murder

How a Single Chemical in Your Brain Drives Love, Sex, and Creativity

and Will Determine the Fate of the Human Race

Molecules

Chemistry of Plants That Changed the World

Part of the Armchair series, Armchair Chemistry is a quick refresher course in how we survey of the science. It explains how we evolved from believing in alchemy to discovering modern chemical equations and goes into detail about the lives of the scientists that uncovered them. Fascinating and interactive, this is ideal for the student brushing up on a subject or for as a clear and accessible companion for beginner's and experts alike. It contains explanations of different chemical concepts, as well as profiles of key scientists and and their discoveries. It contains clear and concise explanations of different chemical concepts, as well as profiles of key scientists and their discoveries. A unique feature of the book is its simple, step-by-step exercises. Some of these have everyday applications, others are theoretical puzzles, but all are designed to challenge you and test your newly acquired knowledge. The perfect companion for beginners and experts alike, Armchair Chemistry does not assume prior knowledge of the subject. It conveys the basic elements of chemistry in a way that is clear and accessible, no matter your level of ability.

The bestselling popular science author "has made it his mission to tackle myths about science and the so-called experts who spread them" (CBC Radio). The internet is a powerful beast when it comes to science; the answer to any

*query you may have is just a few keystrokes away. But when there are multiple answers from various sources, how do we know what information is reliable? In *Monkeys, Myths, and Molecules*, bestselling author Dr. Joe Schwarcz takes a critical look at how facts are misconstrued in the media. He debunks the myths surrounding canned food, artificial dyes, SPF, homeopathy, cancer, chemicals, and much more. Unafraid to expose the sheer nonsense people are led to believe about health, food, drugs, and our environment, Dr. Joe confronts pseudoscience and convincingly and entertainingly advocates for a scientific approach to everyday life. "A compendium of short articles on a variety of subjects, written in a humorous, accessible style, and larded with intriguing trivia . . . Dr. Joe skewers food myths, opposition to GMOs, Dr. Oz, and Vani Hari, aka the Food Babe."*

—Science-Based Medicine "Ultimately, the author successfully demonstrates how claims should be queried and analyzed before they are accepted . . . Recommended for readers of health, nutrition, and popular science."

—Library Journal "The book is chock-full of captivating anecdotes . . . The author engages readers with his wit and wisdom." —The Canadian Jewish News

This book distills the knowledge gained from research into atoms in molecules over the last 10 years into a unique, handy reference. Throughout, the authors address a wide audience, such that this volume may equally be used as a textbook without compromising its research-oriented character. Clearly structured, the text begins with advances in theory before moving on to theoretical studies of chemical bonding and reactivity. There follow separate sections on solid state and surfaces as well as experimental electron densities, before finishing with applications in biological sciences and drug-design. The result is a must-have for physicochemists, chemists, physicists, spectroscopists and materials scientists.

Buried Sunlight

Molecules with Silly Or Unusual Names

Diamonoid Molecules: With Applications In Biomedicine, Materials Science, Nanotechnology & Petroleum Science

Drugs, Catalysts, Materials

Molecules of the Mind

From Molecules to Machines