

acs heroes of chemistry 2022

ACS Heroes of Chemistry 2022: Revolutionizing Industries Through Chemical Innovation

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Publisher: This report is published by a hypothetical independent scientific publishing house, "ScienceForward Publications," dedicated to disseminating high-quality research and analysis on advancements in chemistry and related fields. ScienceForward maintains a strong reputation for peer-reviewed articles and unbiased reporting, ensuring accuracy and credibility in the scientific community.

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Keywords: acs heroes of chemistry 2022, chemical innovation, materials science, polymer chemistry, drug discovery, sustainable chemistry, biotechnology, ACS, American Chemical Society

Introduction: Celebrating the 2022 ACS Heroes of Chemistry

The American Chemical Society (ACS) annually celebrates its "ACS Heroes of Chemistry," recognizing individuals and teams whose innovations have significantly impacted various sectors. The acs heroes of chemistry 2022 award recipients represent a diverse group of researchers whose work is transforming industries ranging from medicine to energy. This in-depth report examines the achievements of the 2022 awardees, analyzing the scientific foundations of their innovations and assessing their broader impact on society. It delves into specific research findings, showcasing the transformative power of chemical science.

The 2022 Awardees and Their Groundbreaking Contributions

While a complete list of all 2022 awardees would require access to the official ACS announcement (which would vary year to year), we can discuss hypothetical examples of the types of achievements typically recognized. This allows for a deeper dive into the scientific merits and societal implications. Let's consider three hypothetical awardee categories for illustrative purposes:

1. **Revolutionizing Drug Delivery:** Imagine a team honored for developing novel polymer-based nanoparticles for targeted drug delivery. Their research, published in *Nature Nanotechnology*, demonstrated that these nanoparticles could effectively encapsulate anticancer drugs, delivering them directly to tumor cells while minimizing side effects in healthy tissues. This is backed by *in vivo* studies showing a significant increase in tumor regression rates compared to conventional chemotherapy. This work exemplifies the impact of ACS Heroes of Chemistry 2022 on improving human health. The data presented would include detailed pharmacokinetic and pharmacodynamic profiles of the drug-nanoparticle complex, alongside statistical analysis of tumor growth and survival rates in animal models.

1. **Advancing Sustainable Energy Solutions:** Another hypothetical category might recognize researchers who developed a groundbreaking catalyst for efficient and affordable hydrogen production from water electrolysis. Their research, published in *Science*, demonstrated that their novel catalyst, a metal-organic framework (MOF) material, exhibits exceptional stability and activity, exceeding the performance of existing platinum-based catalysts. Data from this study would include electrochemical characterization, including Tafel plots and electrochemical impedance spectroscopy, demonstrating the catalyst's superior activity and stability. This research directly addresses the global need for clean energy, showcasing the significant contributions of ACS Heroes of Chemistry 2022 to environmental sustainability.

1. **Transforming Materials Science:** A third category might focus on a team pioneering the development of self-healing polymers for infrastructure applications. Published in *Advanced Materials*, their research demonstrates the synthesis and characterization of a polymer network capable of autonomously repairing micro-cracks upon exposure to environmental stimuli. Data from this study would include mechanical testing, showing improved durability and longevity of materials reinforced with the self-healing polymer, alongside microscopy images visualizing the self-healing process. This achievement highlights the impact of ACS Heroes of Chemistry 2022 on creating more durable and resilient infrastructure, minimizing maintenance costs and enhancing safety.

Broader Societal Impact of the ACS Heroes of Chemistry 2022

The ACS Heroes of Chemistry 2022 awards not only celebrate scientific excellence but also underscore the vital role of chemistry in addressing global challenges. The innovations recognized contribute directly to:

Improved human health: Advances in drug delivery, diagnostics, and therapeutic agents significantly improve patient outcomes and quality of life.

Environmental sustainability: Developments in renewable energy, pollution control, and sustainable materials reduce environmental impact and promote a greener future.

Economic growth: Chemical innovations drive innovation in various industries, creating new jobs and opportunities.

Enhanced national security: Advancements in materials science and chemical engineering contribute to national defense and security.

Conclusion

The ACS Heroes of Chemistry 2022 exemplify the transformative power of chemical science. Their dedication to research and innovation has led to groundbreaking discoveries with far-reaching societal implications. By showcasing these achievements, the ACS highlights the crucial role of chemistry in addressing global challenges and improving the quality of life for all. The awards serve as an inspiration for future generations of chemists and underscore the importance of continued investment in scientific research.

FAQs

1. How are the ACS Heroes of Chemistry selected? A rigorous selection process involves nominations, peer review, and evaluation by a panel of experts based on the impact of the nominee's research and innovation.
1. What criteria are used to select the ACS Heroes of Chemistry? Key criteria include scientific impact, innovation, societal benefit, and commercial viability.
1. What is the significance of the ACS Heroes of Chemistry awards? The awards recognize outstanding achievements in chemistry, inspire future scientists, and highlight the importance of chemistry in solving global challenges.
1. How long has the ACS Heroes of Chemistry program been running? The program has been running for many years, recognizing chemical innovation and its impact on society. The specific start date would need to be verified on the ACS website.
1. Are there any geographical limitations for nominations? Nominations are typically open to researchers worldwide, regardless of their nationality or location.
1. What kind of impact has the ACS Heroes of Chemistry had on the chemical industry? The

program has been instrumental in showcasing groundbreaking chemical innovations, influencing research directions and potentially impacting investment in promising technologies.

1. How can I nominate someone for the ACS Heroes of Chemistry award? Details on the nomination process, including eligibility requirements and deadlines, would be available on the official ACS website.
1. What are some past examples of impactful ACS Heroes of Chemistry? The ACS website maintains an archive of past awardees and their contributions, which provide valuable insights into impactful research and its application.
1. How can I learn more about the research of the ACS Heroes of Chemistry 2022? Additional details about the 2022 awardees, their research, and their publications should be available through the official ACS website and related publications.

Related Articles:

1. "The Impact of Polymer Chemistry on Drug Delivery Systems": This article reviews advancements in polymer-based drug delivery systems and their clinical applications.
1. "Sustainable Catalysis for Hydrogen Production: A Review": This article discusses recent progress in the development of efficient and sustainable catalysts for hydrogen generation.
1. "Self-Healing Materials: A New Frontier in Materials Science": This article explores the principles and applications of self-healing materials, highlighting their potential to revolutionize various industries.
1. "The Role of Nanotechnology in Cancer Therapeutics": This article reviews the use of nanoparticles in targeted drug delivery and cancer therapy.

1. "Green Chemistry and its Contribution to a Sustainable Future": This article examines the principles and applications of green chemistry in reducing environmental impact.
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acs heroes of chemistry 2022: Catalysis James J Spivey, Yi-Fan Han, Dushyant Shekhawat, 2022-07-07 This volume looks at modern approaches to catalysis and reviews the extensive literature. Chapters highlight microkinetic modeling, encapsulated metals for confined catalysis, recent advances on the direct decomposition of NO_x and heteropolyacid catalysts. There is also a chapter reviewing methods for estimating adsorption energies on catalytic surfaces, which will provide information from both fundamental and technological points of view. Appealing broadly to researchers in academia and industry, the detailed chapters bridge the gap from academic studies in the laboratory to practical applications in industry, not only for the catalysis field, but also for environmental protection. The book will be of great benefit to any researcher wanting a succinct reference on developments in this area now and looking to the future.

acs heroes of chemistry 2022: Successful Strategies for the Discovery of Antiviral Drugs Manoj C. Desai, Nicholas A. Meanwell, 2013-06-17 The antiviral therapeutic area continues to rapidly generate meaningful new chemical entities; for example, for HIV alone more than 25 drugs have been approved, and in the next few years many individual drugs and single tablet regimens will be approved for the treatment of hepatitis C virus infection. The increasing success in the antiviral area could be due to targeting drugs at non-self genomes and to the patient population that is tolerant of manageable side effects and adaptable to inconvenient dosing. Aimed at medicinal chemists and emerging drug discovery scientists, the book is organized according to the various strategies deployed for the discovery and optimization of initial lead compounds. This book focuses on capturing tactical aspects of problem solving in antiviral drug design, an approach that holds

special appeal for those engaged in antiviral drug development, but also appeals to the broader medicinal chemistry community based on its focus on tactical aspects of drug design.

acs heroes of chemistry 2022: HCV: The Journey from Discovery to a Cure Michael J. Sofia, 2019-11-23 Hepatitis C is a liver disease caused by the hepatitis C virus (HCV) and infects approximately 75 million individuals worldwide. It is also one of the major causes of liver cancer and liver transplants. The elucidation of the HCV genome, and the development of a whole cell system to study the virus spurred the search for novel direct acting antiviral drugs to cure this disease. This global effort culminated in the development of direct acting antiviral drugs that led to cure rates approaching 100% in all patient populations after only 8-12 weeks of therapy. These efforts resulted in one of the greatest achievements in public health and provides the potential for eliminating HCV as a major disease worldwide. This volume is aimed at a broad audience of academic and industrial scientists interested in the discovery and development of drugs to treat viral diseases and those interested in reading about one of the most unique accomplishments in biomedical research. The volume will provide a one of a kind reference work that highlights the many efforts, from the discovery of the HCV virus, to the invention of breakthrough medicines and their use in the real world to cure patients. It is the companion book to the volume HCV: The Journey from Discovery to a Cure - Volume II.

acs heroes of chemistry 2022: Computers in Chemistry Ajit J. Thakkar, 1973-06-12

acs heroes of chemistry 2022: The Revolt of The Public and the Crisis of Authority in the New Millennium Martin Gurri , 2018-12-04 How insurgencies—enabled by digital devices and a vast information sphere—have mobilized millions of ordinary people around the world. In the words of economist and scholar Arnold Kling, Martin Gurri saw it coming. Technology has categorically reversed the information balance of power between the public and the elites who manage the great hierarchical institutions of the industrial age: government, political parties, the media. The Revolt of the Public tells the story of how insurgencies, enabled by digital devices and a vast information sphere, have mobilized millions of ordinary people around the world. Originally published in 2014, The Revolt of the Public is now available in an updated edition, which includes an extensive analysis of Donald Trump's improbable rise to the presidency and the electoral triumphs of Brexit. The book concludes with a speculative look forward, pondering whether the current elite class can bring about a reformation of the democratic process and whether new organizing principles, adapted to a digital world, can arise out of the present political turbulence.

acs heroes of chemistry 2022: Aggregation-Induced Emission (AIE) Jianwei Xu, Ming Hui Chua, Ben Zhong Tang, 2022-04-17 Aggregation-Induced Emission (AIE): A Practical Guide introduces readers to the topic, guiding them through fundamental concepts and the latest advances in applications. The book covers concepts, principles and working mechanisms of AIE in AIE-active luminogens, with different classes of AIE luminogens reviewed, including polymers, three-dimensional frameworks (MOFs and COFs) and supramolecular gels. Special focus is given to the structure-property relationship, structural design strategies, targeted properties and application performance. The book provides readers with a deep understanding, not only on the fundamental principles of AIE, but more importantly, on how AIE luminogens and AIE properties can be incorporated in material development. - Provides the fundamental principles, design and synthesis strategies of aggregation induced emission materials - Reviews the most relevant applications in materials design for stimuli-responsive materials, biomedical applications, chemo-sensing and optoelectronics - Emphasizes structural design and its connection to aggregation induced emission properties, also exploring the structure-property relationship

acs heroes of chemistry 2022: The Plant Hunter Cassandra Leah Quave, 2022-06-14 The uplifting, adventure-filled memoir of one groundbreaking scientist's quest to develop new ways to fight illness and disease through the healing powers of plants. "A fascinating and deeply personal journey." —Amy Stewart, author of *Wicked Plants* and *The Drunken Botanist* Traveling by canoe, ATV, mule, airboat, and on foot, Dr. Cassandra Quave has conducted field research everywhere from the flooded forests of the remote Amazon to the isolated mountaintops in Albania and Kosovo—all in

search of natural compounds, long-known to traditional healers, that could help save us all from the looming crisis of untreatable superbugs. Dr. Quave is a leading medical ethnobotanist—someone who identifies and studies plants that may be able to treat antimicrobial resistance and other threatening illnesses—helping to provide clues for the next generation of advanced medicines. And as a person born with multiple congenital defects of her skeletal system, she's done it all with just one leg. In *The Plant Hunter*, Dr. Quave weaves together science, botany, and memoir to tell us the extraordinary story of her own journey.

acs heroes of chemistry 2022: *Organic Chemistry* David R. Klein, 2017-08-14 In *Organic Chemistry*, 3rd Edition, Dr. David Klein builds on the phenomenal success of the first two editions, which presented his unique skills-based approach to learning organic chemistry. Dr. Klein's skills-based approach includes all of the concepts typically covered in an organic chemistry textbook, and places special emphasis on skills development to support these concepts. This emphasis on skills development in unique SkillBuilder examples provides extensive opportunities for two-semester Organic Chemistry students to develop proficiency in the key skills necessary to succeed in organic chemistry.

acs heroes of chemistry 2022: *The Alchemy of Us* Ainissa Ramirez, 2021-04-06 A “timely, informative, and fascinating” study of 8 inventions—and how they shaped our world—with “totally compelling” insights on little-known inventors throughout history (Elizabeth Kolbert, Pulitzer Prize-winning author of *The Sixth Extinction*) In *The Alchemy of Us*, scientist and science writer Ainissa Ramirez examines 8 inventions and reveals how they shaped the human experience: • Clocks • Steel rails • Copper communication cables • Photographic film • Light bulbs • Hard disks • Scientific labware • Silicon chips Ramirez tells the stories of the woman who sold time, the inventor who inspired Edison, and the hotheaded undertaker whose invention pointed the way to the computer. She describes how our pursuit of precision in timepieces changed how we sleep; how the railroad helped commercialize Christmas; how the necessary brevity of the telegram influenced Hemingway's writing style; and how a young chemist exposed the use of Polaroid's cameras to create passbooks to track black citizens in apartheid South Africa. These fascinating and inspiring stories offer new perspectives on our relationships with technologies. Ramirez shows not only how materials were shaped by inventors but also how those materials shaped culture, chronicling each invention and its consequences—intended and unintended. Filling in the gaps left by other books about technology, Ramirez showcases little-known inventors—particularly people of color and women—who had a significant impact but whose accomplishments have been hidden by mythmaking, bias, and convention. Doing so, she shows us the power of telling inclusive stories about technology. She also shows that innovation is universal—whether it's splicing beats with two turntables and a microphone or splicing genes with two test tubes and CRISPR.

acs heroes of chemistry 2022: *Hypervalent Iodine Chemistry* Thomas Wirth, 2003-02-12 T. Wirth: Introduction and General Aspects.- M. Ochiai: Reactivities, Properties and Structures.- A. Varvoglis: Preparation of Hypervalent Iodine Compounds.- V.V. Zhdankin: C-C-Bond Forming Reactions.- G.F. Koser: C- Heteroatom-Bond Forming Reactions.- G.F. Koser: Heteroatom-Heteroatom-Bond Forming Reactions.- T. Wirth: Oxidations and Rearrangements.- H. Tohma, Y. Kita: Synthetic Applications (Total Synthesis and Natural Product Synthesis).

acs heroes of chemistry 2022: *Anion-Binding Catalysis* Olga Garcia-Mancheno, 2022-03-21 Explores the potential of new types of anion-binding catalysts to solve challenging synthetic problems *Anion-Binding Catalysis* introduces readers to the use of anion-binding processes in catalytic chemical activation, exploring how this approach can contribute to the future design of novel synthetic transformations. Featuring contributions by world-renowned scientists in the field, this authoritative volume describes the structure, properties, and catalytic applications of anions as well as synthetic applications and practical analytical methods. In-depth chapters are organized by type of catalyst rather than reaction type, providing readers with an accessible overview of the existing classes of effective catalysts. The authors discuss the use of halogens as counteranions, the combination of (thio)urea and squaramide-based anion-binding with other types of organocatalysis,

anion-binding catalysis by pnictogen and tetrel bonding, nucleophilic co-catalysis, anion-binding catalysis by pnictogen and tetrel bonding, and more. Helping readers appreciate and evaluate the potential of anion-binding catalysis, this timely book: Illustrates the historical development, activation mode, and importance of anion-binding in chemical catalysis Explains the analytic methods used to determine the anion-binding affinity of the catalysts Describes catalytic and synthetic applications of common NH- and OH-based hydrogen-donor catalysts as well as C-H triazole/triazolium catalysts Covers amino-catalysis involving enamine, dienamine, or iminium activation approaches Discusses new trends in the field of anion-binding catalysis, such as the combination of anion-binding with other types of catalysis Presenting the current state of the field as well as the synthetic potential of anion-binding catalysis in future, Anion-Binding Catalysis is essential reading for researchers in both academia and industry involved in organic synthesis, homogeneous catalysis, and pharmaceutical chemistry.

acs heroes of chemistry 2022: The Emperor of All Maladies Siddhartha Mukherjee, 2011-08-09 Winner of the Pulitzer Prize and a documentary from Ken Burns on PBS, this New York Times bestseller is “an extraordinary achievement” (The New Yorker)—a magnificent, profoundly humane “biography” of cancer—from its first documented appearances thousands of years ago through the epic battles in the twentieth century to cure, control, and conquer it to a radical new understanding of its essence. Physician, researcher, and award-winning science writer, Siddhartha Mukherjee examines cancer with a cellular biologist’s precision, a historian’s perspective, and a biographer’s passion. The result is an astonishingly lucid and eloquent chronicle of a disease humans have lived with—and perished from—for more than five thousand years. The story of cancer is a story of human ingenuity, resilience, and perseverance, but also of hubris, paternalism, and misperception. Mukherjee recounts centuries of discoveries, setbacks, victories, and deaths, told through the eyes of his predecessors and peers, training their wits against an infinitely resourceful adversary that, just three decades ago, was thought to be easily vanquished in an all-out “war against cancer.” The book reads like a literary thriller with cancer as the protagonist. Riveting, urgent, and surprising, The Emperor of All Maladies provides a fascinating glimpse into the future of cancer treatments. It is an illuminating book that provides hope and clarity to those seeking to demystify cancer.

acs heroes of chemistry 2022: Phyto-Oxylipins Sheikh Mansoor Shafi, Chukwuebuka Egbuna, Charles Oluwaseun Adetunji, 2023-03-21 Oxylipins are an important class of signaling molecules in plants, which play an important role in plant defence and innate immunity. Oxylipins have critical roles in plant growth and plant responses to physical damage caused by herbivores, insects, and pathogenic microbes. Over the last decade, our understanding of oxylipin production, metabolism, and function, particularly jasmonates, has advanced considerably. Jasmonates have provided further mechanistic insights into enzyme function and signalling cascades. Other oxylipins, such as hydroxy fatty acids, have recently been shown to exhibit individual signaling features and crosstalk with other phytohormones. There is scant literature on plant oxylipins and their relevance to our understanding and therefore, understanding oxylipin production, metabolism, and function is pivotal. As a result, researchers, students, professors, and other book readers will have a thorough understanding of plant oxylipin biosynthesis, structure, and function, assisting in the improvement of plant science. Plant oxylipins: metabolism, physiological roles, and profiling techniques address the mechanism, metabolism, and roles of oxylipins in plant resistance to various biotic and abiotic stimuli in detail. This book covers fundamental ideas in oxylipin production, metabolism, structural biochemistry, and signaling pathways. It also discusses cutting-edge methodologies for oxylipin metabolic profiling, with an emphasis on computing applications. This book is an excellent resource for plant scientists, plant biochemists, biotechnologists, botanists, phytochemists, toxicologists, chemical ecologists, taxonomists, and other scholars in those subjects. The book is written by a global team of professionals. Features Presents concrete and extensive information about a basic and applied aspect of plant oxylipins as well as expanded coverage of signaling mechanisms. Highlights the fundamental concepts of the biosynthesis, metabolism, structural biochemistry, and

signaling pathway of oxylipins. Details the state-of-the-art methods and techniques in metabolic profiling of oxylipins in plants. Presents insights on computational applications in the evaluation and study of oxylipins in plants.

acs heroes of chemistry 2022: The Poisoner's Handbook Deborah Blum, 2011-01-25 Equal parts true crime, twentieth-century history, and science thriller, *The Poisoner's Handbook* is a vicious, page-turning story that reads more like Raymond Chandler than Madame Curie. —The New York Observer “*The Poisoner's Handbook* breathes deadly life into the Roaring Twenties.” —Financial Times “Reads like science fiction, complete with suspense, mystery and foolhardy guys in lab coats tipping test tubes of mysterious chemicals into their own mouths.” —NPR: What We're Reading A fascinating Jazz Age tale of chemistry and detection, poison and murder, *The Poisoner's Handbook* is a page-turning account of a forgotten era. In early twentieth-century New York, poisons offered an easy path to the perfect crime. Science had no place in the Tammany Hall-controlled coroner's office, and corruption ran rampant. However, with the appointment of chief medical examiner Charles Norris in 1918, the poison game changed forever. Together with toxicologist Alexander Gettler, the duo set the justice system on fire with their trailblazing scientific detective work, triumphing over seemingly unbeatable odds to become the pioneers of forensic chemistry and the gatekeepers of justice. In 2014, PBS's AMERICAN EXPERIENCE released a film based on *The Poisoner's Handbook*.

acs heroes of chemistry 2022: Biochemical Sensors (In 2 Volumes) Huangxian Ju, Jinghong Li, 2021-06-08 This book covers the full scope of biochemical sensors and offers a survey of the principles, design and applications of the most popular types of biosensing devices. It is presented in 19 chapters, written by 20 distinguished scientists as well as their co-workers. The topics include the design of signal transducers, signal tags and signal amplification strategies, the structure of biosensing interfaces with new biorecognition elements such as aptamers and DNazymes, and different newly emerging nanomaterials such as Au nanoclusters, carbon nitride, silicon, upconversion nanoparticles and two-dimensional materials, and the applications in wearable detections, biofuel cells, biomarker analyses, bioimaging, single cell analysis and in vivo sensing. By discussing recent advances, it is hoped this book will bridge the common gap between research literature and standard textbooks. Research into biochemical sensors and their biomedical applications is proceeding in a number of exciting directions, as reflected by the content. This book is published in honor of the 90th birthday of Professor Shaojun Dong, who performed many pioneering studies on modified electrodes and biochemical sensors.

acs heroes of chemistry 2022: Organic Chemistry I as a Second Language David R. Klein, 2007-06-22 Get a Better Grade in Organic Chemistry Organic Chemistry may be challenging, but that doesn't mean you can't get the grade you want. With David Klein's *Organic Chemistry as a Second Language: Translating the Basic Concepts*, you'll be able to better understand fundamental principles, solve problems, and focus on what you need to know to succeed. Here's how you can get a better grade in Organic Chemistry: Understand the Big Picture. Organic Chemistry as a Second Language points out the major principles in Organic Chemistry and explains why they are relevant to the rest of the course. By putting these principles together, you'll have a coherent framework that will help you better understand your textbook. Study More Efficiently and Effectively Organic Chemistry as a Second Language provides time-saving study tips and a clear roadmap for your studies that will help you to focus your efforts. Improve Your Problem-Solving Skills Organic Chemistry as a Second Language will help you develop the skills you need to solve a variety of problem types—even unfamiliar ones! Need Help in Your Second Semester? Get Klein's *Organic Chemistry II as a Second Language*! 978-0-471-73808-5

acs heroes of chemistry 2022: Caesar's Last Breath Sam Kean, 2017-07-18 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.

acs heroes of chemistry 2022: The Twilight of the Scientific Age Martín López Corredoira, 2013 This book gives a challenging point of view about science and its history/philosophy/sociology. Science is in decline. After centuries of great achievements, the exhaustion of new forms and fatigue have reached our culture in all of its manifestations including the pure sciences. Our society is saturated with knowledge which does not offer people any sense in their lives. There is a loss of ideals in the search for great truths and a shift towards an anodyne specialized industry whose main goal is the sustenance and procreation of an endogamic professional caste. A wide audience of educated people interested in these topics will most likely respond to the ideas expressed here as things they have thought about or observed, but have not dared to say out loud.

acs heroes of chemistry 2022: Desorption Mass Spectrometry Philip A. Lyon, 1985 Bridges the gap between SIMS and FAB mass spectrometry. Focuses on surface techniques that can use either SIMS or FAB mass spectrometry. Includes fundamentals, instrumental design, and applications. Demythologizes particle bombardment by addressing both the chemistry and physics involved.

acs heroes of chemistry 2022: Research on Women's Health, 1997

acs heroes of chemistry 2022: Career Development and Counseling Steven D. Brown, Robert W. Lent, 2012-06-29 This is a must-have for any researcher in vocational psychology or career counseling, or anyone who wishes to understand the empirical underpinnings of the practice of career counseling. -Mark Pope, EdD College of Education, University of Missouri - St. Louis past president of the American Counseling Association Today's career development professional must choose from a wide array of theories and practices in order to provide services for a diverse range of clients. *Career Development and Counseling: Putting Theory and Research to Work* focuses on scientifically based career theories and practices, including those derived from research in other disciplines. Driven by the latest empirical and practical evidence, this text offers the most in-depth, far-reaching, and comprehensive career development and counseling resource available. *Career Development and Counseling* includes coverage of: Major theories of career development, choice, and adjustment Informative research on occupational aspirations, job search success, job satisfaction, work performance, career development with people of color, and women's career development Assessment of interests, needs and values, ability, and other important constructs Occupational classification and sources of occupational information Counseling for school-aged youth, diverse populations, choice-making, choice implementation, work adjustment, and retirement Special needs and applications including those for at-risk, intellectually talented, and work-bound youth; people with disabilities; and individuals dealing with job loss, reentry, and career transitions Edited by two of the leading figures in career development, and featuring contributions by many of the most well-regarded specialists in the field, *Career Development and Counseling: Putting Theory and Research to Work* is the one book that every career counselor, vocational psychologist, and serious student of career development must have.

acs heroes of chemistry 2022: Biomaterials Surface Science Andreas Taubert, Joao F. Mano, José Carlos Rodríguez-Cabello, 2013-07-23 At the interface of biology, chemistry, and

materials science, this book provides an overview of this vibrant research field, treating the seemingly distinct disciplines in a unified way by adopting the common viewpoint of surface science. The editors, themselves prolific researchers, have assembled here a team of top-notch international scientists who read like a who's who of biomaterials science and engineering. They cover topics ranging from micro- and nanostructuring for imparting functionality in a top-down manner to the bottom-up fabrication of gradient surfaces by self-assembly, from interfaces between biomaterials and living matter to smart, stimuli-responsive surfaces, and from cell and surface mechanics to the elucidation of cell-chip interactions in biomedical devices. As a result, the book explains the complex interplay of cell behavior and the physics and materials science of artificial devices. Of equal interest to young, ambitious scientists as well as to experienced researchers.

acs heroes of chemistry 2022: Natural Products in the Chemical Industry Bernd Schaefer, 2015-05-26 Natural Products in the Chemical Industry is not a conventional textbook, but rather an invitation to join an entertaining journey that takes you into the fascinating world of natural products. This book features diverse compound classes from a number of areas: colourants, fragrances and flavourings, amino acids, pharmaceuticals, hormones, vitamins and agrochemicals. Whether you are a teacher or a scholar, an undergraduate or graduate student, a professional chemist in industry or academia, or someone just interested in natural sciences, this book allows you to be inspired and entertained by facts and information along with enjoyable anecdotes, historical, economic, political, biological and social considerations. Experts in the field can have a pleasurable time cruising through captivating synthesis methods, which enable the generation of complex molecules on industrial scale. This book · deals with the manufacturing of larger quantities of complex molecules (asymmetric and heterocyclic compounds, polycyclic structures, macrocycles and small rings) · displays all reaction schemes in colour, which makes them easy to read · highlights aesthetics and elegance in modern industrial organic chemistry

acs heroes of chemistry 2022: The Chemistry and Biology of Nitroxyl (HNO) Fabio Doctorovich, Patrick J. Farmer, Marcelo A. Marti, 2016-09-01 The Chemistry and Biology of Nitroxyl (HNO) provides first-of-its-kind coverage of the intriguing biologically active molecule called nitroxyl, or azanone per IUPAC nomenclature, which has been traditionally elusive due to its intrinsically high reactivity. This useful resource provides the scientific basis to understand the chemistry, biology, and technical aspects needed to deal with HNO. Building on two decades of nitric oxide and nitroxyl research, the editors and authors have created an indispensable guide for investigators across a wide variety of areas of chemistry (inorganic, organic, organometallic, biochemistry, physical, and analytical); biology (molecular, cellular, physiological, and enzymology); pharmacy; and medicine. This book begins by exploring the unique molecule's structure and reactivity, including important reactions with small molecules, thiols, porphyrins, and key proteins, before discussing chemical and biological sources of nitroxyl. Advanced chapters discuss methods for both trapping and detecting nitroxyl by spectroscopy, electrochemistry, and fluorescent inorganic cellular probing. Expanding on the compound's foundational chemistry, this book then explores its molecular physiology to offer insight into its biological implications, pharmacological effects, and practical issues. - Presents the first book on HNO (nitroxyl or azanone), an increasingly important molecule in biochemistry and pharmaceutical research - Provides a valuable coverage of HNO's chemical structure and significant reactions, including practical guidance on working with this highly reactive molecule - Contains high quality content from recognized experts in both industry and academia

acs heroes of chemistry 2022: Natural Resource Management Issues in Human-Influenced Landscapes Hemachandra, Dilini, Dissanayaka, Samantha, 2024-08-22 Researchers working on natural resource management issues in human-influenced landscapes need to be able to elicit both biophysical and socio-economic information and explore the interactions between these realms to identify appropriate management options. Biophysical scientists are increasingly interested in researching natural resource management. This, however, requires a sensitivity to the socio-ecological dimensions in a landscape and at least a basic understanding of

how to incorporate such in the research designing phase. *Natural Resource Management Issues in Human-Influenced Landscapes* documents the firsthand research designing experience of prolific researchers for the knowledge of budding researchers, which is not usually shared in journal publications. The chapters showcase cases narrated by the authors about their field experiences and cross-country comparisons. Covering topics such as biodiversity, plant genetic resources, and sustainable production, this premier reference source is an essential resource for ecologists, government officials, students and educators of higher education, librarians, researchers, and academicians.

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Richard A. Crocombe, Pauline E. Leary, Brooke W. Kammrath, 2021-04-28 The most comprehensive resource available on the many applications of portable spectrometers, including material not found in any other published work *Portable Spectroscopy and Spectrometry: Volume Two* is an authoritative and up-to-date compendium of the diverse applications for portable spectrometers across numerous disciplines. Whereas *Volume One* focuses on the specific technologies of the portable spectrometers themselves, *Volume Two* explores the use of portable instruments in wide range of fields, including pharmaceutical development, clinical research, food analysis, forensic science, geology, astrobiology, cultural heritage and archaeology. *Volume Two* features contributions by a multidisciplinary team of experts with hands-on experience using portable instruments in their respective areas of expertise. Organized both by instrumentation type and by scientific or technical discipline, 21 detailed chapters cover various applications of portable ion mobility spectrometry (IMS), infrared and near-infrared (NIR) spectroscopy, Raman and x-ray fluorescence (XRF) spectroscopy, smartphone spectroscopy, and many others. Filling a significant gap in literature on the subject, the second volume of *Portable Spectroscopy and Spectrometry: Features a significant amount of content published for the first time, or not available in existing literature Brings together work by authors with assorted backgrounds and fields of study Discusses the central role of applications in portable instrument development Covers the algorithms, calibrations, and libraries that are of critical importance to successful applications of portable instruments Includes chapters on portable spectroscopy applications in areas such as the military, agriculture and feed, hazardous materials (HazMat), art conservation, and environmental science Portable Spectroscopy and Spectrometry: Volume Two* is an indispensable resource for developers of portable instruments in universities, research institutes, instrument companies, civilian and government purchasers, trainers, operators of portable instruments, and educators and students in portable spectroscopy courses.

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Susan Miller, Walter Moos, Barbara Munk, Stephen Munk, Charles Hart, David Spellmeyer, 2023-03-09 *Managing the Drug Discovery Process, Second Edition* thoroughly examines the current state of pharmaceutical research and development by providing experienced perspectives on biomedical research, drug hunting and innovation, including the requisite educational paths that enable students to chart a career path in this field. The book also considers the interplay of stakeholders, consumers, and drug firms with respect to a myriad of factors. Since drug research can be a high-risk, high-payoff industry, it is important to students and researchers to understand how to effectively and strategically manage both their careers and the drug discovery process. This new edition takes a closer look at the challenges and opportunities for new medicines and examines not only the current research milieu that will deliver novel therapies, but also how the latest discoveries can be deployed to ensure a robust healthcare and pharmacoeconomic future. All chapters have been revised and expanded with new discussions on remarkable advances including CRISPR and the latest gene therapies, RNA-based technologies being deployed as vaccines as well as therapeutics, checkpoint inhibitors and CAR-T approaches that cure cancer, diagnostics and medical devices, entrepreneurship, and AI. Written in an engaging manner and including memorable insights, this book is aimed at anyone interested in helping to save countless more lives through science. A valuable and compelling resource, this is a must-read for all students, educators, practitioners, and

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acs heroes of chemistry 2022: The Diversity Style Guide Rachele Kanigel, 2018-10-15 New diversity style guide helps journalists write with authority and accuracy about a complex, multicultural world A companion to the online resource of the same name, The Diversity Style Guide raises the consciousness of journalists who strive to be accurate. Based on studies, news reports and style guides, as well as interviews with more than 50 journalists and experts, it offers the best, most up-to-date advice on writing about underrepresented and often misrepresented groups. Addressing such thorny questions as whether the words Black and White should be capitalized when referring to race and which pronouns to use for people who don't identify as male or female, the book helps readers navigate the minefield of names, terms, labels and colloquialisms that come with living in a diverse society. The Diversity Style Guide comes in two parts. Part One offers enlightening chapters on Why is Diversity So Important; Implicit Bias; Black Americans; Native People; Hispanics and Latinos; Asian Americans and Pacific Islanders; Arab Americans and Muslim Americans; Immigrants and Immigration; Gender Identity and Sexual Orientation; People with Disabilities; Gender Equality in the News Media; Mental Illness, Substance Abuse and Suicide; and Diversity and Inclusion in a Changing Industry. Part Two includes Diversity and Inclusion Activities and an A-Z Guide with more than 500 terms. This guide: Helps journalists, journalism students, and other media writers better understand the context behind hot-button words so they can report with confidence and sensitivity Explores the subtle and not-so-subtle ways that certain words can alienate a source or infuriate a reader Provides writers with an understanding that diversity in journalism is about accuracy and truth, not political correctness. Brings together guidance from more than 20 organizations and style guides into a single handy reference book The Diversity Style Guide is first and foremost a guide for journalists, but it is also an important resource for journalism and writing instructors, as well as other media professionals. In addition, it will appeal to those in other fields looking to make informed choices in their word usage and their personal interactions.

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mission. Colonel Boris Pash, a high school science teacher and veteran of the Russian Revolution who fled the Soviet Union with a deep disdain for Communists and who later led the Alsos mission. Joe Kennedy Jr., the charismatic, thrill-seeking older brother of JFK whose need for adventure led him to volunteer for the most dangerous missions the Navy had to offer. Samuel Goudsmit, a washed-up physics prodigy who spent his life hunting Nazi scientists -- and his parents, who had been swept into a concentration camp -- across the globe. Irène and Frederic Joliot-Curie, a physics Nobel-Prize winning power couple who used their unassuming status as scientists to become active members of the resistance. Thrust into the dark world of international espionage, these scientists and soldiers played a vital and largely untold role in turning back one of the darkest tides in human history.

acs heroes of chemistry 2022: Cathedrals of Science Patrick Coffey, 2008-08-29 In *Cathedrals of Science*, Patrick Coffey describes how chemistry got its modern footing-how thirteen brilliant men and one woman struggled with the laws of the universe and with each other. They wanted to discover how the world worked, but they also wanted credit for making those discoveries, and their personalities often affected how that credit was assigned. Gilbert Lewis, for example, could be reclusive and resentful, and his enmity with Walther Nernst may have cost him the Nobel Prize; Irving Langmuir, gregarious and charming, rediscovered Lewis's theory of the chemical bond and received much of the credit for it. Langmuir's personality smoothed his path to the Nobel Prize over Lewis. Coffey deals with moral and societal issues as well. These same scientists were the first to be seen by their countries as military assets. Fritz Haber, dubbed the father of chemical warfare, pioneered the use of poison gas in World War I-vividly described-and Glenn Seaborg and Harold Urey were leaders in World War II's Manhattan Project; Urey and Linus Pauling worked for nuclear disarmament after the war. Science was not always fair, and many were excluded. The Nazis pushed Jewish scientists like Haber from their posts in the 1930s. Anti-Semitism was also a force in American chemistry, and few women were allowed in; Pauling, for example, used his influence to cut off the funding and block the publications of his rival, Dorothy Wrinch. *Cathedrals of Science* paints a colorful portrait of the building of modern chemistry from the late 19th to the mid-20th century.

acs heroes of chemistry 2022: Applications of Metal-Organic Frameworks and Their Derived Materials Inamuddin, Rajender Boddula, Mohd Imran Ahamed, Abdullah M. Asiri, 2020-06-10 Metal-organic frameworks (MOFs) are porous crystalline polymers constructed by metal sites and organic building blocks. Since the discovery of MOFs in the 1990s, they have received tremendous research attention for various applications due to their high surface area, controllable morphology, tunable chemical properties, and multifunctionalities, including MOFs as precursors and self-sacrificing templates for synthesizing metal oxides, heteroatom-doped carbons, metal-atoms encapsulated carbons, and others. Thus, awareness and knowledge about MOFs and their derived nanomaterials with conceptual understanding are essential for the advanced material community. This breakthrough new volume aims to explore down-to-earth applications in fields such as biomedical, environmental, energy, and electronics. This book provides an overview of the structural and fundamental properties, synthesis strategies, and versatile applications of MOFs and their derived nanomaterials. It gives an updated and comprehensive account of the research in the field of MOFs and their derived nanomaterials. Whether as a reference for industry professionals and nanotechnologists or for use in the classroom for graduate and postgraduate students, faculty members, and research and development specialists working in the area of inorganic chemistry, materials science, and chemical engineering, this is a must-have for any library.

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intersectionality can disorient habits of essentialism, categorial purity, and prototypicality and overcome dynamics of segregation and subordination in political movements. Through a close reading of critical race theorist Kimberlé Williams Crenshaw's germinal texts, published more than twenty-five years ago, Carastathis urges analytic clarity, contextual rigor, and a politicized, historicized understanding of this widely traveling concept. Intersectionality's roots in social justice movements and critical intellectual projects--specifically Black feminism--must be retraced and synthesized with a decolonial analysis so its radical potential to actualize coalitions can be enacted.

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upward trend in cigar use as potential serious public health problem.

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