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CRC Handbook of Chemistry and Physics, 90th Edition *CRC Press Mirroring the growth and direction of science for nearly a century, the CRC Handbook of Chemistry and Physics, now in its 90th edition, adds several new tables that will be among the most accessed in the world. These include Structure and Functions of Common Drugs, Solubility Parameters of Polymers, Major World Earthquakes, and Equilibrium Constants of Selected Enzyme Reactions. It adds major updates to several more, including Threshold Limits for Airborne Contaminants, Mass Spectral Peaks of Common Organic Solvents, and Properties of the Solar System. It also adds a table of the Handbook's greatest fans: Nobel Laureates in Chemistry and Physics.* **CRC Handbook of Basic Tables for Chemical Analysis** *CRC Press Winner of an Oustanding Academic Title Award for 2011!Researchers in organic chemistry, chemical engineering, pharmaceutical science, forensics, and environmental science make routine use of chemical analysis, but the information these researchers need is often scattered in different sources and difficult to access. The CRC Handbook of Basic Tables* **CRC Handbook of Chemistry and Physics, 94th Edition** *CRC Press Celebrating the 100th anniversary of the CRC Handbook of Chemistry and Physics, this 94th edition is an update of a classic reference, mirroring the growth and direction of science for a century. The Handbook continues to be the most accessed and respected scientific reference in the science, technical, and medical communities. An authoritative resource consisting of tables of data, its usefulness spans every discipline. Originally a 116-page pocket-sized book, known as the Rubber Handbook, the CRC Handbook of Chemistry and Physics comprises 2,600 pages of critically evaluated data. An essential resource for scientists around the world, the Handbook is now available in print, eBook, and online formats. New tables: Section 7: Biochemistry Properties of Fatty Acid Methyl and Ethyl Esters Related to Biofuels Section 8: Analytical Chemistry Gas Chromatographic Retention Indices Detectors for Liquid Chromatography Organic Analytical Reagents for the*

Determination of Inorganic Ions Section 12: Properties of Solids Properties of Selected Materials at Cryogenic Temperatures Significantly updated and expanded tables: Section 3: Physical Constants of Organic Compounds Expansion of Diamagnetic Susceptibility of Selected Organic Compounds Section 5: Thermochemistry, Electrochemistry, and Solution Chemistry Update of Electrochemical Series Section 6: Fluid Properties Expansion of Thermophysical Properties of Selected Fluids at Saturation Major expansion and update of Viscosity of Liquid Metals Section 7: Biochemistry Update of Properties of Fatty Acids and Their Methyl Esters Section 8: Analytical Chemistry Major expansion of Abbreviations and Symbols Used in Analytical Chemistry Section 9: Molecular Structure and Spectroscopy Update of Bond Dissociation Energies Section 11: Nuclear and Particle Physics Update of Summary Tables of Particle Properties Section 14: Geophysics, Astronomy, and Acoustics Update of Atmospheric Concentration of Carbon Dioxide, 1958-2012 Update of Global Temperature Trend, 1880-2012 Major update of Speed of Sound in Various Media Section 15: Practical Laboratory Data Update of Laboratory Solvents and Other Liquid Reagents Major update of Density of Solvents as a Function of Temperature Major update of Dependence of Boiling Point on Pressure Section 16: Health and Safety Information Major update of Threshold Limits for Airborne Contaminants Appendix A: Major update of Mathematical Tables Appendix B: Update of Sources of Physical and Chemical Data **CRC Handbook of Chemistry and Physics** *CRC Press Mirroring the growth and direction of science for a century, the Handbook, now in its 93rd edition, continues to be the most accessed and respected scientific reference in the world. An authoritative resource consisting tables of data, its usefulness spans every discipline. This edition includes 17 new tables in the Analytical Chemistry section, a major update of the CODATA Recommended Values of the Fundamental Physical Constants and updates to many other tables. The book puts physical formulas and mathematical tables used in labs every day within easy reach. The 93rd edition is the first edition to be available as an eBook.* **CRC Handbook of Chemistry and Physics, 90th Edition** *CRC Press Mirroring the growth and direction of science for nearly a century, the CRC Handbook of Chemistry and Physics, now in its 90th edition, adds several new tables that will be among the most accessed in the world. These include Structure and Functions of Common Drugs, Solubility Parameters of Polymers, Major World Earthquakes, and Equilibrium Constants of Selected Enzyme Reactions. It adds major updates to several more, including Threshold Limits for Airborne Contaminants, Mass Spectral Peaks of Common Organic Solvents, and Properties of the Solar System. It also adds a table of the Handbook's greatest fans: Nobel Laureates in Chemistry and Physics.* **MEMS Materials and Processes Handbook** *Springer Science & Business Media MEMs Materials and Processes Handbook" is a comprehensive reference for researchers searching for new materials, properties of known materials, or specific processes available for MEMS fabrication. The content is separated into distinct sections on "Materials" and "Processes". The extensive Material Selection Guide" and a "Material Database" guides the reader through the selection of appropriate materials for the required task at hand. The "Processes" section of the book is organized as a catalog of various microfabrication processes, each with a brief introduction to the technology, as well as examples of common uses in MEMs.*

Essentials of Physical Chemistry *CRC Press At a time when U.S. high school students are producing low scores in mathematics and science on international examinations, a thorough grounding in physical chemistry should not be considered optional for science undergraduates. Based on the author's thirty years of teaching, Essentials of Physical Chemistry merges coverage of calculus with chemist*
Handbook of Biochemistry and Molecular Biology, Fourth Edition *CRC Press Edited by renowned protein scientist and bestselling author Roger L. Lundblad, with the assistance of Fiona M. Macdonald of CRC Press, this fourth edition of the Handbook of Biochemistry and Molecular Biology represents a dramatic revision — the first in two decades — of one of biochemistry's most referenced works. This edition gathers a wealth of information not easily obtained, including information not found on the web. Offering a molecular perspective not available 20 years ago, it provides physical and chemical data on proteins, nucleic acids, lipids, and carbohydrates. Presented in an organized, concise, and simple-to-use format, this popular reference allows quick access to the most frequently used data. Covering a wide range of topics, from classical biochemistry to proteomics and genomics, it also details the properties of commonly used biochemicals, laboratory solvents, and reagents. Just a small sampling of the wealth of information found inside the handbook: Buffers and buffer solutions Heat capacities and combustion levels Reagents for the chemical modification of proteins Comprehensive classification system for lipids Biological characteristics of vitamins A huge variety of UV data Recommendations for nomenclature and tables in biochemical thermodynamics Guidelines for NMR measurements for determination of high and low pKa values Viscosity and density tables Chemical and physical properties of various commercial plastics Generic source-based nomenclature for polymers Therapeutic enzymes About the Editors: Roger L. Lundblad, Ph.D. Roger L. Lundblad is a native of San Francisco, California. He received his undergraduate education at Pacific Lutheran University and his PhD degree in biochemistry at the University of Washington. After postdoctoral work in the laboratories of Stanford Moore and William Stein at the Rockefeller University, he joined the faculty of the University of North Carolina at Chapel Hill. He joined the Hyland Division of Baxter Healthcare in 1990. Currently Dr. Lundblad is an independent consultant and writer in biotechnology in Chapel Hill, North Carolina. He is an adjunct Professor of Pathology at the University of North Carolina at Chapel Hill and Editor-in-Chief of the Internet Journal of Genomics and Proteomics. Fiona M. Macdonald, Ph.D., F.R.S.C. Fiona M. Macdonald received her BSc in chemistry from Durham University, UK. She obtained her PhD in inorganic biochemistry at Birkbeck College, University of London, studying under Peter Sadler. Having spent most of her career in scientific publishing, she is now at Taylor and Francis and is involved in developing chemical information products.* **CRC Handbook of Chemistry and Physics, 96th Edition** *CRC Press Proudly serving the scientific community for over a century, this 96th edition of the CRC Handbook of Chemistry and Physics is an update of a classic reference, mirroring the growth and direction of science. This venerable work continues to be the most accessed and respected scientific reference in the world. An authoritative resource consisting of tables of data and current international recommendations on nomenclature, symbols, and units, its usefulness spans not only the physical sciences but also*

related areas of biology, geology, and environmental science. The 96th edition of the Handbook includes 18 new or updated tables along with other updates and expansions. A new series highlighting the achievements of some of the major historical figures in chemistry and physics was initiated with the 94th edition. This series is continued with this edition, which is focused on Lord Kelvin, Michael Faraday, John Dalton, and Robert Boyle. This series, which provides biographical information, a list of major achievements, and notable quotations attributed to each of the renowned chemists and physicists, will be continued in succeeding editions. Each edition will feature two chemists and two physicists. The 96th edition now includes a complimentary eBook with purchase of the print version. This reference puts physical property data and mathematical formulas used in labs and classrooms every day within easy reach. New Tables: Section 1: Basic Constants, Units, and Conversion Factors Descriptive Terms for Solubility Section 8: Analytical Chemistry Stationary Phases for Porous Layer Open Tubular Columns Coolants for Cryotrapping Instability of HPLC Solvents Chlorine-Bromine Combination Isotope Intensities Section 16: Health and Safety Information Materials Compatible with and Resistant to 72 Percent Perchloric Acid Relative Dose Ranges from Ionizing Radiation Updated and Expanded Tables Section 6: Fluid Properties Sublimation Pressure of Solids Vapor Pressure of Fluids at Temperatures Below 300 K Section 7: Biochemistry Structure and Functions of Some Common Drugs Section 9: Molecular Structure and Spectroscopy Bond Dissociation Energies Section 11: Nuclear and Particle Physics Summary Tables of Particle Properties Table of the Isotopes Section 14: Geophysics, Astronomy, and Acoustics Major World Earthquakes Atmospheric Concentration of Carbon Dioxide, 1958-2014 Global Temperature Trend, 1880-2014 Section 15: Practical Laboratory Data Dependence of Boiling Point on Pressure Section 16: Health and Safety Information Threshold Limits for Airborne Contaminants

Handbook of Chemistry and Physics A Ready-Reference Pocket Book of Chemical and Physical Data - Scholar's Choice Edition *Scholar's Choice This work has been selected by scholars as being culturally important, and is part of the knowledge base of civilization as we know it. This work was reproduced from the original artifact, and remains as true to the original work as possible. Therefore, you will see the original copyright references, library stamps (as most of these works have been housed in our most important libraries around the world), and other notations in the work. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work.As a reproduction of a historical artifact, this work may contain missing or blurred pages, poor pictures, errant marks, etc. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.* **Wire Technology Process Engineering and Metallurgy** *Butterworth-Heinemann Wire Technology: Process Engineering and Metallurgy, Second Edition, covers new developments in high-speed equipment and the drawing of ultra-high strength steels, along with new computer-based design and analysis software and techniques, including Finite Element Analysis. In addition, the author*

shares his design and risk prediction calculations, as well as several new case studies. New and extended sections cover measurement and instrumentation, die temperature and cooling, multiwire drawing, and high strength steel wire. Coverage of process economics has been greatly enhanced, including an exploration of product yields and cost analysis, as has the coverage of sustainability aspects such as energy use and recycling. As with the first edition, questions and problems are included at the end of each chapter to reinforce key concepts. Written by an internationally-recognized specialist in wire drawing with extensive academic and industry experience Provides real-world examples, problems, and case studies that allow engineers to easily apply the theory to their workplace, thus improving productivity and process efficiency Covers both ferrous and non-ferrous metals in one volume **MEASUREMENT, INSTRUMENTATION AND EXPERIMENT DESIGN IN PHYSICS AND ENGINEERING** *PHI Learning Pvt. Ltd. This book is designed to be used at the advanced undergraduate and introductory graduate level in physics, applied physics and engineering physics. The objectives are to demonstrate the principles of experimental practice in physics and physics related engineering. The text shows how measurement, experiment design, signal processing and modern instru-mentation can be used most effectively. The emphasis is to review techniques in important areas of application so that a reader develops his or her own insight and knowledge to work with any instrument and its manual. Questions are provided throughout to assist the student towards this end. Laboratory practice in temperature measurement, optics, vacuum practice, electrical measurements and nuclear instrumentation is covered in detail.A Solution Manual will be provided for the instructors.* **Environmental Management Handbook, Second Edition – Six Volume Set** *CRC Press Bringing together a wealth of knowledge, the Handbook of Environmental Management, Second Edition, gives a comprehensive overview of environmental problems, their sources, their assessment, and their solutions. Through in-depth entries, and a topical table of contents, readers will quickly find answers to questions about pollution and management issues. This six-volume set is a reimagining of the award-winning Encyclopedia of Environmental Management, published in 2013, and features insights from more than 500 contributors, all experts in their fields. The experience, evidence, methods, and models used in studying environmental management is presented here in six stand-alone volumes, arranged along the major environmental systems. Features of the new edition: The first handbook that demonstrates the key processes and provisions for enhancing environmental management. Addresses new and cutting -edge topics on ecosystem services, resilience, sustainability, food-energy-water nexus, socio-ecological systems and more. Provides an excellent basic knowledge on environmental systems, explains how these systems function and offers strategies on how to best manage them. Includes the most important problems and solutions facing environmental management today.* **Organic Chemist's Desk Reference** *CRC Press CHOICE Award Winner Since the first publication in 1995, the Organic Chemist’s Desk Reference has been essential reading for laboratory chemists who need a concise guide to the essentials of organic chemistry — the literature, nomenclature, stereochemistry, spectroscopy, hazard information, and laboratory data. The past fifteen years have witnessed immense growth in the field of chemistry and new*

discoveries have continued to shape its progress. In addition, the distinction between organic chemistry and other disciplines such as biochemistry and materials science has become increasingly blurred. Extensively revised and updated, this new edition contains the very latest data that chemists need access to for experimentation and research. New in the Second Edition: Rearranged content placed in a logical progressive order, making subjects easier to find Expanded topics from the glossary now presented as separate chapters Updated information on many classic subjects such as mass spectrometry and infrared, ultraviolet, and nuclear magnetic resonance spectroscopy New sections on chiral separations and crystallography Cross references to a plethora of web information Reflecting a 75% revision since the last edition, this volume is a must-have for organic chemists and those in related fields who need quick and easy access to vital information in the lab. It is also a valuable companion to the Dictionary of Organic Compounds, enabling readers to easily focus in on critical data. **Science and Technology Resources A Guide for Information Professionals and Researchers** *ABC-CLIO An indispensable resource for anyone wanting to create, maintain, improve, understand, or use the diverse information resources within a sci-tech library. * Over 80 screenshots of electronic information resource tools designed for the engineer and scientist; page reproductions from print sources and illustrations from scholarly journal articles and monographs are also included * Each chapter concludes with a comprehensive list of additional resources for further research * Approximately 30 discipline-specific subject bibliographies in the appendix section act as indispensable guides for developing library collections, as well as for compiling introductory textbooks appropriate for library science students * Included pathfinders provide expert guides for targeted online research * Corresponding instructor exercises are available at the publisher's website* **The Manual of Scientific Style A Guide for Authors, Editors, and Researchers** *Elsevier Much like the Chicago Manual of Style, The Manual of Scientific Style addresses all stylistic matters in the relevant disciplines of physical and biological science, medicine, health, and technology. It presents consistent guidelines for text, data, and graphics, providing a comprehensive and authoritative style manual that can be used by the professional scientist, science editor, general editor, science writer, and researcher. Scientific disciplines treated independently, with notes where variances occur in the same linguistic areas Organization and directives designed to assist readers in finding the precise usage rule or convention A focus on American usage in rules and formulations with noted differences between American and British usage Differences in the various levels of scientific discourse addressed in a variety of settings in which science writing appears Instruction and guidance on the means of improving clarity, precision, and effectiveness of science writing, from its most technical to its most popular* **Ultra-High Temperature Materials III Refractory Carbides II (Ti and V Carbides)** *Springer Nature This exhaustive work in several volumes and over 2500 pages provides a thorough treatment of ultra-high temperature materials (with melting points around or over 2500 °C). The first volume focuses on carbon (graphene/graphite) and refractory metals (W, Re, Os, Ta, Mo, Nb and Ir), whilst the second and third are dedicated to refractory transition metal 4-5 groups carbides. Topics included are physical (structural, thermal, electro-magnetic, optical,*

mechanical, nuclear) and chemical (more than 3000 binary, ternary and multi-component systems, including those used for materials design, data on solid-state diffusion, wettability, interaction with various elements and compounds in solid and liquid states, gases and chemicals in aqueous solutions) properties of these materials. It will be of interest to researchers, engineers, postgraduate, graduate and undergraduate students alike. The readers/users are provided with the full qualitative and quantitative assessment, which is based on the latest updates in the field of fundamental physics and chemistry, nanotechnology, materials science, design and engineering. **Advances in Sensors: Reviews, Vol. 6** *Lulu.com* **Ultra-High Temperature Materials I Carbon (Graphene/Graphite) and Refractory Metals** *Springer This exhaustive work in three volumes with featuring cross-reference system provides a thorough overview of ultra-high temperature materials – from elements and chemical compounds to alloys and composites. Topics included are physical (crystallographic, thermodynamic, thermo-physical, electrical, optical, physico-mechanical, nuclear) and chemical (solid-state diffusion, interaction with chemical elements and compounds, interaction with gases, vapours and aqueous solutions) properties of the individual physico-chemical phases and multi-phase materials with melting (or sublimation) points over or about 2500 °C. The first volume focuses on carbon (graphite/graphene) and refractory metals (W, Re, Os, Ta, Mo, Nb, Ir). The second and third volumes are dedicated solely to refractory (ceramic) compounds (oxides, nitrides, carbides, borides, silicides) and to the complex materials – refractory alloys, carbon and ceramic composites, respectively. It will be of interest to researchers, engineers, postgraduate, graduate and undergraduate students in various disciplines alike. The reader is provided with the full qualitative and quantitative assessment for the materials, which could be applied in various engineering devices and environmental conditions at ultra-high temperatures, on the basis of the latest updates in the field of physics, chemistry, materials science, nanotechnology and engineering.* **Computational Modelling of Concrete Structures** *CRC Press Since 1984 the EURO-C conference series (Split 1984, Zell am See 1990, Innsbruck 1994, Badgastein 1998, St Johann im Pongau 2003, Mayrhofen 2006, Schladming 2010) has provided a forum for academic discussion of the latest theoretical, algorithmic and modelling developments associated with computational simulations of concrete and concrete structure* **Polymer Electrolyte Fuel Cells 10** *The Electrochemical Society This issue of ECS Transactions reports on research, development, and engineering of polymer electrolyte fuel cells (PEFCs), as well as low-temperature direct-fuel cells using either anion or cation exchange membranes. It discusses diagnostic techniques and systems design for both acid and alkaline fuel cells, catalysts and membranes for acid fuel cells, and catalysts and membranes for alkaline fuel cells.* **Polymer Electrolyte Fuel Cells 10** *The Electrochemical Society* **Quantum chemical studies of deposition and catalytic surface reactions** *Linköping University Electronic Press Quantum chemical calculations have been used to model chemical reactions in epitaxial growth of silicon carbide by chemical vapor deposition (CVD) processes and to study heterogeneous catalytic reactions for methanol synthesis. CVD is a common method to produce high-quality materials and e.g. thin films in the semiconductor industry, and one of the many usages of methanol is as a promising*

future renewable and sustainable energy carrier. To optimize the chemical processes it is essential to understand the reaction mechanisms. A comprehensive theoretical model for the process is therefore desired in order to be able to explore various variables that are difficult to investigate in situ. In this thesis reaction paths and reaction energies are computed using quantum chemical calculations. The quantum-chemical results can subsequently be used as input for thermodynamic, kinetic and computational fluid dynamics modelling in order to obtain data directly comparable with the experimental observations. For the CVD process, the effect of halogen addition to the gas mixture is studied by modelling the adsorption and diffusion of SiH2, SiCl2 and SiBr2 on the (0001?) 4H-SiC surface. SiH2 was found to bind strongest to the surface and SiBr2 binds slightly stronger than the SiCl2 molecule. The diffusion barrier is shown to be lower for SiH2 than for SiBr2 and SiCl2 which have similar barriers. SiBr2 and SiCl2 are found to have similar physisorption energies and bind stronger than the SiH2 molecule. Gibbs free-energy calculations also indicate that the SiC surface is not fully hydrogen terminated at CVD conditions since missing-neighboring pair of surface hydrogens is found to be common. Calculations for the (0001) surface show that SiCl, SiCl2, SiHCl, SiH, and SiH2 likely adsorb on a methylene site, but the processes are thermodynamically less favorable than their reverse reactions. However, the adsorbed products may be stabilized by subsequent surface reactions to form a larger structure. The formation of these larger structures is found to be fast enough to compete with the desorption processes. Also the Gibbs free energies for adsorption of Si atoms, SiX, SiX2, and SiHX where X is F or Br are presented. Adsorption of Si atoms is shown to be the most thermodynamically favorable reaction followed by SiX, SiHX, and SiX2, X being a halide. The results in this study suggest that the major Si contributors in the SiC–CVD process are Si atoms, SiX and SiH. Methanol can be synthesized from gaseous carbon dioxide and hydrogen using solid metal-metal oxide mixtures acting as heterogeneous catalysts. Since a large surface area of the catalyst enhances the speed of the heterogeneous reaction, the use of nanoparticles (NP) is expected to be advantageous due to the NPs' large area to surface ratio. The plasma-induced creation of copper NPs is investigated. One important element during particle growth is the charging process where the variation of the work function (W) with particle size is a key quantity, and the variation becomes increasingly pronounced at smaller NP sizes. The work functions are computed for a set of NP charge numbers, sizes and shapes, using copper as a case study. A derived analytical expression for W is shown to give quite accurate estimates provided that the diameter of the NP is larger than about a nanometer and that the NP has relaxed to close to a spherical shape. For smaller sizes W deviates from the approximative expression, and also depends on the charge number. Some consequences of these results for NP charging process are outlined. Key reaction steps in the methanol synthesis reaction mechanism using a Cu/ZrO2 nanoparticle catalyst is investigated. Two different reaction paths for conversion of CO2 to CO is studied. The two paths result in the same complete reaction 2 CO2 ? 2 CO + O2 where ZrO2 (s) acts as a catalyst. The highest activation energies are significantly lower compared to that of the gas phase reaction. The presence of oxygen vacancies at the surface appear to be decisive for the catalytic process to be effective. Studies of the reaction kinetics show that when oxygen

vacancies are present on the ZrO2 surface, carbon monoxide is produced within a microsecond. The IR spectra of CO2 and H2 interacting with ZrO2 and Cu under conditions that correspond to the catalyzed CH3OH production process is also studied experimentally and compared to results from the theoretical computations. Surface structures and gas-phase molecules are identified through the spectral lines by matching them to specific vibrational modes from the literature and from the new computational results. Several surface structures are verified and can be used to pin point surface structures in the reaction path. This gives important information that help decipher how the reaction mechanism of the CO2 conversion and ultimately may aid to improve the methanol synthesis process. **The Group 13 Metals Aluminium, Gallium, Indium and Thallium Chemical Patterns and Peculiarities** *John Wiley & Sons The last two decades have seen a renaissance in interest in the chemistry of the main group elements. In particular research on the metals of group 13 (aluminium, gallium, indium and thallium) has led to the synthesis and isolation of some very novel and unusual molecules, with implications for organometallic synthesis, new materials development, and with biological, medical and, environmental relevance. The Group 13 Metals Aluminium, Gallium, Indium and Thallium aims to cover new facts, developments and applications in the context of more general patterns of physical and chemical behaviour. Particular attention is paid to the main growth areas, including the chemistry of lower formal oxidation states, cluster chemistry, the investigation of solid oxides and hydroxides, advances in the formation of III-V and related compounds, the biological significance of Group 13 metal complexes, and the growing importance of the metals and their compounds in the mediation of organic reactions. Chapters cover: general features of the group 13 elements group 13 metals in the +3 oxidation state: simple inorganic compounds formal oxidation state +3: organometallic chemistry formal oxidation state +2: metal-metal bonded vs. mononuclear derivatives group 13 metals in the +1 oxidation state mixed or intermediate valence group 13 metal compounds aluminium and gallium clusters: metalloid clusters and their relation to the bulk phases, to naked clusters, and to nanoscaled materials simple and mixed metal oxides and hydroxides: solids with extended structures of different dimensionalities and porosities coordination and solution chemistry of the metals: biological, medical and, environmental relevance III-V and related semiconductor materials group 13 metal-mediated organic reactions The Group 13 Metals Aluminium, Gallium, Indium and Thallium provides a detailed, wide-ranging, and up-to-date review of the chemistry of this important group of metals. It will find a place on the bookshelves of practitioners, researchers and students working in inorganic, organometallic, and materials chemistry.* **Behavior of Radionuclides in the Environment III Fukushima** *Springer Nature This book, the third in the series Behavior of Radionuclides in the Environment, is dedicated to Fukushima. Major findings from research since 2011 are reviewed concerning the behavior of radionuclides released into the environment due to the Fukushima Dai-ichi Nuclear Power Plant accident, including atmospheric transport and fallout of radionuclides, their fate, and transport in the soil-water environment, behavior in freshwater, coastal and marine environment, transfer in the terrestrial and agricultural environment. Volume III discusses not only radionuclides dynamics in the*

environment in the short- and mid-term, but also modeling and prediction of long-term time changes. Along with reviews, the book contains original data and results not published previously. It was spearheaded by the authors from the Institute of Environmental Radioactivity at Fukushima University, established two years after the Fukushima accident, with their collaborators from Japan, Russia, and Ukraine. The knowledge emerging from the studies of the environmental behavior of Fukushima-derived radionuclides enables us to move forward in understanding mechanisms of environmental contamination and leads to better modeling and prediction of long-term pollution effects in general. **Foundations of College Chemistry, Alternate** *John Wiley & Sons Learning the fundamentals of chemistry can be a difficult task to undertake for health professionals. For over 35 years, this book has helped them master the chemistry skills they need to succeed. It provides them with clear and logical explanations of chemical concepts and problem solving. They'll learn how to apply concepts with the help of worked out examples. In addition, Chemistry in Action features and conceptual questions checks brings together the understanding of chemistry and relates chemistry to things health professionals experience on a regular basis.* **Microfabrication for Microfluidics** *Artech House Providing a definitive source of knowledge about the principles, materials, and process techniques used in the fabrication of microfluidics, this practical volume is a must for your reference shelf. The book focuses on fabrication, but also covers the basic purpose, benefits, and limitations of the fabricated structures as they are applied to microfluidic sensor and actuator functions. You find guidance on rapidly assessing options and tradeoffs for the selection of a fabrication method with clear tabulated process comparisons.* **1998 Freshman Achievement Award** *CRC Press Provides chemical and physical data* **Processing and Properties of Advanced Ceramics and Composites VI** *John Wiley & Sons Contains 32 papers from the following seven 2013 Materials Science and Technology (MS&T'13) symposia: Innovative Processing and Synthesis of Ceramics, Glasses and Composites Advances in Ceramic Matrix Composites Advanced Materials for Harsh Environments Advances in Dielectric Materials and Electronic Devices Controlled Synthesis, Processing, and Applications of Structure and Functional Nanomaterials Rustum Roy Memorial Symposium: Processing and Performance of Materials Using Microwaves, Electric and Magnetic Fields, Ultrasound, Lasers, and Mechanical Work Solution Based Processing for Ceramic Materials* **Radionuclides in the Environment** *John Wiley & Sons Nuclear energy is the one energy source that could meet the world'sgrowing energy needs and provide a smooth transition from fossilfuels to renewable energy in the coming decades and centuries. Itis becoming abundantly clear that an increase in nuclear energycapacity will, and probably must, take place. However, nuclear energy and the use of radionuclides forcivilian and military purposes lead to extremely long-lived wastethat is costly and highly problematic to deal with. Therefore, itis critically important ot understand the environmentalimplications of radionuclides for ecosystems and human health ifnuclear energy is to be used to avoid the impending global energycrisis. The present volume of the EIC Books series addresses thiscritical need by providing fundamental information onenvironmentally significant radionuclides. The content of this book was developed in collaboration withmany of the authors of the chapters. Given the enormity of thesubject the Editor and the*

Authors had to be judicious in selectingthe chapters that would appropriately encompass and describe theprimary topics, particularly those that are of importance to thehealth of ecosystems and humans. The resulting chapters were chosento provide this information in a book of useful and appropriatelength. Each chapter provides fundamental information on thechemistry of the radionuclides, their occurrence and movement inthe enivornment, separation and analyses, and the technologiesneeded for their remediation and mitigation. The chapters arestructured with a common, systematic format in order to facilitatecomparions between elements and groups of elements. About EIC Books The Encyclopedia of Inorganic Chemistry (EIC) has provedto be one of the defining standards in inorganic chemistry, andmost chemistry libraries around the world have access either to thefirst of second print editon, or to the online version. Manyreaders, however, prefer to have more concise thematic volumes,targeted to their specific area of interest. This feedback from EICreaders has encouraged the Editors to plan a series of EIC Books,focusing on topics of current interest. They will appear on aregular basis, and will feature leading scholars in their fields.Like the Encyclopedia, EIC Books aims to provide both the startingresearch student and the confirmed research worker with a criticaldistillation of the leading concepts in inorganic and bioinorganicchemistry, and provide a structured entry into the fieldscovered. This volume is also available as part of Encyclopedia ofInorganic Chemistry, 5 Volume Set. This set combines all volumes published as EIC Books from 2007to 2010, representing areas of key developments in the field ofinorganic chemistry published in the Encyclopedia of InorganicChemistry. ahref="http://eu.wiley.com/WileyCDA/WileyTitle/productCd-1119994284.html"Findout more/a. **Introduction to GC-MS Coupling** *CRC Press Although GC-MS (gas chromatography–mass spectrometry) finds applications in fields as diverse as the food processing industry, medicine, pharmacology, and environmental analysis, the few works that are dedicated to this use of mass spectrometry are generally highly complex and theoretical. Emphasizing the practical aspects of GC-MS, without neglecting the fundamental theory, Introduction to GC-MS Coupling addresses both novice and experienced users of this technique. It presents GC-MS in a clear, instructive way and proposes solutions for the difficulties classically encountered by users. The book begins with the core principles of gas chromatography and its specific uses with MS detectors. It discusses generalities of mass spectrometry, including the various types of MS detectors and insight into the vacuum necessary for efficient operation. Chapters cover the types of analyzers used in GC-MS and their functioning principles, with a focus on the commonly used quadrupolar analyzers, as well as the implementation, advantages, and limits of various modes of acquisition in GC-MS. The text also compares performance and limitations of quadrupolar analyzers. The author includes a full chapter on quantification using GC-MS, a topic that can be puzzling for many chemists. Encouraging a critical approach to databases, he compares laboratory-made and commercial mass spectra databases, and describes a database research algorithm. The final chapter examines mass spectra interpretation, covering chemistry concepts such as inductive and mesomeric effects required to understand dissociation pathways, and presents a global strategy for mass spectra interpretation.* **Alkaline Earth Metals—Advances**

in Research and Application: 2012 Edition *ScholarlyEditions Alkaline Earth Metals—Advances in Research and Application: 2012 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Alkaline Earth Metals. The editors have built Alkaline Earth Metals—Advances in Research and Application: 2012 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Alkaline Earth Metals in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Alkaline Earth Metals—Advances in Research and Application: 2012 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.*
Green Organic Chemistry in Lecture and Laboratory *CRC Press The last decade has seen a huge interest in green organic chemistry, particularly as chemical educators look to "green" their undergraduate curricula. Detailing published laboratory experiments and proven case studies, this book discusses concrete examples of green organic chemistry teaching approaches from both lecture/seminar and practical perspe*
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Metal/Air and Metal/Water Batteries *The Electrochemical Society The papers included in this issue of ECS Transactions were originally presented in the symposium ¿Metal/Air and Metal/Water Batteries¿, held during the 217th meeting of The Electrochemical Society, in Vancouver, Canada, from April 25 to 30, 2010.*
Handbook on the Physics and Chemistry of Rare Earths: Lanthanides *North-Holland This volume of the Handbook is the second of a three-volume set of reviews devoted to the interrelationships, similarities, differences, and contrasts of the lanthanide and actinide series of elements. In particular this book considers the comparisons of the chemistry of the lanthanide and actinide elements.The lanthanide and actinide elements present a multitude of challenging physical and chemical problems resulting from the involvement of open F-shell electronic configurations. This is made clear in the chapters composing these volumes which cover topics such as: the experimental and theoretical aspects of solution absorption and luminescence spectra to reveal similarities and differences in the two f-series; the methods and effectiveness of separation by solvent extraction, ion exchange and necessary accompanying reactions; the comparative thermochemical and oxidation-reduction properties of lanthanide and actinide materials; interrelationships and comparisons of the halides; an examination of the relative hydration and hydrolysis behaviors of the lanthanides and actinides.* **Influence of Internal Degrees of Freedom on Electric and Related Molecular Properties** *Springer Nature This book discusses the effect of the excitation of rotational, vibrational, and electronic degrees of freedom on the basic electrical properties of molecules and, as a consequence, on molecular optical and transport properties together with reactivity. It additionally summarizes the theory and practice of calculating state-specific electric and optical properties based on ab initio quantum chemical calculations. The book offers a clear, up-to-date review and is primarily intended for actively working researchers, graduate students, and advanced undergraduates who are interested in the electric and related properties of the electronically, rotationally, and vibrationally excited molecules.* **CRC Handbook of Chemistry and Physics, 85th Edition** *CRC Press Get a FREE first edition facsimile with each copy of the 85th! Researchers around the world depend upon having access to authoritative, up-to-date data. And for more than 90 years, they have relied on the CRC Handbook of Chemistry and Physics for that data. This year is no exception. New tables, extensive updates, and added sections mean the Handbook has again set a new standard for reliability, utility, and thoroughness. This edition features a Foreword by world renowned neurologist and author Oliver Sacks, a free facsimile of the 1913 first edition of the Handbook, and thumb tabs that make it easier to locate particular data. New tables in this edition include: Index of Refraction of Inorganic Crystals Upper and Lower Azeotropic Data for Binary Mixtures Critical Solution Temperatures of Polymer Solutions Density of Solvents as a Function of Temperature By popular request, several tables omitted from recent editions are back, including Coefficients of Frictionand Miscibility of Organic Solvents. Ten other sections have been substantially revised, with some, such as the Table of the Isotopes and Thermal Conductivity of Liquids, significantly expanded. The Fundamental Physical Constants section has been updated with the latest CODATA/NIST values, and the Mathematical Tables appendix now features several new sections covering topics that include*

orthogonal polynomials Clebsch-Gordan coefficients, and statistics.