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Covid-19 Pandemic and Economic Development Sukhpal Singh 2021-09-27 This book offers a comprehensive analysis of the pre-Covid-19 and post-Covid-19 situation and public policy measures needed to revive the economy in the light of the recent initiatives by the state government, including a committee to suggest post-Covid-19 revival strategy. This collection of essays by specialized author/s in her/his/their area of research examines the impact of Covid-19 in the larger context of economic and developmental context of Punjab, ranging from basic developmental transformation analysis to the specific policy issues in each sector and policy domain, including the larger developmental crisis in the context of the regional economy and society of Punjab. The sectors analysed include: agriculture including dairy sector and agricultural markets, industry, services, education, health, besides fiscal, banking, diaspora, gender, governance, and sustainability challenges the state economy faces. It dwells on sector specific issues as well as ways forward for betterment of livelihoods of those engaged, especially farmers and industrial and service sector informal workers.

Nanoscale Materials Luis M. Liz-Marzán 2007-05-08 Organized nanoassemblies of inorganic nanoparticles and organic molecules are building blocks of nanodevices, whether they are designed to perform molecular level computing, sense the environment or improve the catalytic properties of a material. The key to creation of these hybrid nanostructures lies in understanding the chemistry at a fundamental level. This book serves as a reference book for researchers by providing fundamental understanding of many nanoscopic materials.

Nanostructured Materials 2001-12-18 This thematic volume of *Advances in Chemical Engineering* presents the latest advances in the exciting interdisciplinary field of nanostructured materials. Written by chemical engineers, chemists, physicists, materials scientists, and bioengineers, this volume focuses on the molecular engineering of materials at the nanometer scale for unique size-dependent properties. It describes a "bottom-up" approach to designing nanostructured systems for a variety of chemical, physical, and biological applications.

Chemical Synthetic Biology Pier Luigi Luisi 2011-02-10 Chemistry plays a very important role in the emerging field of synthetic biology. In particular, chemical synthetic biology is concerned with the synthesis of chemical structures, such as proteins, that do not exist in nature. With contributions from leading international experts, *Chemical Synthetic Biology* shows how chemistry underpins synthetic biology. The book is an essential guide to this fascinating new field, and will find a place on the bookshelves of researchers and students working in synthetic chemistry, synthetic and molecular biology, bioengineering, systems biology, computational genomics, and bioinformatics.

Dentists Mary Meinking 2020-08 Open wide! Dentists care for people's teeth. Give readers the inside scoop on what it's like to be a dentist. Readers will learn what dentists do, the tools they use, and how people get this exciting job.

Biochemistry of Lipids, Lipoproteins and Membranes Dennis E. Vance 1996-08-06 This is the third

edition of this advanced textbook, written with two major objectives in mind. One is to provide an advanced textbook covering the major areas in the fields of lipid, lipoprotein, and membrane biochemistry, and molecular biology. The second objective is to provide a clear summary of these research areas for scientists presently working in these fields. The volume provides the basis for an advanced course for students in the biochemistry of lipids, lipoproteins and membranes. The book will satisfy the need for a general reference and review book for scientists studying lipids, proteins and membranes. Excellent up-to-date reviews are available on the various topics covered. A current, readable, and critical summary of these areas of research, it will allow scientists to become familiar with recent developments related to their own research interests, and will help clinical researchers and medical students keep abreast of developments in basic science that are important for subsequent clinical advances.

Handbook of Essential Oils K. Husnu Can Baser 2009-12-28 Egyptian hieroglyphs, Chinese scrolls, and Ayurvedic literature record physicians administering aromatic oils to their patients. Today society looks to science to document health choices and the oils do not disappoint. The growing body of evidence of their efficacy for more than just scenting a room underscores the need for production standards, quality control parameters for raw materials and finished products, and well-defined Good Manufacturing Practices. Edited by two renowned experts, the Handbook of Essential Oils covers all aspects of essential oils from chemistry, pharmacology, and biological activity, to production and trade, to uses and regulation. Bringing together significant research and market profiles, this comprehensive handbook provides a much-needed compilation of information related to the development, use, and marketing of essential oils, including their chemistry and biochemistry. A select group of authoritative experts explores the historical, biological, regulatory, and microbial aspects. This reference also covers sources, production, analysis, storage, and transport of oils as well as aromatherapy, pharmacology, toxicology, and metabolism. It includes discussions of biological activity testing, results of antimicrobial and antioxidant tests, and penetration-enhancing activities useful in drug delivery. New information on essential oils may lead to an increased understanding of their multidimensional uses and better, more ecologically friendly production methods. Reflecting the immense developments in scientific knowledge available on essential oils, this book brings multidisciplinary coverage of essential oils into one all-inclusive resource.

Nature's Nanostructures Amanda S. Barnard 2012-02-02 Natural nanomaterials and nanotechnologies are all around us, which inevitably leads to these questions: What are these natural nanomaterials made of? Where can we find them? What can they do? Answering these questions will facilitate new and environmentally friendly ways of creating and manipulating nanoscale materials for the next generation of new technologies. A truly multidisciplinary resource, this book brings together studies from astronomy, physics, chemistry, materials science, engineering, geology and geophysics, environmental science, agricultural science, entomology, molecular biology, and health and provides an invaluable resource for learning how various scientists approach similar problems.

Developmental Deficiencies John H. Hollis 1973

Carbon Nanotubes and Graphene Kazuyoshi Tanaka 2014-07-10 Carbon Nanotubes and Graphene is a timely second edition of the original Science and Technology of Carbon Nanotubes. Updated to include expanded coverage of the preparation, purification, structural characterization, and common application areas of single- and multi-walled CNT structures, this work compares, contrasts, and, where appropriate, unitizes CNT to graphene. This much expanded second edition reference supports knowledge discovery, production of impactful carbon research, encourages transition between research fields, and aids the formation of emergent applications. New chapters encompass recent developments in the theoretical treatments of electronic and vibrational structures, and magnetic, optical, and electrical solid-state properties, providing a vital base to research. Current and potential applications of both materials, including the prospect for large-scale synthesis of graphene, biological structures, and flexible electronics, are also critically discussed. Updated discussion of properties, structure, and morphology of biological and flexible electronic applications aids fundamental knowledge discovery Innovative parallel focus on nanotubes and graphene enables you to learn from the successes and failures of, respectively, mature and emergent partner research disciplines High-quality figures and tables on physical and mathematical applications expertly summarize key information – essential if you need quick, critically relevant data

Principles and Practice of Head and Neck Surgery and Oncology, Second Edition Peter H. Rhys Evans 2009-07-09 This second edition of an award winning title has been thoroughly updated by a team of

world leading head and neck surgeons, oncologists and allied healthcare professionals. Principles and Practice of Head & Neck Surgery and Oncology, 2nd edition is a comprehensive evidence-based account of the current scientific knowledge about head and neck tumors and their management. This book, with over 570 colour images, will provide a valuable source of knowledge and reference for all established specialists and trainees entrusted with the care of patients with head and neck tumors.

Cell-based Therapies for Stroke: Promising Solution or Dead End? Paulo Henrique Rosado-de-Castro  
2020-05-22

Dimensional Psychopathology Massimo Biondi 2018-05-30 This book presents an innovative approach to clinical assessment in psychiatry based on a number of psychopathological dimensions with a presumed underlying pathophysiology, that are related to fundamental phenomenological aspects and lie on a continuum from normality to pathology. It is described how the evaluation of these dimensions with a specific, validated rapid assessment instrument could easily integrate and enrich the classical diagnostic DSM-5 or ICD-10 assessment. The supplemental use of this dimensional approach can better capture the complexity underlying current categories of mental illness. The findings from a large patient sample suggest how this assessment could give a first glance at how variable and multifaceted the psychopathological components within a single diagnostic category can be, and thereby optimise diagnosis and treatment choices. Being short and easy to complete, this dimensional assessment can be done in a busy clinical setting, during an ordinary psychiatric visit, and in an acute clinical context, with limited effort by a minimally trained clinician. Therefore, it provides interesting and useful information without additional costs, and allows research work to be performed even in difficult settings.

Twelve Years a Slave Solomon Northup 2021-01-01 "Having been born a freeman, and for more than thirty years enjoyed the blessings of liberty in a free State—and having at the end of that time been kidnapped and sold into Slavery, where I remained, until happily rescued in the month of January, 1853, after a bondage of twelve years—it has been suggested that an account of my life and fortunes would not be uninteresting to the public." -an excerpt

Biology of Floral Scent Natalia Dudareva 2006-03-27 As with nearly all living creatures, humans have always been attracted and intrigued by floral scents. Yet, while we have been manufacturing perfumes for at least 5000 years to serve a myriad of religious, sexual, and medicinal purposes, until very recently, the limitation of our olfactory faculty has greatly hindered our capacity to clearly and ob

Self-Sensing Concrete in Smart Structures Baoguo Han 2014-07-30 Concrete is the second most used building material in the world after water. The problem is that over time the material becomes weaker. As a response, researchers and designers are developing self-sensing concrete which not only increases longevity but also the strength of the material. Self-Sensing Concrete in Smart Structures provides researchers and designers with a guide to the composition, sensing mechanism, measurement, and sensing properties of self-healing concrete along with their structural applications Provides a systematic discussion of the structure of intrinsic self-sensing concrete Compositions of intrinsic self-sensing concrete and processing of intrinsic self-sensing concrete Explains the sensing mechanism, measurement, and sensing properties of intrinsic self-sensing concrete

Integration/Interaction of Oncologic Growth Gary G. Meadows 2006-03-30 A unique book on the interactions and interrelationships between tumor and host that modulate progression and metastasis. Several authors emphasize targeting the host rather than the tumor itself for therapeutic intervention to control cancer.

Biochemistry of Collagens, Laminins and Elastin Morten Karsdal 2016-07-29 Biochemistry of Collagens, Laminins, and Elastin: Structure, Function, and Biomarkers provides a comprehensive introduction to collagen and structural proteins. Type I collagen is one of the most abundant molecules in the body, playing essential roles in different tissues, particularly bone and skin. A key aspect of type I collagen is its post-translational modifications which are essential for correct synthesis and structural integrity of collagens, for tissue-specific functionality, as well as for application as biomarkers of different pathologies. This volume summarizes current data on key structural proteins (collagens, laminins and elastin), reviews how these molecules affect pathologies, and describes selected modifications of proteins that result in altered signaling properties of the original extracellular matrix component. Further, it discusses the novel concept that an increasing number of components of the ECM harbor cryptic signaling functions that may be viewed as endocrine functions. Additionally, it highlights how this knowledge can be exploited to modulate fibrotic disease. Provides a comprehensive introduction to collagen and structural proteins Provides insight into emerging analytical technologies that can detect

biomarkers of extracellular matrix degradation Includes a chapter dedicated to the biomarkers of structural proteins Contains insights into the biochemical interactions and changes to structural composition of proteins in disease states

Nanostructures and Nanomaterials Guozhong Cao 2011 This text focuses on the synthesis, properties and applications of nanostructures and nanomaterials, particularly inorganic nanomaterials. It provides coverage of the fundamentals and processing techniques with regard to synthesis, properties, characterization and applications of nanostructures and nanomaterials.

Urban Aerosols and Their Impacts Jeffrey S. Gaffney 2006 Urban aerosols have been identified as important species of concern due to their potential health and environmental impacts. This symposium series book will describe the basic chemistry and physics determining the impacts of aerosol species and will highlight the research results from the measurements that were taken following the collapse of the World Trade Center (WTC) on 9/11/01. The WTC tragedy led to the release of millions of pounds of debris aside from the structural steel, part of which was widely dissipated as aerosols and particulates in the debris cloud over lower Manhattan. Additionally, continuing fires under the debris led to the release of fine combustion related aerosols for a considerable time period in this urban environment. Held during the week of the second anniversary of the WTC tragedy in NYC, the symposium book will describe various aspects of the event, aerosol and gas exposures, and the related impacts of these aerosols. The book contributions will highlight efforts work from atmospheric chemists, meteorologists, health workers, and biologists for a timely compilation of what is known and not known about the composition and transport of tropospheric aerosols in urban environs, particularly those from the WTC collapse. Particular interest is in the acute and chronic environmental effects of these aerosols as they impact human health. Chapters included in the book will also address aerosol lifetimes, aerosol transport and removal processes, acute and chronic health effects to fine aerosol and particulate exposures, and the environmental impacts of aerosols.

Networking for Nerds Alaina G. Levine 2015-05-13 Networking for Nerds provides a step-by-step guide to understanding how to access hidden professional opportunities through networking. With an emphasis on practical advice on how and why to network, you will learn how to formulate and execute a strategic networking plan that is dynamic, multidimensional, and leverages social media platforms and other networking channels. An invaluable resource for both established and early-career scientists and engineers (as well as networking neophytes!), Networking for Nerds offers concrete insight on crafting professional networks that are mutually beneficial and support the advancement of both your career goals and your scholarly ambitions. "Networking" does not mean going to one reception or speaking with a few people at one conference, and never contacting them again. Rather, "networking" involves a spectrum of activities that engages both parties, ensures everyone's value is appropriately communicated, and allows for the exploration of a win-win collaboration of some kind. Written by award-winning entrepreneur and strategic career planning expert Alaina G. Levine, Networking for Nerds is an essential resource for anyone working in scientific and engineering fields looking to enhance their professional planning for a truly fulfilling, exciting, and stimulating career. Networking for Nerds provides a step-by-step guide to understanding how to access hidden professional opportunities through networking. With an emphasis on practical advice on how and why to network, you will learn how to formulate and execute a strategic networking plan that is dynamic, multidimensional, and leverages social media platforms and other networking channels. An invaluable resource for both established and early-career scientists and engineers (as well as networking neophytes!), Networking for Nerds offers concrete insight on crafting professional networks that are mutually beneficial and support the advancement of both your career goals and your scholarly ambitions. "Networking" does not mean going to one reception or speaking with a few people at one conference, and never contacting them again. Rather, "networking" involves a spectrum of activities that engages both parties, ensures everyone's value is appropriately communicated, and allows for the exploration of a win-win collaboration of some kind. Written by award-winning entrepreneur and strategic career planning expert Alaina G. Levine, Networking for Nerds is an essential resource for anyone working in scientific and engineering fields looking to enhance their professional planning for a truly fulfilling, exciting, and stimulating career.

A New Generation Material Graphene: Applications in Water Technology Mu. Naushad 2018-06-20 This book presents a unique collection of up-to-date applications of graphene for water science. Because water is an invaluable resource and the intelligent use and maintenance of water supplies is one of the

most important and crucial challenges that stand before mankind, new technologies are constantly being sought to lower the cost and footprint of processes that make use of water resources as potable water as well as water for agriculture and industry, which are always in desperate demand. Much research is focused on graphene for different water treatment uses. Graphene, whose discovery won the 2010 Nobel Prize in physics, has been a shining star in the material science in the past few years. Owing to its interesting electrical, optical, mechanical and chemical properties, graphene has found potential applications in a wide range of areas, including water purification technology. A new type of graphene-based filter could be the key to managing the global water crisis. According to the World Economic Forum's Global Risks Report, lack of access to safe, clean water is the biggest risk to society over the coming decade. Yet some of these risks could be mitigated by the development of this filter, which is so strong and stable that it can be used for extended periods in the harshest corrosive environments, and with less maintenance than other filters on the market. The graphene-based filter could be used to filter chemicals, viruses, or bacteria from a range of liquids. It could be used to purify water, dairy products or wine, or in the production of pharmaceuticals. This book provides practical information to all those who are involved in this field.

**Sustainable Agrochemistry** Sílvia Vaz Jr. 2019-05-28 This book presents a broad range of technologies for sustainable agrochemistry, e.g. semiochemicals for pest management, nanotechnology for release of eco-friendly agrochemicals, and green chemistry principles for agriculture. It provides a concise introduction to sustainable agrochemistry for a professional audience, and highlights the main scientific and technological approaches that can be applied to modern agrochemistry. It also discusses various available technologies for reducing the negative impacts of agrochemicals on the environment and human health.

**Multi-copper Oxidases** Albrecht Messerschmidt 1997 The biological activation of dioxygen is a key reaction in biological systems. Enzymes involved in direct oxygen activation are oxidases and oxygenases. Multi-copper oxidases are an important class of oxidases reducing dioxygen in a four-electron reduction to water with concomitant one-electron oxidation of the reducing substrate. The progress in the characterization and understanding of the structure and function of these enzymes has advanced so tremendously over the last ten years that the publication of a book documenting these achievements has been overdue. Especially the recent discovery of a key role of the FET3 protein of *Saccharomyces cerevisiae*, a multi-copper oxidase, in iron metabolism of this eukaryote has underpinned the function of the plasma multi-copper oxidase ceruloplasmin in vertebrate iron transport. The lately determined x-ray structure of human ceruloplasmin confirms its close structural relatedness to the plant multi-copper oxidases ascorbate oxidase and laccase and due to strong amino-acid sequence similarities has allowed to construct a useful model of the more distantly related blood-clotting factor VIII. This book contains review articles from experts in the field, dealing with modern spectroscopy, enzyme kinetics, bioinorganic chemistry, x-ray crystallography, electron transfer reactions, molecular biology, medical aspects and potential industrial applications of the three main members of multi-copper oxidases, i.e., laccase, ascorbate oxidase and ceruloplasmin.

**Secondhand Smoke Exposure and Cardiovascular Effects** Institute of Medicine 2010-02-21 Data suggest that exposure to secondhand smoke can result in heart disease in nonsmoking adults. Recently, progress has been made in reducing involuntary exposure to secondhand smoke through legislation banning smoking in workplaces, restaurants, and other public places. The effect of legislation to ban smoking and its effects on the cardiovascular health of nonsmoking adults, however, remains a question. *Secondhand Smoke Exposure and Cardiovascular Effects* reviews available scientific literature to assess the relationship between secondhand smoke exposure and acute coronary events. The authors, experts in secondhand smoke exposure and toxicology, clinical cardiology, epidemiology, and statistics, find that there is about a 25 to 30 percent increase in the risk of coronary heart disease from exposure to secondhand smoke. Their findings agree with the 2006 Surgeon General's Report conclusion that there are increased risks of coronary heart disease morbidity and mortality among men and women exposed to secondhand smoke. However, the authors note that the evidence for determining the magnitude of the relationship between chronic secondhand smoke exposure and coronary heart disease is not very strong. Public health professionals will rely upon *Secondhand Smoke Exposure and Cardiovascular Effects* for its survey of critical epidemiological studies on the effects of smoking bans and evidence of links between secondhand smoke exposure and cardiovascular events, as well as its findings and recommendations.

Cutaneous Melanoma

Wilson Disease Anna Czlonkowska 2017-04-18 Wilson Disease provides a comprehensive guide on this inherited genetic disorder that has devastating consequences for both the liver and neurologic/psychiatric health. This disease is of increasing interest to neurologists, hepatologists, and geneticists, but when the disease is diagnosed early, it is treatable, with patients living normal lives. This volume describes the molecular pathophysiology of WD and the clinical and pathological effects of copper. Separate sections address both diagnosis and medical and surgical approaches to treatment. Both adult and pediatric perspectives on diagnosis and treatment are addressed, and a section on genetics highlights advances in molecular diagnostics. Patient support groups that can aid in coping with this disease are also discussed, as are animal models for those interested in basic research on cell biology, pathophysiology, and treatment. Addresses the molecular pathophysiology of WD and the clinical and pathological effects of copper Offers coverage of both diagnosis and medical and surgical approaches to treatment Includes perspectives on both adult and pediatric diagnosis and treatment Edited work with chapters authored by leaders in the field from around the globe—the broadest, most expert coverage available

Cardiovascular Computing—Methodologies and Clinical Applications Spyretta Golemati 2019-02-12 This book provides a comprehensive guide to the state-of-the-art in cardiovascular computing and highlights novel directions and challenges in this constantly evolving multidisciplinary field. The topics covered span a wide range of methods and clinical applications of cardiovascular computing, including advanced technologies for the acquisition and analysis of signals and images, cardiovascular informatics, and mathematical and computational modeling.

Evidence-Based Caries Prevention Ece Eden 2016-09-29 This book aims to define the etiological factors in dental caries and to guide the clinician towards methods of caries prevention that are evidence based. The coverage includes discussion of the active role of the biofilm and the oral environment and emphasizes the multifactorial etiology of dental caries. The opening chapters describe the early detection and diagnosis of dental caries, highlight the value of caries risk assessment to the patient, and explain the dynamic process of the demineralization–remineralization cycle. Information is presented on the action of fluoride, and the evidence relating to the use and effectiveness of remineralization agents and biomimetic materials is reviewed. Additionally, the effects of antimicrobials such as chlorhexidine and ozone are summarized. Further chapters focus on dietary counseling (with information on sweeteners and probiotics), the effectiveness of sealants in caries prevention, and resin infiltration. The philosophy of prophylaxis and ways to improve patient compliance and achieve proper mechanical plaque removal are discussed. The book is concluded with a chapter discussing preventive actions in representative cases.

Wheat Antioxidants Liangli L. Yu 2008-03-07 This comprehensive reference consolidates current information on the antioxidant properties of wheat, their beneficial effects, the mechanisms involved, factors affecting availability/bioavailability, and the methods used to measure them. It discusses antioxidant properties of wheat grains and fractions and their phytochemical compositions and covers the effects of genotype, growing conditions, post-harvest treatment, storage, and food formulation and processing on availability/bioavailability. Wheat Antioxidants will help cereal chemists, food technologists, food processors, nutritionists, and others maximize the health benefits of wheat-based foods.

Elements of Photonics, Volume I Keigo Iizuka 2002-06-06 Deals with photonics in free space and special media such as anisotropic crystals. \* Covers all important topics from Fourier optics, such as the properties of lenses, optical image processing, and holography to the Gaussian beam, light propagation in anisotropic media, external field effects, polarization of light and its major applications. \* The book is self-contained and is suitable as a textbook for a two-semester course. \* Provides a particularly good discussion of the electromagnetics of light in bounded media. \* Only book that treats the two complementary topics, fiber and integrated optics. \* Careful and thorough presentation of the topics that makes it well suited for courses and self study. \* Includes numerous figures, problems and worked-out solutions. \* Heavily illustrated with over 400 figures specially formatted to aid in comprehension.

Nanomaterials for Sustainable Energy Quan Li 2016-05-12 This book presents the unique mechanical, electrical, and optical properties of nanomaterials, which play an important role in the recent advances of energy-related applications. Different nanomaterials have been employed in energy saving, generation, harvest, conversion, storage, and transport processes very effectively and efficiently. Recent progress in the preparation, characterization and usage of 1D, 2D nanomaterials and hybrid architectures for energy-related applications and relevant technologies and devices, such as solar cells, thermoelectronics, piezoelectronics, solar water splitting, hydrogen production/storage, fuel cells, batteries, and

supercapacitors is covered. Moreover, the book also highlights novel approaches in nanomaterials design and synthesis and evaluating materials sustainability issues. Contributions from active and leading experts regarding important aspects like the synthesis, assembly, and properties of nanomaterials for energy-related applications are compiled into a reference book. As evident from the diverse topics, the book will be very valuable to researchers working in the intersection of physics, chemistry, biology, materials science and engineering. It may set the standard and stimulates future developments in this rapidly emerging fertile frontier of nanomaterials for energy.

**Ready, Set, SCIENCE!** National Research Council 2007-11-30 What types of instructional experiences help K-8 students learn science with understanding? What do science educators, teachers, teacher leaders, science specialists, professional development staff, curriculum designers, and school administrators need to know to create and support such experiences? *Ready, Set, Science!* guides the way with an account of the groundbreaking and comprehensive synthesis of research into teaching and learning science in kindergarten through eighth grade. Based on the recently released National Research Council report *Taking Science to School: Learning and Teaching Science in Grades K-8*, this book summarizes a rich body of findings from the learning sciences and builds detailed cases of science educators at work to make the implications of research clear, accessible, and stimulating for a broad range of science educators. *Ready, Set, Science!* is filled with classroom case studies that bring to life the research findings and help readers to replicate success. Most of these stories are based on real classroom experiences that illustrate the complexities that teachers grapple with every day. They show how teachers work to select and design rigorous and engaging instructional tasks, manage classrooms, orchestrate productive discussions with culturally and linguistically diverse groups of students, and help students make their thinking visible using a variety of representational tools. This book will be an essential resource for science education practitioners and contains information that will be extremely useful to everyone – including parents – directly or indirectly involved in the teaching of science.

**Smart and Multifunctional Concrete Toward Sustainable Infrastructures** Baoguo Han 2017-06-12 This book presents the latest research advances and findings in the field of smart/multifunctional concretes, focusing on the principles, design and fabrication, test and characterization, performance and mechanism, and their applications in infrastructures. It also discusses future challenges in the development and application of smart/multifunctional concretes, providing useful theory, ideas and principles, as well as insights and practical guidance for developing sustainable infrastructures. It is a valuable resource for researchers, scientists and engineers in the field of civil-engineering materials and infrastructures.

**Harnessing Light** National Research Council 1998-09-25 Optical science and engineering affect almost every aspect of our lives. Millions of miles of optical fiber carry voice and data signals around the world. Lasers are used in surgery of the retina, kidneys, and heart. New high-efficiency light sources promise dramatic reductions in electricity consumption. Night-vision equipment and satellite surveillance are changing how wars are fought. Industry uses optical methods in everything from the production of computer chips to the construction of tunnels. *Harnessing Light* surveys this multitude of applications, as well as the status of the optics industry and of research and education in optics, and identifies actions that could enhance the field's contributions to society and facilitate its continued technical development.

**Nanomaterials** Charles Lutz 2009-01-16 Many potential questions regarding the risks associated with the development and use of wide-ranging technologies enabled through engineered nanomaterials. For example, with over 600 consumer products available globally, what information exists that describes their risk to human health and the environment? What engineering or use controls can be deployed to minimize the potential environmental health and safety impacts of nanomaterials throughout the manufacturing and product lifecycles? How can the potential environmental and health benefits of nanotechnology be realized and maximized? The idea for this book was conceived at the NATO Advanced Research Workshop (ARW) on "Nanomaterials: Environmental Risks and Benefits and Emerging Consumer Products." This meeting – held in Algarve, Portugal, in April 2008 – started with building a foundation to harmonize risks and benefits associated with nanomaterials to develop risk management approaches and policies. More than 70 experts, from 19 countries, in the fields of risk assessment, decision-analysis, and security discussed the current state-of-knowledge with regard to nanomaterial risk and benefits. The discussion focused on the adequacy of available risk assessment tools to guide nanomaterial applications in industry and risk governance. The workshop had five primary

purposes: Describe the potential benefits of nanotechnology enabled commercial products. Identify and describe what is known about environmental and human health risks of nanomaterials and approaches to assess their safety. Assess the suitability of multicriteria decision analysis for reconciling the benefits and risks of nanotechnology.

Halogenated Hydrocarbons A.L. Horvath 1982-02-26 This book promotes a basic understanding of the concept of solubility and miscibility between halogenated hydrocarbons and water. It points out the regularities existing between solubility and physical properties of solute and solvent. The book is valuable to chemists and chemical engineers.

Recent Advances in Sustainable Technologies Kanishka Jha 2021-05-17 This book presents select proceedings of the International Conference on Advances in Sustainable Technologies (ICAST 2020), organized by Lovely Professional University, Punjab, India. The topics covered in this book are multidisciplinary in nature. The primary topics included in the book are from the domains of automobile engineering, mechatronics, material science and engineering, aerospace engineering, bio-mechanics, biomedical instrumentation, mathematical techniques, agricultural engineering, nuclear engineering, physics, biodynamic modelling and ergonomics etc. The contents of this book will be beneficial for beginners, researchers, and professionals alike.

Polychlorinated Biphenyls and Polybrominated Biphenyls International Agency for Research on Cancer 2016-07-05 This volume of the IARC Monographs provides evaluations of the carcinogenicity of polychlorinated biphenyls and polybrominated biphenyls. Polychlorinated biphenyls are a class of aromatic compounds comprising 209 congeners, each containing 1 to 10 chlorine atoms attached to a biphenyl nucleus. Technical products, which were manufactured to obtain a certain degree of chlorination, are mixtures of numerous congeners. These products were widely used as dielectric fluid in capacitors and transformers, and to a lesser extent in building materials. Although their production and use has been banned in most countries, these compounds are ubiquitous environmental pollutants, including in polar regions and the deep ocean, because they are persistent and bioaccumulate. Worldwide monitoring programs have shown that polychlorinated biphenyls are present in most samples of human milk. An IARC Monographs Working Group reviewed epidemiological evidence, animal bioassays, and mechanistic and other relevant data to reach conclusions as to the carcinogenic hazard to humans of polychlorinated biphenyls, of the subclass of dioxin-like polychlorinated biphenyls, and of polybrominated biphenyls.

Essentials in Nanoscience and Nanotechnology Narendra Kumar 2016-04-11 This book describes various aspects of nanoscience and nanotechnology. It begins with an introduction to nanoscience and nanotechnology and includes a historical perspective, nanotechnology working in nature, man-made nanomaterial and impact of nanotechnology illustrated with examples. It goes on to describe general synthetic approaches and strategies and also deals with the characterization of nanomaterial using modern tools and techniques to give basic understanding to those interested in learning this emerging area. It then deals with different kinds of nanomaterial such as inorganics, carbon based-, nanocomposites and self-assembled/supramolecular nano structures in terms of their varieties, synthesis, properties etc. In addition, it contains chapters devoted to unique properties with mathematical treatment wherever applicable and the novel applications dealing with information technology, pollution control (environment, water), energy, nanomedicine, healthcare, consumer goods etc.