

## Access 2010 Guide Kottan

India is the land of spices. The flavour and fragrance of Indian spices had a magic spell in human civilization and culture since very ancient days. The lure for spices attracted the Greeks, Turks, Arabs, Romans, Chinese and Europeans to India, ultimately leading to colonial rule. The spices trading history is thus entwined with world history itself. Annals of history reveal the importance of Indian spices growing at a magnificent pace across the nations. Indian spices have carved out a niche of its own in the spices world, over the years. India has the richest knowledge in cultivation of spices and the Indian Institute of Spices Research at Calicut under the Indian Council of Agricultural Research is the world's leading institute on spices. India is the largest spice producer and consumer of spices. The USA, Europe, Australia, Japan, the Middle East and Oceanic countries are the major importers of Indian spices. There are more than 100 spices listed by ISO. India is also endowed with strong research base on spices. The world trade of spices is estimated to be around 4.5 million tones valued at US\$1,500 million. India alone contributes to over 45% of the world demand. Considering the importance, the present attempt is exhaustively review the work done on these crops in 4 volumes as below: Volume 1: Major spices Volume 2: Tree spices Very eminent and authoritative scientists have contributed the chapters. The books will be of great use to all the researchers, policy makers, extension workers and students. It will be a great guide to those preparing for ARS examination of ICAR.

This book covers the recent advances in coating materials and their novel applications at the cross-section of advanced materials both current and next-generation. Advanced Coatings Materials contains chapters covering the latest research on polymers, carbon resins, and high-temperature materials used for coatings, adhesives, and varnishes today. Concise chapters describe the development, chemical and physical properties, synthesis and polymerization, commercial uses, and other characteristics for each raw material and coating detailed. A comprehensive, yet practical source of reference, this book provides an excellent foundation for comparing the properties and performance of coatings and selecting the most suitable materials based on specific service needs and environmental factors.

Surface organometallic chemistry is a new field bringing together researchers from organometallic, inorganic, and surface chemistry and catalysis. Topics ranging from reaction mechanisms to catalyst preparation are considered from a molecular basis, according to which the "active site" on a catalyst surface has a supra-molecular character. This, the first book on the subject, is the outcome of a NATO Workshop held in Le Rouret, France, in May, 1986. It is our hope that the following chapters and the concluding summary of recommendations for research may help to provide a definition of surface organometallic chemistry. Besides catalysis, the central theme of the Workshop, four main topics are considered: 1) Reactions of organometallics with surfaces of metal oxides, metals, and zeolites; 2) Molecular models of surfaces, metal oxides, and metals; 3) Molecular approaches to the mechanisms of surface reactions; 4) Synthesis and modification of zeolites and related microporous solids. Most surface organometallic chemistry has been carried out on amorphous high-surface-area metal oxides such as silica, alumina, magnesia, and titania. The first chapter, contributed by KNOZINGER, gives a short summary of the structure and reactivity of metal oxide surfaces. Most of our understanding of these surfaces is based on acid base and redox chemistry; this chemistry has developed from X-ray and spectroscopic data, and much has been inferred from the structures and reactivities of adsorbed organic probe molecules. There are major opportunities for extending this understanding by use of well-defined (single crystal) oxide surfaces and organometallic probe molecules.

The region of Rough Cilicia (modern area the south-western coastal area of Turkey), known in antiquity as Cilicia Tracheia, constitutes the western part of the larger area of Cilicia. It is characterised by the ruggedness of its territory and the protection afforded by the high mountains combined with the rugged seacoast fostered the prolific piracy that developed in the late Hellenistic period, bringing much notoriety to the area. It was also known as a source of timber, primarily for shipbuilding. The twenty-two papers presented here give a useful overview on current research on Rough Cilicia, from the Bronze Age to the Byzantine period, with a variety of methods, from surveys to excavations. The first two articles (Ya?c?, Jasink and Bombardieri), deal with the Bronze and Iron Ages, and refer to the questions of colonisation, influences, and relations. The following four articles (Tempesta, de Souza, Tomaschitz, Rauh et al.) concern the pirates of Cilicia and Isauria who were a big problem, not only for the region but throughout the Mediterranean and Aegean during the late Hellenistic and especially Roman periods. Approaching the subject of Roman Architecture, Borgia recalls Antiochus IV of Commagene, a king with good relations to Rome. Six papers (Spanu, Townsend, Giobbe, Hoff, Winterstein, and Wandsnider) publish work on Roman architecture: architectural decoration, council houses, Roman temples, bath architecture, cenotaph, and public buildings. Ceramics is not neglected and Lund provides a special emphasis on ceramics to demonstrate how pottery can be used as evidence for connections between Rough Cilicia and northwestern Cyprus. Six contributions (Varinliog(lu, Ferrazzoli, Jackson, Elton, Canevella and Özy?ld?r?m, Honey) deal with the Early Christian and Byzantine periods and cover rural habitat, trade, the Kilise Tepe settlement, late Roman churches, Seleucia, and the miracles of Thekla. The final article (Huber) gives insight into methods applied to the study of architectural monuments.

Fundamentals Of Finite Element Analysis Tata McGraw-Hill Education NRC Telephone Directory Genetic Diversity and Erosion in Plants Indicators and Prevention Springer

Metal Oxide Nanoparticles A complete nanoparticle resource for chemists and industry professionals Metal oxide nanoparticles are integral to a wide range of natural and technological processes—from mineral transformation to electronics. Additionally, the fields of engineering, electronics, energy technology, and electronics all utilize metal oxide nanoparticle powders. Metal Oxide Nanoparticles: Formation, Functional Properties, and Interfaces presents readers with the most relevant synthesis and formulation approaches for using metal oxide nanoparticles as functional materials. It covers common processing routes and the assessment of physical and chemical particle properties through comprehensive and complementary characterization methods. This book will serve as an introduction to nanoparticle formulation, their interface chemistry and functional properties at the nanoscale. It will also act as an in-depth resource, sharing detailed information on advanced approaches to the physical, chemical, surface, and interface characterization of metal oxide nanoparticle powders and dispersions. Addresses the application of metal oxide nanoparticles and its economic impact Examines particle synthesis, including the principles of selected bottom-up strategies Explores nanoparticle formulation—a selection of processing and application routes Discusses the significance of particle surfaces and interfaces on structure formation, stability and functional materials properties Covers metal oxide nanoparticle characterization at different length scales With this valuable resource, academic researchers, industrial chemists, and PhD students can all gain insight into the synthesis, properties, and applications of metal oxide nanoparticles.

This book (24 chapters) covers the chemistry (chemical composition and structure) of the following spice plants and their products, and provides brief information on the morphology, and postharvest management (storage, packaging and grading) of these crops: black pepper (*Piper nigrum*), small cardamom (*Elettaria cardamomum*), large cardamom (*Amomum subulatum*), ginger, turmeric, cinnamon and cassia (*Cinnamomum* spp.), clove, nutmeg and mace, coriander (*Coriandrum sativum*), cumin (*Cuminum cyminum*), fennel, fenugreek, paprika and

chilli (*Capsicum* spp.), vanilla (*Vanilla* spp.), ajowan (*Trachyspermum ammi*), star anise (*Illicium verum*), aniseed (*Pimpinella anisum*), garcinia (*Garcinia* spp.), tamarind, parsley, celery, curry leaf (*Murraya koenigii*) and bay leaf (*Laurus nobilis*). This book will be useful to researchers, industrialists and postgraduate students of agriculture, horticulture and phytochemistry, and to spice traders and processors.

Kinder lieben Geschichten, sie benötigen sie sogar. Durch Geschichten tauchen sie nicht nur in eine fantastische Welt ein, sie lernen auch Sachverhalte zu verstehen. Storytelling als Methode zur Wissensvermittlung ist daher weit verbreitet und essentiell. Kann diese Form mithilfe der Technologie Augmented Reality auf ein neues, effektiveres Level gehoben werden? Welches Potential oder welche Risiken birgt Augmented Reality für Kinder? Den theoretischen Rahmen dieser Arbeit bildet das Thema Storytelling und dessen Einfluss auf Kinder als Tool zur Wissensbildung. Darauf folgen die technischen Grundlagen von Augmented Reality. Theoretische Lernansätze, Beispiele aus der Praxis und diverse Studien zur Lerneffizienz zeigen ergänzende Faktoren in Hinblick auf den didaktischen Mehrwert auf. Ein auf Basis wissenschaftlicher Literatur erarbeitetes Modell mit Kategorien für AR Storytelling wird anschließend an drei Fallbeispielen angewendet. Die Ergebnisse werden anhand von Experteninterviews evaluiert, in einen praktischen Kontext gebracht und abschließend die Limitation im Einsatz der Technologie zur Wissensvermittlung an Kindern thematisiert.

The continuously expanding realm of Atomic Layer Deposition (ALD) Applications is the symposium focus. ALD can enable the precise deposition of ultra-thin, highly conformal coatings over complex 3D topography, with controlled composition and properties. Following two successful years, this symposium is well on its way to becoming a forum for the sharing of cutting edge research in the various areas where ALD is used.

In *The Wrong Place: Alien Marine Crustaceans - Distribution, Biology And Impacts* provides a unique view into the remarkable story of how shrimps, crabs, and lobsters – and their many relatives – have been distributed around the world by human activity, and the profound implications of this global reorganization of biodiversity for marine conservation biology. Many crustaceans form the base of marine food chains, and are often prominent predators and competitors acting as ecological engineers in marine ecosystems. Commencing in the 1800s global commerce began to move hundreds – perhaps thousands – of species of marine crustaceans across oceans and between continents, both intentionally and unintentionally. This book tells the story of these invasions from Arctic waters to tropical shores, highlighting not only the importance and impact of all prominent crustacean invasions in the world's oceans, but also the commercial exploitation of invasive crabs and shrimps. Topics explored for the first time in one volume include the historical roots of man's impact on crustacean biogeography, the global dispersal of crabs, barnacle invasions, insights into the potential scale of tropical invasions, the history of the world's most widely cultured shrimp, the invasive history

and management of red king crabs in Norway, Chinese mitten crabs in England, and American blue crabs in Europe, the evolutionary ecology of green crabs, and many other subjects as well, touching upon all ocean shores.

Natural remedies play an important role in curing ailments that happen by chance or adoptively. *Adhatoda vasica* is a natural Asian remedy that has the potential to treat respiratory disorders, among others. While existing literature does exist on this medicinal plant, it can be cumbersome to sort through for information relevant to academics, research, and practice. This work reframes and consolidates information on *Adhatoda vasica* so that it is easier to approach through academic, research, and practitioner perspectives.

As the use and applications of polymers increase, so does the interactions of polymer surfaces with other materials. This updated paperback edition of this well-received, popular book presents a comprehensive approach to all aspects of polymer surfaces, from fundamental theory through applications, making it essential reading for everyone studying or working with polymers. From the Reviews of the Cloth Edition: "...both informative and a pleasure to read...the favorable reaction derives from the volume's organization and presentation of its material to ensure maximum utility." —*Polymer News* Divided into four comprehensive sections: physical principles of polymer surfaces, characterization, modifications of properties, and applications. Includes the most recent patent information.

Water, with its simple molecular structure, reveals a complex nature upon interaction with other molecules and surfaces. *Water at Interfaces: A Molecular Approach* provides a broad, multidisciplinary introduction to water at interfaces, focusing on its molecular characteristics. The book considers interfaces at different length scales from single water molecules to involvement of large numbers of water molecules, and from one-dimensional to three-dimensional interfaces. It begins with individual water molecules, describing their basic properties and the fundamental concepts that form the basis of this book. The text explores the main interfaces involving pure and ion-free condensed (liquid and solid) water, including water vapor/liquid water, liquid/oil, and liquid/solid interfaces. It examines water molecules on ideal surfaces—well-ordered (crystalline) and defect-free—covering topics such as electronic structure using frontier orbitals and substrate-induced structuring. The book discusses the affinity of water to surfaces, hydrophobicity and hydrophilicity, emphasizing two extreme cases of affinity. It then addresses real solid surfaces where water/solid interfaces play a key role in actual working conditions, examining water purification, photocatalytic activity, corrosion and degradation, and atmospheric agents. The final chapter deals with the interaction of water with the heterogeneous and complex surfaces of biomolecules, which can both influence the structure of the surrounding water and be modulated by the surrounding liquid. The author discusses simple to more complex biomolecules from peptides to proteins, nucleic acids, and membranes.

The conservation of crop genetic resources is one of the important elements in efforts to sustainably increase agricultural production in low-income countries, and to guarantee long-term food security, especially for the low-income population groups in these countries. Horticultural crops, as high-value crops, have an important role to play in revitalizing rural economies and can add significantly to national economies. Moreover, horticulture provides more than twice the number of jobs compared to traditional cereal crop production, and the shifting of conventional agriculture towards high-value horticulture has increased employment opportunities in developing countries. To exploit this potential, researchers need a vast array of horticultural genetic resources and information on new traits. Horticultural crops, which are only a part of PGRFA (Plant Genetic Resources for Food and Agriculture), are characterized by a wide and varied range of species. In fact, there are five major horticultural crop groups: fruit and nut crops, vegetables, food legumes, roots and tubers, and lastly the ornamental and medicinal group. In this context, the present book provides a comprehensive overview of the current state of conservation and utilization of horticultural genetic resources, addressing contemporary approaches to conservation in connection with different technologies, including biotechnological approaches as practised in India and in some cases, globally. It includes a brief chapter on the unique nature of horticultural genetic resources, providing a rationale for viewing them as being distinct from field crop genetic resources. Subsequent chapters share insights on protocols for the conservation of selected horticultural crops *ex situ*, and focus on the increased need to complement these efforts with *in situ* conservation approaches. Geospatial tools are also briefly described, emphasizing their utility with regard to mapping and managing resources. The book also explores the wild gene pool in horticulture crops; discusses legal aspects related to horticultural genetic resources and biotechnological aspects; and describes the key aspects of sustainable management and replenishment. Given its scope, the book offers a valuable resource for all horticulturists, graduate students, researchers, policymakers, conservationists, and NGOs engaged in horticulture in particular and biodiversity in general.

This Safety Guide provides guidance on the implementation of the requirements in the International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3, in relation to protection of the public and the environment against radiation risks. It provides generic guidance on the application of the radiation protection principles of justification, of optimization of protection and safety, and of dose limits. The publication covers the protection of the public and the environment in all exposure situations -- planned, emergency and existing.

"Following on the successes of two previous dictionary projects, the CRC World Dictionary of Plant Names and the CRC World Dictionary of the Grasses, Umberto Quattrocchi has undertaken this dictionary of economically important plants.... He has done for these plants what was so admirably done in his other works—brought the vast and scattered literature on plant names, and in this case, too, their uses, into coherent order so that the inquisitive scholar can get a foothold." —From the Foreword, Donald H. Pfister, Harvard University and Harvard University Herbaria, Cambridge, Massachusetts *The CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names,*

Eponyms, Synonyms, and Etymology provides the starting point for better access to data on plants used around the world in medicine, food, and cultural practices. The material found in the five volumes has been painstakingly gathered from papers of general interest, reports and records, taxonomic revisions, field studies, herbaria and herbarium collections, notes, monographs, pamphlets, botanical literature, and literature tout court. It includes sources available at various natural history libraries, floras and standard flora works, local floras and local histories, nomenclatural histories, and the International Code of Botanical Nomenclature. Much more than a dictionary, the book provides the names of thousands of genera and species of economically important plants, concise summaries of plant properties, and appropriate observations about medicinal uses. Drawing from a tremendous range of primary and secondary sources, it is an indispensable time-saving guide for all those involved with botany, herbal medicine, pharmacognosy, toxicology, medicinal and natural product chemistry, and agriculture.

The book containing 18 chapters is divided into three parts: Part 1: Fundamentals of Ice Formation and Ice Characteristics; Part 2: Ice Adhesion and Its Measurement; and Part 3: Methods to Mitigate Ice Adhesion. The topics covered include: Factors influencing the formation, adhesion and friction of ice; ice nucleation on solid surfaces; physics of ice nucleation and growth on a surface; condensation frosting; defrosting properties of structured surfaces; relationship between surface free energy and ice adhesion to surfaces; metrology of ice adhesion; test methods for quantifying ice adhesion strength to surfaces; interlaboratory studies of ice adhesion strength; mechanisms of surface icing and deicing technologies; anti-icing using microstructured surfaces; durability assessment of icephobic coatings; bio-inspired icephobic coatings; challenges in rational fabrication of icephobic surfaces; protection from ice accretion on aircraft; and numerical modeling and its application to inflight icing.

This report supplies information on joining processes applicable to titanium and its alloys in sheet metal applications, primarily related directly to airframe construction. Although the material presented here does not cover all titanium joining processes, and omits such processes as plasma-arc, submerged-arc, electroslag, flash, and high-frequency resistance welding, the data presented cover materials up to 2-inches thick in some cases and the report should be useful to anyone seeking titanium joining information. The joining processes covered fall into five categories: welding, brazing, metallurgical bonding (diffusion and deformation bonding), adhesive bonding, and mechanical fastening. The fusion welding processes that are discussed in detail include gas tungsten arc, gas metal arc, arc spot, and electron beam. The resistance processes give extended coverage are spot, roll spot, and seam welding. (Author).

Inequality: Marcia H. Rioux

Translated From The High Dutch Printed In Amsterdam, 1672 (Selected Pages From 667-829).

This volume comprises select peer-reviewed contributions from the International Conference on Production and Industrial Engineering (CPIE) 2019. The contents focus on latest research in production and manufacturing engineering including case studies with analytical models and latest numerical approaches. The topics covered include micro, nano, and non-conventional machining, additive manufacturing, casting and forming, joining processes, vibrations and acoustics, materials and processing, product design and development, industrial automation, CAD/CAM and robotics, and sustainability in manufacturing. The book can be useful for students, researchers, and professionals working in manufacturing and production engineering, and other allied fields.

This volume is the first English language presentation of the innovative approaches developed in the aesthetics of religion. The

chapters present diverse material and detailed analysis on descriptive, methodological and theoretical concepts that together explore the potential of an aesthetic approach for investigating religion as a sensory and mediated practice. In dialogue with, yet different from, other major movements in the field (material culture, anthropology of the senses, for instance), it is the specific intent of this approach to create a framework for understanding the interplay between sensory, cognitive and socio-cultural aspects of world-construction. The volume demonstrates that aesthetics, as a theory of sensory knowledge, offers an elaborate repertoire of concepts that can help to understand religious traditions. These approaches take into account contemporary developments in scientific theories of perception, neuro-aesthetics and cultural studies, highlighting the socio-cultural and political context informing how humans perceive themselves and the world around them. Developing since the 1990s, the aesthetic approach has responded to debates in the study of religion, in particular striving to overcome biased categories that confined religion either to texts and abstract beliefs, or to an indisputable *sui generis* mode of experience. This volume documents what has been achieved to date, its significance for the study of religion and for interdisciplinary scholarship.

Nanodroplets, the basis of complex and advanced nanostructures such as quantum rings, quantum dots and quantum dot clusters for future electronic and optoelectronic materials and devices, have attracted the interdisciplinary interest of chemists, physicists and engineers. This book combines experimental and theoretical analyses of nanosized droplets which reveal many attractive properties. Coverage includes nanodroplet synthesis, structure, unique behaviors and their nanofabrication, including chapters on focused ion beam, atomic force microscopy, molecular beam epitaxy and the "vapor-liquid- solid" route. Particular emphasis is given to the behavior of metallic nanodroplets, water nanodroplets and nanodroplets in polymer and metamaterial nanocomposites. The contributions of leading scientists and their research groups will provide readers with deeper insight into the chemical and physical mechanisms, properties, and potential applications of various nanodroplets.

The development of German pop music represents a fascinating cultural mirror to the history of post-war Germany, reflecting sociological changes and political developments. While film studies is an already established discipline, German pop music is currently emerging as a new and exciting field of academic study. This pioneering companion is the first volume to provide a comprehensive overview of the subject, charting the development of German pop music from the post-war period 'Schlager' to the present 'Diskursrock'. Written by acknowledged experts from Germany, the UK and the US, the various chapters provide overviews of pertinent genres as well as focusing on major bands such as CAN, Kraftwerk or Rammstein. While these acts have shaped the international profile of German pop music, the volume also undertakes in-depth examinations of the specific German contributions to genres such as punk, industrial, rap and techno. The survey is concluded by an interview with the leading German pop theorist Diedrich Diederichsen. The volume constitutes an indispensable companion for any student, teacher and scholar in the area of German studies interested in contemporary popular culture.

This book comprehensively covers iodine, its chemistry, and its role in functional materials, reagents, and compounds. • Provides an up-to-date, detailed overview of iodine chemistry with discussion on elemental aspects: characteristics, properties, iodides, and

halogen bonding • Acts as a useful guide for readers to learn how to synthesize complex compounds using iodine reagents or intermediates • Describes traditional and modern processing techniques, such as starch, copper, blowing out, and ion exchange resin methods • Includes seven detailed sections devoted to the applications of iodine: Characteristics, Production, Synthesis, Biological Applications, Industrial Applications, Bioorganic Chemistry and Environmental Chemistry, and Radioisotopes • Features hot topics in the field, such as hypervalent iodine-mediated cross coupling reactions, agrochemicals, dyesensitized solar cells, and therapeutic agents

The Films and Career of Elvis traces the King's meteoric rise from truck driver to singer, movie star, and Vegas act extraordinaire. Features hundreds of photos -- many rare -- and an attractive new cover.

Genetic erosion is the loss of genetic diversity within a species. It can happen very quickly, due to catastrophic events, or changes in land use leading to habitat loss. But it can also occur more gradually and remain unnoticed for a long time. One of the main causes of genetic erosion is the replacement of local varieties by modern varieties. Other causes include environmental degradation, urbanization, and land clearing through deforestation and brush fires. In order to conserve biodiversity in plants, it is important to target three independent levels that include ecosystems, species and genes. Genetic diversity is important to a species' fitness, long-term viability, and ability to adapt to changing environmental conditions. Chapters in this book are written by leading geneticists, molecular biologists and other specialists on relevant topics on genetic erosion and conservation genetic diversity in plants. This divisible set of two volumes deals with a broad spectrum of topics on genetic erosion, and approaches to biodiversity conservation in crop plants and trees. Volume 1 deals with indicators and prevention of genetic erosion, while volume 2 covers genetic diversity and erosion in a number of plant species. These two volumes will also be useful to botanists, biotechnologists, environmentalists, policy makers, conservationists, and NGOs working to manage genetic erosion and biodiversity.

Photocatalysis is the acceleration of a photoreaction in the presence of a catalyst. Light is absorbed by an adsorbed substance in catalyzed photolysis. However, in photogenerated catalysis, the photocatalytic activity is based on the ability of the catalyst to generate electron-hole pairs which create free radicals. Homogeneous photocatalysis and heterogeneous photocatalysis are the two primary categories of photocatalysis. In homogeneous photocatalysis, the photocatalysts and the reactants exist in the same phase. Whereas, in heterogeneous photocatalysis reactants are in a different phase. Heterogeneous photocatalysis includes a large variety of reactions, such as mild or total oxidations, dehydrogenation, hydrogen transfer, and deuterium-alkane isotopic exchange, etc. This book brings forth some of the most innovative concepts and elucidates the unexplored aspects of photocatalysis. Different approaches, evaluations, methodologies and advanced studies on photocatalysis have been included in this book. This book is appropriate for students seeking detailed information in this area as well as for experts.

This book of "Seed Spices" is the concise compilation of scientific information in a bridged form on seed spices production technologies. The book has been divided into fourteen chapters covering all the cultivation aspects of major and minor seed spices. The efforts have been

made to incorporate latest production, protection and postharvest technologies of seed spices developed and generated at ICAR-NRCSS, Ajmer and other research and development organization working under the umbrella of AICRP on spices. It is hoped that the book will be of interest and benefit the researchers, students, development workers, teachers, policy makers, and all interested in seed spices.

Smart Nanocontainers explores the fundamental concepts and emerging applications of nanocontainers in biomedicine, pharmaceuticals and smart materials. In pharmaceuticals, nanocontainers have advantages over their micro-counterparts, including more efficient drug detoxification, higher intracellular uptake, better stability, less side effects and higher biocompatibility with tissue and cells. In materials science, such as coating technology, they help by making coatings smarter, stronger and more durable. This important reference will help anyone who wants to learn more on how nanocontainers are used to provide the controlled release of active agents, including their applications in smart coatings, corrosion, drug delivery, diagnosis, agri-food and gas storage. Discusses how the molecular design of nanocarriers can be optimized to increase performance Explores how nanocarriers are being used to produce a new generation of active coatings Explains how nanocarriers are being used to deliver more effective nanoscale drug delivery

This book provides a comprehensive overview of the fundamental properties, preparation routes and applications of a novel class of organic–inorganic nanocomposites known as periodic mesoporous organosilicas (PMOs). Mesoporous silicas are amorphous inorganic materials which have silicon and oxygen atoms in their framework with pore size ranging from 2 to 50 nm. They can be synthesized from surfactants as templates for the polycondensation of various silicon sources such as tetraalkoxysilane. In general, mesoporous silica materials possess high surface areas, tunable pore diameters, high pore volumes and well uniformly organized porosity. The stable chemical property and the variable ability for chemical modification makes them ideal for many applications such as drug carrier, sensor, separation, catalyst, and adsorbent. Among such mesoporous silicas, in 1999, three groups in Canada, Germany, and Japan independently developed a novel class of organic–inorganic nanocomposites known as periodic mesoporous organosilicas (PMOs). The organic functional groups in the frameworks of these solids allow tuning of their surface properties and modification of the bulk properties of the material. The book discusses the properties of PMOs, their preparation, different functionalities and morphology, before going on to applications in fields such as catalysis, drug delivery, sensing, optics, electronic devices, environmental applications (gas sensing and gas adsorption), biomolecule adsorption and chromatography. The book provides fundamental understanding of PMOs and their advanced applications for general materials chemists and is an excellent guide to these promising novel materials for graduate students majoring in chemical engineering, chemistry, polymer science and materials science and engineering.

We think we understand environmental damage: pollution, water scarcity, a warming world. But these problems are just the tip of the iceberg. Food insecurity, financial assets drained of value, and a rapid rise in diseases of animal origin are among the underreported consequences of an unsustainable global system. In this volume, experts explore these hidden threats along with the central question of how we can develop resilience to these and other shocks.

This guide is a successor to the much acclaimed Birds of the Indian Subcontinent by two of the same authors. Covering Pakistan, the superb plates are accompanied by a succinct text highlighting identification, voice, habitat, altitudinal range, distribution and status. The text is on facing pages to the plates, for easy reference and there are distribution maps for every species. Like previous guides covering Nepal, Bhutan, Northern India and Southern India, this guide is a perfect size for use in the field and will be an essential companion when visiting this region.

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