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## KEY=CRYSTALS - ELLIS WALLS

**Bicontinuous Liquid Crystals** *CRC Press* **With the development of diverse analytical chemistry techniques, the discovery of rich and numerous properties pertaining to bicontinuous liquid crystal structures has yielded beneficial applications in medicine, consumer products, materials science, and biotechnology. Presenting contributions from 24 experts worldwide, Bicontinuous Liquid Crystals presents a comprehensive overview of these structures with a practical approach to applying them in manufacturing and laboratory processes. This book considers the cubic, mesh, ribbon, and sponge equilibrium phases of bicontinuous structures. It begins with a historical perspective and a theoretical platform for study, followed by a detailed discussion of physical chemistry, properties, and structural characteristics of the different phases. The text interrelates the most useful analytical methods for the characterization of the behavior and stability of liquid crystalline phases based on structure, geometry, composition-dependent changes, temperature, dispersion, and other factors. These techniques include differential geometry, thermodynamics, local and global packing, and the study of conformational entropy. The book also highlights tools for mathematically visualizing bicontinuous systems. This provides an excellent foundation for the authors' examination of the latest studies and applications, such as controlled release, materials development, fabrication, processing, polymerization, protein crystallization, membrane fusion, and treatment of human skin. Bicontinuous Liquid Crystals represents current trends and innovative ideas in the study of bicontinuous liquid crystals. Divided into three sections, it provides a complete overview of theoretical and modeling aspects, physical chemistry and characterization, and applications in this active field of research. Bicontinuous Structured Liquid Crystals** *Marcel Dekker Incorporated* **Handbook of Liquid Crystals, 8 Volume Set** *John Wiley & Sons* **This front line reference work defines the science behind the key technology of the 21st century. The reader gets an in-depth and comprehensive overview of everything there is to know about nanotechnology and nanoscience by using a cross-disciplinary approach. Not only fundamentals but also applications of nanotechnology are presented in close to 100 contributions by leading professionals in this field. With topics ranging from engineering to electronics, life and medical sciences, chemistry, materials science and analytics, the following key areas are covered: Principles and Fundamentals of Nanotechnology, Philosophical and Ethical Aspects, Types of Nanosystems, Generation of Nanostructures, Environmental Nanotechnology, Nanoparticles in the Environment, Semiconductor Technology, High-Density Memories, Nanofabrication, Nanomedicine, Nanobiotechnology, Nanoprobes, Light and Energy, Nanostructured Surfaces. The Liquid Crystal Display Story 50 Years of Liquid Crystal R&D that lead The Way to the Future** *Springer* **This book focuses on the development of liquid crystal displays (LCDs) and liquid crystal materials (LCs) in Japan. The Committee of Organic Materials Research for Information Sciences of the Japan Society for the Promotion of Science (JSPS) planned the book to document essential LCD innovations and developments since the beginnings of the field-effect LCD technology in 1970. The book illustrates the remarkable effort and progress behind those flat, lightweight, and high-information-content LCDs that have become the indispensable human–machine interface for virtually all electronic devices. In contrast to other publications on this topic, the book illustrates the interdisciplinary character of the LCD technology and its crucial importance for technological progress of the field far beyond displays. It also gives insights into breakthrough innovations not revealed in other publications. Moreover, prospects for the development of LC research toward new fields of applications are provided. In line with its interdisciplinary character, the book targets researchers in basic science as well as engineers and researchers in industry. Encyclopedia of Supramolecular Chemistry** *CRC Press* **Covers the fundamentals of supramolecular chemistry; supramolecular advancements and methods in the areas of chemistry, biochemistry, biology, environmental and materials science and engineering, physics, computer science, and applied mathematics. Reactions And Synthesis In Surfactant Systems** *CRC Press* **This work offers a comprehensive review of surfactant systems in organic, inorganic, colloidal, surface, and materials chemistry. It provides practical applications to reaction chemistry, organic and inorganic particle formation, synthesis and processing, molecular recognition and surfactant templating. It also allows closer collaboration between synthetic and physical practitioners in developing new materials and devices. Surfactant Science and Technology Retrospects and Prospects** *CRC Press* **Surfactant research explores the forces responsible for surfactant assembly and the critical industrial, medical, and personal applications, including viscosity control, microelectronics, drug stabilization, drug delivery, cosmetics, enhanced oil recovery, and foods. Surfactant Science and Technology: Retrospects and Prospects, "a Festschrift in honor of Dr. Kash Mittal," provides a broad perspective with chapters contributed by leaders in the fields of surfactant-based physical, organic, and materials chemistries. Many of the authors participated in a special symposium in Melbourne, Australia, honoring Kash Mittal's 100th edited book at the 18th Surfactants in Solution (SIS) meeting. Each chapter provides an overview of a specific research area, with discussions on past, present, and future directions. The book is divided into six parts. Part I reviews the evolution of theoretical models for surfactant self-assembly, and introduces a model for interpreting ion-specific effects on aggregate properties. Part II focuses on interactions of surfactant solutions with solid supports; uses contact angles to understand hydrophobic/hydrophilic changes in a lipid layer; uses surface tension to understand molecular arrangements at interfaces; reviews spreading phenomena; discusses pattern formation on solid surfaces; and applies tensiometry to probe flavor components of espresso. Part III discusses novel DNA-based materials, multifunctional poly(amino acid)s–based graft polymers for drug delivery, and polymeric surfactants for stabilizing suspensions and emulsions. Part IV introduces farm-based biosurfactants from natural products and "greener" biosurfactants from bacteria. Part V explores lyotropic liquid crystals and their applications in triggered drug release; microemulsion properties and controlled drug release; the role of hydrotopes in formulations and in enhancing solubilization in liquid crystals; the potential of ionic liquids to generate tunable and selective reaction media; and provides an overview of stimuli-responsive surfactants. Focusing on emulsions, Part VI reviews the design of emulsion properties for various commercial applications, the role of surfactants in the oil and gas industries, and surfactant mechanisms for soil removal via microemulsions and emulsification. Structure and Dynamics of Membranes I. From Cells to Vesicles / II. Generic and Specific Interactions** *Elsevier* **The first volume of the Handbook deals with the amazing world of biomembranes and lipid bilayers. Part A describes all aspects related to the morphology of these membranes, beginning with the complex architecture of biomembranes, continues with a description of the bizarre morphology of lipid bilayers and concludes with technological applications of these membranes. The first two chapters deal with biomembranes, providing an introduction to the membranes of eucaryotes and a description of the evolution of membranes. The following chapters are concerned with different aspects of lipids including the physical properties of model membranes composed of lipid-protein mixtures, lateral phase separation of lipids and proteins and measurement of lipid-protein bilayer diffusion. Other chapters deal with the flexibility of fluid bilayers, the closure of bilayers into vesicles which attain a large variety of different shapes, and applications of lipid vesicles and liposomes. Part B covers membrane adhesion, membrane fusion and the interaction of biomembranes with polymer networks such as the cytoskeleton. The first two chapters of this part discuss the generic interactions of membranes from the conceptual point of view. The following two chapters summarize the experimental work on two different bilayer systems. The next chapter deals with the process of contact formation, focal bounding and macroscopic contacts between cells. The cytoskeleton within eucaryotic cells consists of a network of relatively stiff filaments of which three different types of filaments have been identified. As explained in the next chapter much has been recently learned about the interaction of these filaments with the cell membrane. The final two chapters deal with membrane fusion. Ordered Mesoporous Materials** *John Wiley & Sons* **Mesoporous materials are a class of molecules with a large and uniform pore size, highly regular nanopores, and a large surface area. This book is devoted to all aspects and types of these materials and describes, in an in-depth and systematic manner, the step-by-step synthesis and its mechanism, as well as the characterization, morphology control, hybridization, and applications, of mesoporous molecular sieves. In so doing, it covers silicates, metal-doped silicates, nonsilicates, and organic-inorganic hybrids. Although the emphasis is on synthesis, the expert authors also discuss characterization and applications, ranging from catalysis and biochemistry to optics and the use of these materials as templates for nanomaterial synthesis. Both the fundamentals and the latest research results are covered, ensuring that this monograph serves as a reference for researchers in and newcomers to the field. Delivery System Handbook for Personal Care and Cosmetic Products Technology, Applications and Formulations** *William Andrew* **Novel delivery systems designed to facilitate the use of ôfountain of youthö and other functional actives is an idea whose time has come. In a rapidly growing global market eager for products that really work, accelerating market pull forces and technology push have set the stage for this foundation text. This ômust haveö book has been carefully designed for training, development and synergistic technology transfer across the personal care, cosmetic and pharmaceutical industries. It is not only intended for scientists and technologists but will also be of high interest to market development and business personnel. This book will cause a breakthrough in effective interaction among technology and marketing. It is a showcase for understanding, using and marketing the technology of why and how delivery systems work as well as current, emerging/potential applications and working formulations. Each chapter is written by one or more experts in the field. A wide range of companies serving the global marketplace are represented. These companies offer numerous types of delivery systems containing highly desirable functional actives, delivery system technology development services, and opportunities for technology licensing, mergers and acquisitions. A unique feature of the book is the use of Mind MapÖ technology to capture and present the essence of the thinking of over 80 authors in a ôBook-at-a-Glanceö Executive Overview section. This section has been specifically designed to empower decision making leading to the development of innovative product differentiation in a global context. Surfactants and Interfacial Phenomena** *John Wiley & Sons* **This book is the premier text on the properties and applications ofsurfactants. The third edition is completely updated and revised,including new information on gemini surfactants (a new type ofpowerful surfactant), superspreading (or superwetting) by aqueoussurfactant solutions of highly hydrophobic surfaces (important inagricultural applications), and dynamic surface tension (animportant interfacial property not covered in the first twoeditions). * Clearly explains the mechanisms by which surfactants operate ininterfacial processes * Uses a minimum of mathematics in explanation of topics, making iteasy-to-understand and very user-friendly * Problems are included at the end of each chapter * Includes many tables of data as reference that are not compiledelsewhere * Milton J Rosen is an expert in the field of Surfactant research Phospholipids Handbook** *CRC Press* **Employing a multidisciplinary approach to phospholipid research, this work catalogues the current knowledge of this class of molecules and details the general, chemical, physical and structural properties of phospholipid monolayers and bilayers. Phospholipid applications are also covered. Ionic Liquid Crystals** *MDPI* **In this book we have collected a series of state-of-the art papers written by specialists in the field of ionic liquid crystals (ILCs) to address key questions concerning the synthesis, properties, and applications of ILCs. New compounds exhibiting ionic liquid crystalline phases are presented, both of calamitic as well as discotic type. Their dynamic and structural properties have been investigated with a series of experimental techniques including differential scanning calorimetry, polarized optical spectroscopy, X-ray scattering, and nuclear magnetic resonance, impedance spectroscopy to mention but a few. Moreover, computer simulations using both fully atomistic and highly coarse-grained force fields have been presented, offering an invaluable microscopic view of the structure and dynamics of these fascinating materials. Handbook of Detergents - 6 Volume Set** *CRC Press* **With contributions from experts and pioneers, this set provides readers with the tools they need to answer the need for sustainable development faced by the industry. The six volumes constitute a shift from the traditional, mostly theoretical focus of most resources to the practical**

**application of advances in research and development. With con Handbook of Detergents, Part A Properties** *CRC Press* **Part A of this handbook describes the raw materials and potential interactions of detergent products before, during and after use, focusing on the development and mechanisms of action of cleaning components. The text presents the basic physiochemical concepts necessary to formulate new, safer and more effective detergent products. Polymer and Polymer-Hybrid Nanoparticles From Synthesis to Biomedical Applications** *CRC Press* **Polymeric and hybrid nanoparticles have received increased scientific interest in terms of basic research as well as commercial applications, promising a variety of uses for nanostructures in fields including bionanotechnology and medicine. Condensing the relevant research into a comprehensive reference, Polymer and Polymer-Hybrid Nanoparticles: From Synthesis to Biomedical Applications covers an array of topics from synthetic procedures and macromolecular design to possible biomedical applications of nanoparticles and materials based on original and unique polymers. The book presents a well-rounded picture of objects ranging from simple polymeric micelles to complex hybrid polymer-based nanostructures, detailing synthetic procedures, techniques for characterization and analysis, properties, and behavior in selective solvents and dispersions. Each chapter contains background and introductory information, summarizing generalities on the nanosystems being discussed. The chapters also describe representative works of experts and provide in-depth, focused discussions. The authors present current knowledge on the following topics: Designed synthesis of functional polymers Construction of block copolymer micellar and nonmicellar self-assembled structures Construction of organic–organic hybrid nanosized particles Construction of organic–inorganic hybrid nanoparticles and nanoassemblies The final chapter addresses biological applications of polymeric nanoparticles, including delivery of low-molecular-weight drugs, macromolecular drugs, imaging and diagnostics, and photodynamic therapy. Summarizing important developments in the field, the authors condense relevant research into a comprehensive resource. Polypropylene** *BoD – Books on Demand* **This book aims to bring together researchers and their papers on polypropylene, and to describe and illustrate the developmental stages polypropylene has gone through over the last 70 years. Besides, one can find papers not only on every application and practice of polypropylene but also on the latest polypropylene technologies. It is also intended in this compilation to present information on polypropylene in a medium readily accessible for any reader. Nanocarriers: Drug Delivery System An Evidence Based Approach** *Springer Nature* **A suitable drug delivery system is an essential element in achieving efficient therapeutic responses of drug molecules. With this desirability in mind, the book unites different techniques through which extremely small-sized particles can be utilized as a successful carrier for curing chronic as well as life-threatening diseased conditions. This is a highly informative and prudently organized book, providing scientific insight for readers with an interest in nanotechnology. Beginning with an overview of nanocarriers, the book impetuses on to explore other essential ways through which these carriers can be employed for drug delivery to varieties of administrative routes. This book discusses the functional and significant features of nanotechnology in terms of Lymphatic and other drug targeting deliveries. The book is presenting depth acquaintance for various vesicular and particulate nano-drug delivery carriers, utilized successfully in Pharmaceutical as well as in Cosmeceutical industries along with brief information on their related toxicities. In addition, the work also explores the potential applications of nanocarriers in biotechnology sciences for the prompt and safe delivery of nucleic acid, protein, and peptide-based drugs. An exclusive section in the book illuminates the prominence and competent applicability of nanotechnology in the treatment of oral cancer. The persistence of this book is to provide basic to advanced information for different novel carriers which are under scale-up consideration for the extensive commercialization. The book also includes recent discoveries and the latest patents of such nanocarriers. The cutting-edge evidence of these nanocarriers available in this book is beneficial to students, research scholars, and fellows for promoting their advanced research. Colloid and Interface Science** *PHI Learning Pvt. Ltd.* **Percutaneous Penetration Enhancers Chemical Methods in Penetration Enhancement Drug Manipulation Strategies and Vehicle Effects** *Springer* **This truly comprehensive reference, in a mini-series format with five volumes, offers a detailed description of both well-known and recently introduced methods for percutaneous penetration enhancement. The first three volumes are devoted to the broad range of chemical methods used to enhance the skin delivery of drugs, including the vast variety of chemical penetration enhancers, drug and vehicle manipulation strategies, nanocarriers, and many others. The fourth volume discusses the diverse physical methods used in penetration enhancement, such as sonophoresis, iontophoresis, electroporation, microporation, laser ablation, and microneedles. Determination of drug penetration is covered in the final volume, with a focus especially on mathematics in skin permeation and modern analytical techniques adapted to assess and measure penetration. This edition of Percutaneous Penetration Enhancers will be an invaluable resource for researchers, pharmaceutical scientists, practitioners, and also students. Understanding and Controlling the Microstructure of Complex Foods** *Elsevier* **It is widely accepted that the creation of novel foods or improvement of existing foods largely depends on a strong understanding and awareness of the intricate interrelationship between the nanoscopic, microscopic and macroscopic features of foods and their bulk physiochemical properties, sensory attributes and healthfulness. With its distinguished editor and array of international contributors, Understanding and controlling the microstructure of complex foods provides a review of current understanding of significant aspects of food structure and methods for its control. Part one focuses on the fundamental structural elements present in foods such as polysaccharides, proteins and fats and the forces which hold them together. Part two discusses novel analytical techniques which can provide information on the morphology and behaviour of food materials. Chapters cover atomic force microscopy, image analysis, scattering techniques and computer analysis. Chapters in part three examine how the principles of structural design can be employed to improve performance and functionality of foods. The final part of the book discusses how knowledge of structural and physicochemical properties can be implemented to improve properties of specific foods such as ice-cream, spreads, protein-based drinks, chocolate and bread dough. Understanding and controlling the microstructure of complex foods is an essential reference for industry professionals and scientists concerned with improving the performance of existing food products and inventing novel food products. Reviews the current understanding of significant aspects of food structure and methods for its control Focuses on the fundamental structural elements present in foods such as proteins and fats and the forces that hold them together Discusses novel analytical techniques that provide information on the morphology and behaviour of food materials Advances in Planar Lipid Bilayers and Liposomes** *Academic Press* **Advances in Planar Lipid Bilayers and Liposomes volumes cover a broad range of topics, including main arrangements of the reconstituted system, namely planar lipid bilayers as well as spherical liposomes. The invited authors present the latest results of their own research groups in this exciting multidisciplinary field. Incorporates contributions from newcomers and established and experienced researchers Explores the planar lipid bilayer systems and spherical liposomes from both theoretical and experimental perspectives Serves as an indispensable source of information for new scientists Controlled Release in Oral Drug Delivery** *Springer Science & Business Media* **Controlled Release in Oral Drug Delivery provides focus on specific topics, complementing other books in the initial CRS series. Each chapter sets the context for the inventions described and describe the latitude that the inventions allow. In order to provide some similar look to each chapter, the coverage includes the historical overview, candidate drugs, factors influencing design and development, formulation and manufacturing and delivery system design. This volume was written along three main sections: the relevant anatomy and physiology, a discussion on candidates for oral drug delivery and the major three groups of controlled release systems: diffusion control (swelling and inert matrices); environmental control (pH sensitive coatings, time control, enzymatic control, pressure control) and finally lipidic systems. Dekker Encyclopedia of Nanoscience and Nanotechnology** *CRC Press* **Nucleic Acid Transfection** *Springer* **Gene Delivery into Mammalian Cells: An Overview on Existing Approaches Employed In Vitro and In Vivo, by Peter Hahn and Elizabeth Scanlan * Strategies for the Preparation of Synthetic Transfection Vectors, by Asier Unciti-Broceta, Matthew N. Bacon, and Mark Bradley * Cationic Lipids: Molecular Structure/Transfection Activity Relationships and Interactions with Biomembranes, by Rumiana Koynova and Boris Tenchov * Hyperbranched Polyamines for Transfection, by Wiebke Fischer, Marcelo Calderon, and Rainer Haag * Carbohydrate Polymers for Nonviral Nucleic Acid Delivery, by Antons Sizovs, Patrick M. McLendon, Sathya Srinivasachari, and Theresa M. Reineke * Cationic Liposome–Nucleic Acid Complexes for Gene Delivery and Silencing: Pathways and Mechanisms for Plasmid DNA and siRNA, by Kai K. Ewert, Alexandra Zidovska, Ayesha Ahmad, Nathan F. Bouxsein, Heather M. Evans, Christopher S. McAllister, Charles E. Samuel, and Cyrus R. Safinya * Chemically Programmed Polymers for Targeted DNA and siRNA Transfection, by Eveline Edith Salcher and Ernst Wagner * Photochemical Internalization: A New Tool for Gene and Oligonucleotide Delivery, by Kristian Berg, Maria Berstad, Lina Prasmickaite, Anette Weyergang, Pål K. Selbo, Ida Hedfors, and Anders Høgset * Visualizing Uptake and Intracellular Trafficking of Gene Carriers by Single-Particle Tracking, by N. Ruthardt and C. Bräuchle Functional Organic and Hybrid Nanostructured Materials Fabrication, Properties, and Applications** *John Wiley & Sons* **The first book to explore the potential of tunable functionalities in organic and hybrid nanostructured materials in a unified manner. The highly experienced editor and a team of leading experts review the promising and enabling aspects of this exciting materials class, covering the design, synthesis and/or fabrication, properties and applications. The broad topical scope includes organic polymers, liquid crystals, gels, stimuli-responsive surfaces, hybrid membranes, metallic, semiconducting and carbon nanomaterials, thermoelectric materials, metal-organic frameworks, luminescent and photochromic materials, and chiral and self-healing materials. Asymmetry in Biological Homochirality** *MDPI* **Chirality, or handedness, is a fundamental physical characteristic, which spans the length scales ranging from elementary particles to the chiral asymmetry of spiral galaxies. The way in which chirality in chemistry, or molecular handedness, may have emerged in a primitive terrestrial environment, and how it can be triggered, amplified, and transferred, are deeply challenging problems rooted in both fundamental scientific interests and the technological potentials for science and society. Chirality constitutes a unifying feature of the living world and is a prime driving force for molecular selection and genetic evolution in biology. In this book, we offer a selection of five distinct approaches to this problem by leading experts in the field. The selected topics range from protein chirality and its relevance to protein ageing, protein aggregation and neurodegeneration, entropy production associated with chiral symmetry breaking in closed systems, chiral oscillations in polymerization models involving higher-order oligomers, the mirror symmetry breaking in liquids and its implications for the development of homochirality in abiogenesis, the role of chirality in the chemical sciences, and some philosophical implications of chirality. Liposomes, Lipid Bilayers and Model Membranes From Basic Research to Application** *CRC Press* **As a result of their unique physical properties, biological membrane mimetics, such as liposomes, are used in a broad range of scientific and technological applications. Liposomes, Lipid Bilayers and Model Membranes: From Basic Research to Application describes state-of-the-art research and future directions in the field of membranes, which has evo Delivery and Controlled Release of Bioactives in Foods and Nutraceuticals** *Elsevier* **Active ingredients in foods must remain fully functional for as long as necessary and be transported and discharged appropriately to have the desired nutritional effect. Delivery and controlled release systems are an essential way to achieve these aims. This important book reviews how to optimise these systems to maximise the health-promoting properties of food products. Opening chapters review factors affecting nutrient bioavailability and methods to test delivery system efficacy. Part two addresses materials used and specific techniques for delivery and release. The benefits and drawbacks of structured lipids, micro- and nano-emulsions, food-protein-derived materials, complexes and conjugates of biopolymers, and starch as an encapsulation material for delivery of functional food ingredients, are all considered. Part three discusses the delivery and controlled release of particular nutraceuticals such as antioxidants and vitamins, folic acid, probiotics, fish oils and proteins. Part four covers regulatory issues and future trends in bioactives and nutraceuticals. Edited by a leading expert in the field, Delivery and controlled release of bioactives in foods and nutraceuticals is a valuable reference for those working in the food industry and particularly those developing nutraceuticals. Reviews techniques to optimise the delivery and release of bioactives in food Discusses the factors that affect nutrient bioavailability and methods to test delivery system efficacy Addresses materials used and specific techniques for delivery and release The Physics of Lyotropic Liquid Crystals Phase Transitions and Structural Properties** *OUP Oxford* **This book gives a comprehensive description of the physical properties of lyotropic liquid crystals. Structural features, phase transitions and phase diagrams are discussed in detail. The available experimental data on lyotropic mixtures is presented in the unifying context of the Landau theories. This phenomenological approach is used for establishing connections between structural properties and phase diagrams. The book is suitable for use as a pedagogical introduction to the subject. Green Solvents II Properties and Applications of Ionic Liquids** *Springer Science & Business Media* **The conventional solvents used in chemical, pharmaceutical, biomedical and separation processes represent a great challenge to green chemistry because of their toxicity and flammability. Since the beginning of “the 12 Principles of Green Chemistry” in 1998, a general effort has been made to replace conventional solvents with environmentally benign substitutes. Water has been the most popular choice so far, followed by ionic liquids, surfactant, supercritical fluids, fluorous solvents, liquid polymers, bio-solvents and switchable**

**solvent systems. Green Solvents Volume I and II provides a throughout overview of the different types of solvents and discusses their extensive applications in fields such as extraction, organic synthesis, biocatalytic processes, production of fine chemicals, removal of hydrogen sulphide, biochemical transformations, composite material, energy storage devices and polymers. These volumes are written by leading international experts and cover all possible aspects of green solvents' properties and applications available in today's literature. Green Solvents Volume I and II is an invaluable guide to scientists, R&D industrial specialists, researchers, upper-level undergraduates and graduate students, Ph.D. scholars, college and university professors working in the field of chemistry and biochemistry. Advances in Chemical Engineering** *Academic Press* **Advances in Chemical Engineering Nuclear Magnetic Resonance** *Royal Society of Chemistry* **As a spectroscopic method, nuclear magnetic resonance (NMR) has seen spectacular growth, both as a technique and in its applications. Today's applications of NMR span a wide range of scientific disciplines, from physics to biology to medicine. Each volume of Nuclear Magnetic Resonance comprises a combination of annual and biennial reports which together provide comprehensive coverage of the literature on this topic. This Specialist Periodical Report reflects the growing volume of published work involving NMR techniques and applications, in particular NMR of natural macromolecules, which is covered in two reports: NMR of Proteins and Nucleic Acids and NMR of Carbohydrates, Lipids and Membranes. In his foreword to the first volume, the then editor, Professor Robin Harris announced that the series would be a discussion on the phenomena of NMR and that articles will be critical surveys of the literature. This has certainly remained the case throughout the series, and in line with its predecessors, Volume 40 aims to provide a comprehensive coverage of the relevant NMR literature. For the current volume this relates to publications appearing between June 2009 and May 2010 (the nominal period of coverage in volume 1 was July 1970 to June 1971). Compared to the previous volume there are some new members of the reporting team. Theoretical Aspects of Spin-Spin Couplings are covered by J. Jazwinski, while E. Swiezewska and J.W3/4jcik provide an account of NMR of Carbohydrates, Lipids and Membranes. Microemulsions Properties and Applications** *CRC Press* **The effective use of microemulsions has increased dramatically during the past few decades as major industrial applications have expanded in a variety of fields. Microemulsions: Properties and Applications provides a complete and systematic assessment of all topics affecting microemulsion performance and discusses the fundamental characteristics, theories, and applications of these dispersions. Thoroughly encompassing the significant developments of the past ten years, this book describes a wide range of topics, including interactions at microemulsion interfaces, new types of surfactants, and the fundamentals of nanotechnology. It outlines experimental and traditional measurement techniques in a variety of microemulsified systems and provides reliable coverage of applicable techniques. Theory and Characterization Methods The initial chapters cover theoretical aspects of microemulsion formulation, with particular focus on methodologies for preparation. The book also addresses characterization methods, including X-ray diffraction, transmission electron microscopy (TEM), light scattering, and small-angle neutron scattering. It includes discussions of viscosimetry, conductivity, ultrasonic velocity, and nuclear magnetic resonance (NMR). Practical Applications The remainder of the coverage focuses on current and potential applications of microemulsions. The book examines commercial uses, including biocatalysis and enzymatic reactions, nutrition, the extraction of contaminated solids, pollution control, dispersion of drugs, and oil recovery. The contributors also discuss the use of microemulsions as a reaction medium for the formation of polymeric and inorganic nanoparticles, and applications in electrokinetic chromatography. Comprising the work of an international community of colloid scientists, this book explains why microemulsions are used for the intended application, how they are made, and how they react. Each chapter contains a description of the fundamental phenomena and principles involved in microemulsion processes, emphasizing the mechanism of microemulsion formation and deformation. A summary of recent research, the book eliminates the need to search through dozens of arcane online journal articles for critical information. Bijels Bicontinuous Particle-stabilized Emulsions** *Royal Society of Chemistry* **Bicontinuous interfacially jammed emulsion gels, now commonly termed 'bijels', are a class of soft materials, in which interpenetrating, continuous domains of two immiscible fluids are maintained in a rigid arrangement by a jammed layer of colloidal particles at their interface. Such gels have unusual material properties that promise exciting applications across diverse fields from energy materials and catalysis, to food science. This is the first book on the subject and provides the reader with a fundamental introduction. Edited by a recognised authority on bijels, the reader will learn about the bijel and its formation. Bringing together current understanding, this book aims to bring the potential application of bijels to diverse materials challenges closer to fruition. This is a must-have resource for anyone working in soft matter and applied fields. Advances in Nanotechnology Research and Application: 2012 Edition** *ScholarlyEditions* **Advances in Nanotechnology Research and Application / 2012 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Nanotechnology. The editors have built Advances in Nanotechnology Research and Application / 2012 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Nanotechnology 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 Advances in Nanotechnology 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/. Smart Structures and Materials 1996 Smart Materials Technologies and Biomimetics ; 26 February - 2 March 1996 San Diego, California Surfactant Science and Technology** *John Wiley & Sons* **A general introduction to surfactants, surface activity, andsurfactant applications Important advances in the tools available for studying the activityof surfactants has significantly increased scientific understandingof interfaces at the molecular level. However, there is still muchto be learned. In this Third Edition of the successful classic,author and expert Drew Myers combines the latest informationavailable in the field of surfactants with his original, accessibletext on the subject. Now fully updated to reflect recent developments in working withsurfactants in both model and practical systems, the Third Editionof Surfactant Science and Technology provides a solid introductionto the field of surfactant science. Written especially forbeginners and nonspecialists who would like a practical but notnecessarily comprehensive knowledge of the field, this clear,cogent text conveys the most fundamental and useful concepts ofsurfactant action and application. New chapters bring readers up todate on current biological and medical applications of surfactants,as well as applications in food science, cosmetics, and otherareas. In addition to new chapters, Surfactant Science and Technologyincludes illustrative problems at the end of each chapter. Theseproblems explain concepts discussed and stimulate imaginativesolutions on the part of the reader. A helpful bibliography ofsupplementary resources for readers who desire more detail has alsobeen included. Surfactant Science and Technology, Third Edition is an invaluableresource for surface and polymer chemists, chemical and industrialengineers, and a wide range of chemistry students. Crosslinkable Bicontinuous Cubic Assemblies Via Mixtures of Gemini Amphiphiles and Butyl Rubber Butyl Rubber has several excellent advantages as a barrier material fabric, but the lack of permeability of air and water vapor can lead to fatigue and heat stress in the wearer. This briefing presents a method for the creation of a lyotropic liquid crystals (LLC) and butyl rubber thin film for barrier materials based on the bicontinous cubic phase. Dermal Absorption and Toxicity Assessment** *CRC Press* **The source Dermal Absorption and Toxicity Assessment supplies a state-of-the-art overview of the dermal absorption process, and is divided into six well organized sections. Written by internationally recognized experts in the field, this Second Edition is a complete revised and updated text, covering the wide range of methods used to assess skin ab**