

An Introduction To Interfaces And Colloids The Bridge To Nanoscience

Covering interface science from a novel surface science perspective, this unique handbook offers a comprehensive overview of this burgeoning field. Eight topical volumes cover basic concepts and methods, elemental and composite surfaces, solid-gas, solid-liquid and inorganic biological interfaces, as well as applications of surface science in nanotechnology, materials science and molecular electronics. With its broad scope and clear structure, it is ideal as a reference for scientists in the field, as well as an introduction for newcomers.

Bringing together the results of more than 300 new design studies, an understanding of people, knowledge of hardware and software capabilities, and the author's practical experience gained from 45 years of work with display-based systems, this book addresses interface and screen design from the user's perspective. You will learn how to create an effective design methodology, design and organize screens and Web pages that encourage efficient comprehension and execution, and create screen icons and graphics that make displays easier and more comfortable to use.

This book describes the state of the art of our understanding of liquid-crystal interfaces on a molecular level. The interactions of liquid crystal molecules with a surface play an essential role in the operation of liquid crystal displays (LCD's) and other LC devices that are based on the controllable anchoring of LC molecules on polymer coated surfaces. This book addresses the microscopic interaction between a macromolecule (liquid crystal, polymer) and a wall, using state of the art surface and interface-sensitive experimental techniques, such as Atomic Force Microscopy (AFM), Scanning Tunneling Microscopy (STM), Linear and Nonlinear Optical Microscopy and (Dynamic) Light Scattering (DLS). These experimental techniques were complemented with computer simulations and supra molecular chemistry methods to develop controllable polymeric surfaces.

This 'Open Access' SpringerBrief provides foundational knowledge for designing autonomous, asynchronous systems and explains aspects of users relevant to designing for these systems, introduces principles for user-centered design, and prepares readers for more advanced and specific readings. It provides context and the implications for design choices made during the design and development of the complex systems that are part of operation centers. As such, each chapter includes principles to summarize the design implication that engineers can use to inform their own design of interfaces for operation centers and similar systems. It includes example materials for the design of a fictitious system, which are referenced in the book and can be duplicated and extended for real systems. The design materials include a system overview, the system architecture, an example scenario, a stakeholder analysis, a task analysis, a description of the system and interface technology, and contextualized design guidelines. The guidelines can be specified because the user, the task, and the technology are well specified as an example. Building Better Interfaces for Remote Autonomous Systems is for working system engineers who are designing interfaces used in high throughput, high stake, operation centers (op centers) or control rooms, such as network operation centers (NOCs). Intended users will have a technical undergraduate degree (e.g., computer science) with little or no training in design, human sciences, or with human-centered iterative design methods and practices. Background research for the book was supplemented by interaction with the intended audience through a related project with L3Harris Technologies (formerly Harris Corporation).

Conformal Invariance: an Introduction to Loops, Interfaces and Stochastic Loewner Evolution

Interfacial Science: An Introduction

Volume 1 - Concepts and Methods; Volume 2 - Properties of Elemental Surfaces

Chemistry at Interfaces

Surface and Interface Analysis

Synchrotron X-ray Methods

Colloidal systems occur everywhere—in soils, seawater, foodstuff, pharmaceuticals, paints, blood, biological cells, and microorganisms. Colloids and Interfaces in Life Sciences and Bionanotechnology, Second Edition, gives a concise treatment of physicochemical principles determining interrelated colloidal and interfacial phenomena. New in the Second Edition: New topics, including phase separations in polymer systems, electrokinetics of charged permeable surface coatings, and polymer brush coatings to control adsorption and adhesion of particles Emphasis on inter-particle interactions and surface phenomena in (bio)nanotechnology Full solutions to over 100 updated and additional exercises are presented in the Appendix Focusing on physicochemical concepts that form the basis of understanding colloidal and interfacial phenomena—rather than on experimental methods and techniques—this book is an excellent primer for students and scientists interested in colloidal and interfacial phenomena, their mutual relations and connections, and the fascinating role they play in natural and man-made systems.

An Introduction to Interfaces & ColloidsThe Bridge to NanoscienceWorld Scientific

In the past 30 years, magnetic research has been dominated by the question of how surfaces and interfaces influence the magnetic and transport properties of nanostructures, thin films and multilayers. The research has been particularly important in the magnetic recording industry where the giant magnetoresistance effect led to a new generation of storage devices including hand-held memories such as those found in the ipod. More recently, transfer of spin angular momentum across interfaces has opened a new field for high frequency applications. This book gives a comprehensive view of research at the forefront of these fields. The frontier is expanding through dynamic exchange between theory and experiment. Contributions have been chosen to reflect this, giving the reader a unified overview of the topic. Addresses both theory and experiment that are vital for gaining an essential understanding of topics at the interface between magnetism and materials science Chapters written by experts provide great insights into complex material Discusses fundamental background material and state-of-the-art applications, serving as an indispensable guide for students and professionals at all levels of expertise Stresses interdisciplinary aspects of the field, including physics, chemistry, nanocharacterization, and materials science Combines basic materials with applications, thus widening the scope of the book and its readership

Physics and Chemistry of Interfaces This general yet comprehensive introduction to the field focuses on the essential concepts rather than specific details, on intuitive understanding rather than learning facts. The text reflects the many facets of this discipline by linking fundamentals with applications. The theory behind important concepts is backed by scientific-engineering aspects, as well as by a wide range of high-end applications. Examples of applications from biotechnology to microelectronics are used to illustrate the basic concepts. New to this third edition are topics as second harmonic generation spectroscopy, surface diffusion, atomic layer deposition, superlubricity, and bioadhesion. At the same time, the discussions of liquid surfaces, the Marangoni effect, electric double layers, measurement of surface forces, wetting, and adsorption have been updated. The number and variety of exercises are increased and the references are updated. From the Contents: Introduction Liquid Surfaces Thermodynamics of Interfaces Charged Interfaces and the Electric Double Layer Surface Forces Contact Angle Phenomena and Wetting Solid Surfaces Adsorption Surface Modification Friction, Lubrication, and Wear Surfactants, Micelles, Emulsions,

and Foams Thin Films on Surfaces of Liquids Solutions to Exercises Analysis of Diffraction Patterns

Surface and Interface Science

Fundamentals of Interface and Colloid Science

Search User Interfaces

Meet the Kinect

Pen-and-Paper User Interfaces

An Introduction to Graphical User Interfaces and Their Use by CITIS

Provides information on designing easy-to-use interfaces.

This brief and accessible title integrates contemporary scholarly research with compelling vignettes to make it appealing to both instructors and undergraduate audiences. While focused on the United States in respect to its target audience and emphasis, it contains considerable international data that compares and contrasts social policies adopted in Europe and elsewhere. In so doing, it shows both the strengths and the limitations of the approaches used in the U.S. This title is the only single source that summarizes the origins of work–family concerns, the diversities of needs and experiences, the impact of tensions on the family front, the consequences of tensions for employers, and different types of policies that can make meaningful differences not only in the lives of employees, but also potentially in job quality and national productivity.

A broad, almost encyclopedic overview of spectroscopic and other analytical techniques useful for investigations of phase boundaries in electrochemistry is presented. The analysis of electrochemical interfaces and interphases on a microscopic, even molecular level, is of central importance for an improved understanding of the structure and dynamics of these phase boundaries. The gained knowledge will be needed for improvements of methods and applications reaching from electrocatalysis, electrochemical energy conversion, biocompatibility of metals, corrosion protection to galvanic surface treatment and finishing. The book provides an overview as complete as possible and enables the reader to choose methods most suitable for tackling his particular task. It is nevertheless compact and does not flood the reader with the details of review papers.

Conformal invariance has been a spectacularly successful tool in advancing our understanding of the two-dimensional phase transitions found in classical systems at equilibrium. This volume sharpens our picture of the applications of conformal invariance, introducing non-local observables such as loops and interfaces before explaining how they arise in specific physical contexts. It then shows how to use conformal invariance to determine their properties. Moving on to cover key conceptual developments in conformal invariance, the book devotes much of its space to stochastic Loewner evolution (SLE), detailing SLE's conceptual foundations as well as extensive numerical tests. The chapters then elucidate SLE's use in geometric phase transitions such as percolation or polymer systems, paying particular attention to surface effects. As clear and accessible as it is authoritative, this publication is as suitable for non-specialist readers and graduate students alike.

The Work-Family Interface

An Introduction to the Surface and Colloid Science of Biochemical and Biological Systems

Brain-Computer Interfacing

Principles and Applications

The Properties of Water and their Role in Colloidal and Biological Systems

An Introduction to Green Nanotechnology

From blood to milk, pumice to gelatine, most scientists interact with colloids on a daily basis without any real knowledge of their nature. Building on the success of the first edition, *Colloids and Interfaces with Surfactants and Polymers Second Edition* is a user-friendly, non-technical introduction to colloids and interfaces. Includes: Many practical examples of colloid and interface science An enhanced section on fluorescence microscopy, a widely used technique in biological systems for the optical imaging of cellular structures A new section on phenomenology (the principle of time/temperature superposition), which enables the experimentalist to extend the frequency range of their rheological instruments New information on sedimentation and strategies for the control of sedimentation, which is critical in many dispersions of commercial importance Fresh treatments of traditional theoretical topics like the electrical double-layer, colloidal interactions, wetting behavior and light scattering, as well as more recent advances in polymer science, statistical mechanics and the use of neutrons In-depth discussions of widely used techniques with mathematics used in a straight-forward way so quantitative descriptions of colloid and interface properties can be derived *Colloids and Interfaces with Surfactants and Polymers Second Edition* explains all the fundamental concepts of colloids and interfaces as well as detailing some of the more advanced aspects which might be useful in specific applications. Intended for undergraduate and graduate courses in colloids and soft materials, the book is also relevant to those in the chemical, coatings, cosmetics, ceramics, food, pharmaceutical and oil industries. For Powerpoint slides of all the figures in the book, please see the Instructor Companion website at <http://bcs.wiley.com/he-bcs/Books?action=index&bcsId=5121&itemId=0470518804>

Offers an introduction to the topics in interfacial phenomena, colloid science or nanoscience. Designed as a pedagogical tool, this book recognizes the cross-disciplinary nature of the subject. It features descriptions of experiments and contains figures and illustrations that enhance the understanding of concepts.

The goal of *Interface Science and Composites* is to facilitate the manufacture of technological materials with optimized properties on the basis of a comprehensive understanding of the molecular structure of interfaces and their resulting influence on composite materials processes. From the early development of composites of various natures, the optimization of the interface has been of major importance. While there are many reference books available on composites, few deal specifically with the science and mechanics of the interface of materials and composites. Further, many recent advances in composite interfaces are scattered across the literature and are here assembled in a readily accessible form, bringing together recent developments in the field, both from the materials science and mechanics perspective, in a single convenient volume. The central theme of the book is tailoring the interface science of composites to optimize the basic physical principles rather than on the use of materials and the mechanical

performance and structural integrity of composites with enhanced strength/stiffness and fracture toughness (or specific fracture resistance). It also deals mainly with interfaces in advanced composites made from high-performance fibers, such as glass, carbon, aramid, and some inorganic fibers, and matrix materials encompassing polymers, carbon, metals/alloys, and ceramics. Includes chapter on the development of a nanolevel dispersion of graphene particles in a polymer matrix Focus on tailoring the interface science of composites to optimize the basic physical principles Covers mainly interfaces in advanced composites made from high performance fibers

This hands-on book is for students with some experience in non-graphical Java programming and gives them everything needed to build their own interactive GUIs using Java Swing. The author takes a step-by-step approach, beginning with the basic features of the Swing library and introducing increasingly complex features, all the while demonstrating how to incorporate them into engaging and efficient programs.

An Introduction to Dynamics of Colloids

Magnetism of Surfaces, Interfaces, and Nanoscale Materials

Integrating Printed and Digital Documents

Designing Interfaces

An Introduction for Systems Engineers

Concepts in Inorganic Materials

Meet the Kinect introduces the exciting world of volumetric computing using the Microsoft Kinect. You'll learn to write scripts and software enabling the use of the Kinect as an input device directly with your computer through physical motion. The Kinect will read and track body movements, and is the bridge between the physical reality in which you exist and the virtual world created by your software. Microsoft's Kinect was released in fall 2010 to become the fastest-selling electronic device ever. For the first time, we have an inexpensive, three-dimensional sensor enabling direct interaction between human and computer, between the physical world and the virtual. The Kinect has been enthusiastically adopted by a growing culture of enthusiasts, who put it to use in creating technology-based art projects, three-dimensional scanners, adaptive devices for sight-impaired individuals, new ways of interacting with PCs, and even profitable business opportunities. Meet the Kinect is the resource to get you started in mastering the Kinect and the exciting possibilities it brings. You'll learn about the Kinect hardware and what it can do. You'll also learn to download and run the growing amount of Kinect software freely available on the Internet. From there, you'll move into writing code using some of the more popular frameworks, including the official Microsoft API and the language known as Processing that is popular in the art and creative world. Along the way, you'll learn principles and terminology. Volumetric computing didn't begin with the Kinect. The field is decades old—if you've ever had an MRI, for example, you have benefitted from volumetric computing technology. Meet the Kinect is just the one device to impart the principles and terminology underlying the exciting field of volumetric computing that is now wide-open and accessible to the average person.

The idea of interfacing minds with machines has long captured the human imagination. Recent advances in neuroscience and engineering are making this a reality, opening the door to the enhancement and augmentation of human physical and mental capabilities. Medical applications such as cochlear implants for the deaf and neurally controlled prosthetic limbs for the paralyzed are almost commonplace. Brain-computer interfaces (BCIs) are also increasingly being used in security, lie detection, alertness monitoring, telepresence, gaming, education, art, and human performance augmentation. This introduction to the field is designed as a textbook for upper-level undergraduate and first-year graduate courses in neural engineering or brain-computer interfaces, drawing from a wide range of disciplines. It can also be used for self-study and as a reference by neuroscientists, computer scientists, engineers, and medical practitioners. Key features include exercises in each chapter and a supporting website.

From the reviews of the First Edition: "The book has admirably met its stated goal. The whole gamut of surface and colloid science has been presented in a comprehensive manner without oversimplification. The author should be congratulated for his clarity." -Advanced Materials Now in its second edition, this work remains the single most useful introduction available in the area of surface and colloids science. Industry expert Drew Myers walks readers through concepts, theories, and applications-keeping the mathematics to a minimum and presenting case studies to illustrate key technological and biological processes. He substantially reorganizes and updates the material to reflect the current state of knowledge in the field, offering chapters on adsorption and biological systems in addition to the important areas of colloid stability, emulsions and foams, monolayer films, surfactants, and wetting. This revision also boasts an additional 200 new line drawings, general and specific chapter bibliographies, and end-of-chapter problems. Geared to scientists, technologists, and students dealing with colloidal and interfacial systems and their numerous industrial applications, the book imparts an understanding of the fundamental aspects of surfaces, interfaces, and colloids, which is essential for effective research in diverse areas of chemistry, physics, biology, medicine, engineering, and material sciences.

This book is a short, concise introduction to computer programming using the language Go. Designed by Google, Go is a general purpose programming language with modern features and a robust well-documented common library, making it an ideal language to learn as your first programming language.

Attachment of Colloid Particles and Proteins to Interfaces and Formation of Two-Dimensional Arrays

Basics Interactive Design: Interface Design

An Introduction

Colloidal Particles at Liquid Interfaces

An Introduction to Interfaces & Colloids

Thermodynamics of Surfaces and Interfaces

Chemistry at Interfaces provides an introduction to the fundamental concepts in interfacial chemistry. It aims to provide students and research workers

who have not had training in a school of surface chemistry with the means to set up and use interfacial techniques and to interpret measurements. For this reason, more emphasis is given to experimental details and to the associated pitfalls than most other books in the field. The book begins by considering some of the basic laws governing behavior in chemical systems and how these apply to some examples of interfacial processes. This is followed by a discussion of two specific properties of interfaces: the tendency to concentrate reactants and the ability to orientate molecules, thus increasing their reactivity. Separate chapters cover standards of cleanliness in interfacial work and methods to achieve them; techniques for the study of interfacial films; the kinetics of physical processes that can occur at an interface; and chemical and biological processes and reactions. The final chapter provides an overview of the wide-ranging applications of interfacial chemistry to practical problems.

Global warming, shortage of low-cost oil resources and the increasing demand for energy are currently controlling the world's economic expansion while often opposing desires for sustainable and peaceful development. In this context, atomic energy satisfactorily fulfills the criteria of low carbon gas production and high overall yield. However, in the absence of industrial fast-breeders the use of nuclear fuel is not optimal, and the production of high activity waste materials is at a maximum. These are the principal reasons for the development of a new, fourth generation of nuclear reactors, minimizing the undesirable side-effects of current nuclear energy production technology while increasing yields by increasing operation temperatures and opening the way for the industrial production of hydrogen through the decomposition of water. The construction and use of such reactors is hindered by several factors, including performance limitations of known structural materials, particularly if the life of the projected systems had to extend over the periods necessary to achieve low costs (at least 60 years). This book collects lectures and seminars presented at the homonymous NATO ASI held in autumn 2007 at the Institut d'Etudes Scientifiques in Cargèse, France. The adopted approach aims at improving and coordinating basic knowledge in materials science and engineering with specific areas of condensed matter physics, the physics of particle/matter interaction and of radiation damage. It is our belief that this methodology is crucially conditioning the development and the industrial production of new structural materials capable of coping with the requirements of these future reactors.

The truly world-wide reach of the Web has brought with it a new realisation of the enormous importance of usability and user interface design. In the last ten years, much has become understood about what works in search interfaces from a usability perspective, and what does not. Researchers and practitioners have developed a wide range of innovative interface ideas, but only the most broadly acceptable make their way into major web search engines. This book summarizes these developments, presenting the state of the art of search interface design, both in academic research and in deployment in commercial systems. Many books describe the algorithms behind search engines and information retrieval systems, but the unique focus of this book is specifically on the user interface. It will be welcomed by industry professionals who design systems that use search interfaces as well as graduate students and academic researchers who investigate information systems.

This book represents a collection of the classic and contemporary readings in the field of Intelligent User Interfaces. An invaluable resource for students, professors, research scientists and engineers, it includes both fundamental research and applied innovations in the key areas of IUI including input analysis, output generation, user and discourse adapted interaction, agent-based interaction, model-based interface design, and evaluation. Editors Maybury and Wahlster, two prominent researchers in the field of Intelligent User Interfaces, offer an introduction to the field along with commentary on each topic. In order to provide a uniquely synergistic view they chose a five person interdisciplinary review board to act as a sounding board for the organization of the book that included paper selection and reviewing commentary for the editors. Each paper concludes with a reflection by the original author on what worked, what did not, and where opportunities remain, as well as commentary on subsequent research and advances since the publication of their work, including important developments and key follow-up publications by the author and others. Editorial Review Board: Dr. Oliviero Stock, Istituto per la Ricerca Scientifica e Tecnologica (IRST), Trento, Italy Dr. Eduard Hovy, Information Science Institute (ISI), University of Southern California Dr. Johanna D. Moore, University of Pittsburgh Dr. Steven F. Roth, Robotics Institute, Carnegie Mellon University Dr. Sharon Oviatt, Oregon Graduate Institute of Science and Technology

The Bridge to Nanoscience

Status, Open Questions and Challenges

Liquid Surfaces and Interfaces

Surface and Interface Science, Volumes 1 and 2

Surfaces, Interfaces, and Colloids

An Electrochemists Toolbox

A practical guide for graduate students and researchers on all aspects of x-ray scattering experiments on liquid surfaces and interfaces.

An Introduction to Green Nanotechnology, Volume 28, provides students, scientists and chemical engineers with an overview of several types of nanostructures, discusses the synthesis and characterization of nanostructures, and provides applications of nanotechnology in daily life. The book offers a foundation to green nanotechnology by explaining why green nanotechnology is important. Covers biological sources in green nanotechnology, antioxidants, green nanostructures, mechanism, synthesis and characterization. The book ends with an evaluation of the risks of nanotechnology in human life and future perspectives. Introduces novel sources of plants having a high potential to be used as bio media to synthesize nanostructures Provides phytochemical properties and antioxidant potential, and their effects on stability, morphology and size of green nanostructures Includes a medicinal and technological comparison of green synthesized nanostructures to nano-products from non-green methods Uses accessible language, avoiding complex concepts of mathematics, biology and chemistry

One of the few textbooks in the field, this volume deals with several aspects of the dynamics of colloids. A self-contained treatise, it fills the gap between research literature and existing books for graduate students and researchers. For readers with a background in chemistry, the first chapter contains a section on frequently used mathematical techniques, as well as statistical mechanics. Some of the topics covered include: • diffusion of free particles on the basis of the Langevin equation • the separation of time, length and angular scales; • the fundamental Fokker-Planck and Smoluchowski equations derived for interacting particles • friction of spheres and rods, and hydrodynamic interaction of spheres (including three body interactions) • diffusion, sedimentation, critical phenomena and phase separation kinetics • experimental light scattering results. For universities and research departments in industry this textbook makes vital reading.

Planar fluid interfaces -- Interfaces of moderate curvature : theory of capillarity -- Surface bending moment and curvature elastic moduli -- General curved interfaces and biomembranes -- Liquid films and interactions between particle and surface -- Particles at interfaces : deformations and hydrodynamic interactions -- Lateral capillary forces between partially immersed bodies -- Lateral capillary forces between floating particles -- Capillary forces between particles bound to a spherical interface -- Mechanics of lipid membranes and interaction between inclusions -- Capillary bridges and capillary-bridge forces -- Capillary forces between particles of irregular contact line -- Two-dimensional crystallization of particulates and proteins -- Effect of oil drops and particulates on the stability of foams.

Materials Issues for Generation IV Systems

Biological Interfaces

Introduction to Graphical User Interfaces with Java Swing

An Introduction to GUI Design Principles and Techniques

Introduction to Interfaces and Colloids, An: the Bridge to Nanoscience

Interface Science and Composites

"The textbook seeks to bring readers with no prior knowledge or experience in interfacial phenomena, colloid science or nanoscience to the point where they can comfortably enter the current scientific and technical literature in the area. Designed as a pedagogical tool, this book recognizes the cross-disciplinary nature of the subject. To facilitate learning, the topics are developed from the beginning with ample cross-referencing. The understanding of concepts is enhanced by clear descriptions of experiments and provisions of figures and illustrations."--Publisher's website.

An accessible yet rigorous discussion, featuring case studies and study problems to illustrate and reinforce key concepts.

AVA's Basics Interactive Design titles are designed to provide visual arts student with a theoretical and practical exploration of each of the fundamental topics within the discipline of Interactive Design. Packed with examples from students and professionals and fully illustrated with clear diagrams and inspiring imagery, they offer an essential exploration of the subject. Basics Interactive Design: Interface Design is the first book in the new Basics series. From a visual communication direction, it focuses on the design of effective, user-focused front-end designs for a range of digital media interfaces. Using case studies and interviews to delve deeper, the design of effective visual communication for user interfaces is clearly explained, giving the reader the knowledge needed to design better websites, apps for smartphones and tablets and DVD interfaces.

Many commercial systems are complex mixtures but in most cases the basic rules apply and surprises only occur when there is a quite specific interaction present. Hence, by using this text, the user will always have the fundamentals readily to hand.

Patterns for Effective Interaction Design

An Introduction to Programming Natural User Interfaces

Readings in Intelligent User Interfaces

Colloids and Interfaces in Life Sciences and Bionanotechnology, Second Edition

Particles at Fluid Interfaces and Membranes

An Introduction to Programming in Go

Even at the beginning of the 21st century, we are far from becoming paperless. Pen and paper is still the only truly ubiquitous information processing technology. Pen-and-paper user interfaces

bridge the gap between paper and the digital world. Rather than replacing paper with electronic media, they seamlessly integrate both worlds in a hybrid user interface. Classical paper documents become interactive. This opens up a huge field of novel computer applications at our workplaces and in our homes. This book provides readers with a broad and extensive overview of the field, so as to provide a full and up-to-date picture of pen-and-paper computing. It covers the underlying technologies, reviews the variety of modern interface concepts and discusses future directions of pen-and-paper computing. Based on the author's award-winning dissertation, the book also provides the first theoretical interaction model of pen-and-paper user interfaces and an integrated set of interaction techniques for knowledge workers. The model proposes a 'construction set' of core interactions that are helpful in designing solutions that address the diversity of pen-and-paper environments. The interaction techniques, concrete instantiations of the model, provide innovative support for working with printed and digital documents. They integrate well-established paper-based practices with concepts derived from hypertext and social media. Researchers, practitioners who are considering deploying pen-and-paper user interfaces in real-world projects, and interested readers from other research disciplines will find the book an invaluable reference source. Also, it provides an introduction to pen-and-paper computing for the academic curriculum. The present book was overdue: a thorough, concise, and well-organized compendium of marriages between paper-based and electronic documents. Max Mühlhäuser, Technische Universität Darmstadt Everyone interested in how to design for real-world activities would profit from reading this book. James D. Hollan, University of California, San Diego

Volume V is the counterpart of Volume IV and treats hydrophilic colloids and related items. Contains edited contributions on steric stabilization, depletion, polyelectrolytes, proteins at interfaces, association colloids, microemulsions, thin films, foams and emulsions. J. Lyklema is coauthor of two chapters and general editor. Other authors include: G.J. Fleer, F.A.M. Leermakers, M.A. Cohen Stuart, W. Norde, J.A.G. Buijs, J.C. Eriksson, T. Sottmann, R. Strey, D. Platikanov, D. Ekserova, V. Bergeron and P. Walstra. * This volume completes the prestigious series Fundamentals of Interface and Colloid Science * Together with Volume IV this book provides a comprehensive introduction to colloid science. * Explains and elaborates phenomena starting from basic principles and progresses to more advanced topics

This book treats the different current as well as unusual and hitherto often unstudied physico-chemical and surface-thermodynamic properties of water that govern all polar interactions occurring in it. These properties include the hyper-hydrophobicity of the water-air interface, the cluster formation of water molecules in the liquid state and the concomitant variability of the ratio of the electron-acceptivity to electron-donicity of liquid water as a function of temperature, T . The increase of that ratio with T is the cause of the increase in hydration repulsion ("hydration pressure") between polar surfaces upon heating, when they are immersed in water. The book also treats the surface properties of apolar and polar molecules, polymers, particles and cells, as well as their mutual interaction energies, when immersed in water, under the influence of the three prevailing non-covalent forces, i.e., Lewis acid-base (AB), Lifshitz-van der Waals (LW) and electrical double layer (EL) interactions. The polar AB interactions, be they attractive or repulsive, typically represent up to 90% of the total interaction energies occurring in water. Thus the addition of AB energies to the LW + EL energies of the classical DLVO theory of energy vs. distance analysis makes this powerful tool (the Extended DLVO theory) applicable to the quantitative study of the stability of particle suspensions in water. The influence of AB forces on the interfacial tension between water and other condensed-phase materials is stressed and serves, inter alia, to explain, measure and calculate the driving force of the hydrophobic attraction between such materials (the "hydrophobic effect"), when immersed in water. These phenomena, which are typical for liquid water, influence all polar interactions that take place in it. All of these are treated from the viewpoint of the properties of liquid water itself, including the properties of advancing freezing fronts and the surface properties of ice at 0°C. - Explains and allows the quantitative measurement of hydrophobic attraction and hydrophilic repulsion in water - Measures the degree of cluster formation of water molecules - Discusses the influence of temperature on the cluster size of water molecules - Treats the multitudinous effects of the hyper-hydrophobicity of the water-air interface

Interfacial Science: An Introduction is an accessible text introducing readers to the chemistry of interfaces, a subject of increasing relevance and popularity due to the emergence of nanoscience.

Building Better Interfaces for Remote Autonomous Systems

Soft Colloids

Physics and Chemistry of Interfaces

Surfaces and Interfaces of Liquid Crystals

An Introduction to Visual Communication in UI Design

Small solid particles adsorbed at liquid interfaces arise in many industrial products and process, such as anti-foam formulations, crude oil emulsions and flotation. They act in many ways like traditional surfactant molecules, but offer distinct advantages. However, the understanding of how these particles operate in such systems is minimal. This book brings together the diverse topics actively being investigated, with contributions from leading experts in the field. After an introduction to the basic concepts and principles, the book divides into two sections. The first deals with particles at planar liquid interfaces, with chapters of an experimental and theoretical nature. The second concentrates on the behaviour of particles at curved liquid interfaces, including particle-stabilized foams and emulsions and new materials derived from such systems. This collection will be of interest to academic researchers and graduate students in chemistry, physics, chemical engineering, pharmacy, food science and materials science.

Colloids and Interfaces with Surfactants and Polymers

The Essential Guide to User Interface Design