

Properties Of Gases Liquids 3rd Edition By Robert C Reid

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Absorption and Extraction Thomas Kilgore
Sherwood 1952

Fundamentals of Environmental Chemistry, Third Edition Stanley E. Manahan 2011-03-05

Written by an expert, using the same approach that made the previous two editions so successful, *Fundamentals of Environmental Chemistry, Third Edition* expands the scope of book to include the strongly emerging areas broadly described as sustainability science and technology, including green chemistry and industrial ecology. The new edition includes: Increased emphasis on the applied aspects of environmental chemistry Hot topics such as global warming and biomass energy Integration of green chemistry and sustainability concepts throughout the text More and updated questions and answers, including some that require Internet research Lecturers Pack on CD-ROM with solutions manual, PowerPoint presentations, and chapter figures available upon qualifying course adoptions The book provides a basic course in chemical science, including the fundamentals of organic chemistry and biochemistry. The author uses real-life examples from environmetnal chemistry, green chemistry, and related areas while maintaining brevity and simplicity in his explanation of concepts. Building on this foundation, the book covers environmental chemistry, broadly defined to include sustainability aspects, green chemistry, industrial ecology, and related areas. These chapters are organized around the five

environmental spheres, the hydrosphere, atmosphere, geosphere, biosphere, and the anthrosphere. The last two chapters discuss analytical chemistry and its relevance to environmental chemistry. Manahan's clear, concise, and readable style makes the information accessible, regardless of the readers' level of chemistry knowledge. He demystifies the material for those who need the basics of chemical science for their trade, profession, or study curriculum, as well as for readers who want to have an understanding of the fundamentals of sustainable chemistry in its crucial role in maintaining a livable planet. *Catalog of Copyright Entries. Third Series* Library of Congress. Copyright Office 1960 Includes Part 1, Number 1: Books and Pamphlets, Including Serials and Contributions to Periodicals (January - June) *Standard Handbook of Petroleum and Natural Gas Engineering* William C. Lyons 2011-03-15 This new edition of the *Standard Handbook of Petroleum and Natural Gas Engineering* provides you with the best, state-of-the-art coverage for every aspect of petroleum and natural gas engineering. With thousands of illustrations and 1,600 information-packed pages, this text is a handy and valuable reference. Written by over a dozen leading industry experts and academics, the *Standard Handbook of Petroleum and Natural Gas Engineering* provides the best, most comprehensive source of petroleum engineering information available. Now in an easy-to-use

single volume format, this classic is one of the true "must haves" in any petroleum or natural gas engineer's library. * A classic for the oil and gas industry for over 65 years! * A comprehensive source for the newest developments, advances, and procedures in the petrochemical industry, covering everything from drilling and production to the economics of the oil patch. * Everything you need - all the facts, data, equipment, performance, and principles of petroleum engineering, information not found anywhere else. * A desktop reference for all kinds of calculations, tables, and equations that engineers need on the rig or in the office. * A time and money saver on procedural and equipment alternatives, application techniques, and new approaches to problems.

Ludwig's Applied Process Design for Chemical and Petrochemical Plants A.

Kayode Coker, PhD 2010-07-19 The Fourth Edition of Applied Process Design for Chemical and Petrochemical Plants Volume 2 builds upon the late Ernest E. Ludwig's classic chemical engineering process design manual. Volume Two focuses on distillation and packed towers, and presents the methods and fundamentals of plant design along with supplemental mechanical and related data, nomographs, data charts and heuristics. The Fourth Edition is significantly expanded and updated, with new topics that ensure readers can analyze problems and find practical design methods and solutions to accomplish their process design objectives. A true application-driven book, providing clarity and easy access to essential process plant data and design information Covers a complete range of basic day-to-day petrochemical operation topics Extensively revised with new material on distillation process performance; complex-mixture fractionating, gas processing, dehydration, hydrocarbon absorption and stripping; enhanced distillation types

Intermolecular and Surface Forces Jacob N. Israelachvili 2015-05-29 This reference describes the role of various intermolecular and interparticle forces in determining the properties of simple systems such as gases, liquids and solids, with a special focus on more complex colloidal, polymeric and biological systems. The book provides a thorough

foundation in theories and concepts of intermolecular forces, allowing researchers and students to recognize which forces are important in any particular system, as well as how to control these forces. This third edition is expanded into three sections and contains five new chapters over the previous edition. · starts from the basics and builds up to more complex systems · covers all aspects of intermolecular and interparticle forces both at the fundamental and applied levels · multidisciplinary approach: bringing together and unifying phenomena from different fields · This new edition has an expanded Part III and new chapters on non-equilibrium (dynamic) interactions, and tribology (friction forces)

Applied Thermodynamics Onkar Singh 2006-01-01 This Book Presents A Systematic Account Of The Concepts And Principles Of Engineering Thermodynamics And The Concepts And Practices Of Thermal Engineering. The Book Covers Basic Course Of Engineering Thermodynamics And Also Deals With The Advanced Course Of Thermal Engineering. This Book Will Meet The Requirements Of The Undergraduate Students Of Engineering And Technology Undertaking The Compulsory Course Of Engineering Thermodynamics. The Subject Matter Of Book Is Sufficient For The Students Of Mechanical Engineering/Industrial-Production Engineering, Aeronautical Engineering, Undertaking Advanced Courses In The Name Of Thermal Engineering/Heat Engineering/ Applied Thermodynamics Etc. Presentation Of The Subject Matter Has Been Made In Very Simple And Understandable Language. The Book Is Written In SI System Of Units And Each Chapter Has Been Provided With Sufficient Number Of Typical Numerical Problems Of Solved And Unsolved Questions With Answers.

Chromatographic Analysis of the Environment, Third Edition Leo M.L. Nollet 2005-11-29 Chromatographic Analysis of the Environment, Third Edition is a detailed handbook on different chromatographic analysis techniques and chromatographic data for compounds found in air, water, soil, and sludge. Taking on a new perspective from previous editions, this third edition discusses the parameters of each environmental compartment in a consistent

format that highlights preparation techniques, chromatographic separation methods, and detection methods. Most of the data are compiled in tables and figures to elucidate the text as needed. Separate chapters approach specific aspects of sampling methods especially designed for environmental purposes, quantification of environmental analytes in difficult matrices, and data handling. The second part of the book focuses on the analysis of hazardous chemicals in the environment, including volatile organic carbons (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and endocrine-disrupting chemicals (EDCs). In addition, the authors feature information on compounds such as phosphates, organic acids, halogenated VOCs, amines, and n-tirosamines, isocyanates, phthalate esters, and humic substances. Presenting important theoretical and practical aspects from sample collection to laboratory analysis, *Chromatographic Analysis of the Environment, Third Edition* is a unique resource of chromatographic techniques, data, and references that are useful to all scientists involved in the analysis of environmental compounds.

Fundamentals of Natural Gas Processing, Third Edition Arthur J. Kidnay 2019-10-01 Offering indispensable insight from experts in the field, *Fundamentals of Natural Gas Processing, Third Edition* provides an introduction to the gas industry and the processes required to convert wellhead gas into valuable natural gas and hydrocarbon liquids products including LNG. The authors compile information from the literature, meeting proceedings, short courses, and their own work experiences to give an accurate picture of where gas processing technology stands today as well as to highlight relatively new technologies that could become important in the future. The third edition of this bestselling text features updates on North American gas processing and changing gas treating requirements due to shale gas production. It covers the international nature of natural gas trade, LNG, economics, and more. To help nonengineers understand technical issues, the first 5 chapters present an overview of the basic engineering concepts applicable throughout the gas, oil, and chemical industries.

The following 15 chapters address natural gas processing, with a focus on gas plant processes and technologies. The book contains 2 appendices. The first contains an updated glossary of gas processing terminology. The second is available only online and contains useful conversion factors and physical properties data. Aimed at students as well as natural gas processing professionals, this edition includes both discussion questions and exercises designed to reinforce important concepts, making this book suitable as a textbook in upper-level or graduate engineering courses.

Handbook of Elastic Properties of Solids, Liquids, and Gases: Elastic properties of solids: theory, elements and compounds, novel materials, technological materials, alloys, and building materials Moises Levy 2001 This book will discuss the propagation of sound in newly discovered or created materials, and in common materials which are being investigated with a fresh outlook. This four-volume set is intended for university industrial and government libraries serving engineering and research personnel working in acoustics. (Midwest).
The Little Book of Thermofluids Stephen B. M. Beck 2006

Handbook of Downstream Processing E. Goldberg 2012-12-06 The last two decades have seen a phenomenal growth of the field of genetic or biochemical engineering and have witnessed the development and ultimately marketing of a variety of products-typically through the manipulation and growth of different types of microorganisms, followed by the recovery and purification of the associated products. The engineers and biotechnologists who are involved in the full-scale process design of such facilities must be familiar with the variety of unit operations and equipment and the applicable regulatory requirements. This book describes current commercial practice and will be useful to those engineers working in this field in the design, construction and operation of pharmaceutical and biotechnology plants. It will be of help to the chemical or pharmaceutical engineer who is developing a plant design and who faces issues such as: Should the process be batch or continuous or a combination of batch and continuous? How should the optimum process design be developed? Should one

employ a new revolutionary separation which could be potentially difficult to validate or use accepted technology which involves less risk? Should the process be run with ingredients formulated from water for injection, deionized water, or even filtered tap water? Should any of the separations be run in cold rooms or in glycol jacketed lines to minimize microbial growth where sterilization is not possible? Should the process equipment and lines be designed to be sterilized in-place, cleaned-in-place, or should every piece be broken down, cleaned and autoclaved after every turn?

Subsea Pipelines and Risers Yong Bai
2005-12-19 Marine pipelines for the transportation of oil and gas have become a safe and reliable part of the expanding infrastructure put in place for the development of the valuable resources below the world's seas and oceans. The design of these pipelines is a relatively new technology and continues to evolve as the design of more cost effective pipelines becomes a priority and applications move into deeper waters and more hostile environments. This updated edition of a best selling title provides the reader with a scope and depth of detail related to the design of offshore pipelines and risers not seen before in a textbook format. With over 25 years experience, Professor Yong Bai has been able to assimilate the essence of the applied mechanics aspects of offshore pipeline system design in a form of value to students and designers alike. It represents an excellent source of up to date practices and knowledge to help equip those who wish to be part of the exciting future of this industry.

Multiphase Production Jean Falcimaigne 2008
Annotation This book presents the fundamentals of multiphase production with regard to flow simulations in multiphase pipelines, multiphase pumping and multiphase metering. It gives a large range of information on approaches and technologies which can be used today. It is designed for engineers involved in field development, but also for petroleum engineering students.

Concepts in Thermal Physics Stephen Blundell
2010 This text provides a modern introduction to the main principles of thermal physics, thermodynamics and statistical mechanics. The key concepts are presented and new ideas are

illustrated with worked examples as well as description of the historical background to their discovery.

The Properties of Gases and Liquids 5E Bruce E. Poling 2001 Contains a survey of estimating methods. This book is useful for design engineers working with processes involving liquids, gases, and mixtures. It delivers information for estimating physical and thermodynamic properties in the absence of experimental data. It provides a property data bank of 600+ compound constants for calculating properties.

Physical Chemistry Robert G. Mortimer
2008-05-29 In this third edition, core applications have been added along with more recent developments in the theories of chemical reaction kinetics and molecular quantum mechanics, as well as in the experimental study of extremely rapid chemical reactions. * Fully revised concise edition covering recent developments in the field * Supports student learning with step by step explanation of fundamental principles, an appropriate level of math rigor, and pedagogical tools to aid comprehension * Encourages readers to apply theory in practical situations

Natural Gas Hydrates John Carroll 2003-01-13
This is the most exhaustive study to date on natural gas hydrates. In spite of their importance, hydrates are misunderstood, and misconceptions abound. This book provides an accurate review of what hydrates are and under what conditions they will form, and it provides the engineer with the methods to predict the occurrences of hydrates. The petroleum industry spends millions every year to combat the formation of hydrates, the solid, crystalline compounds that form from water and small molecules, damaging equipment and plugging transmission lines. Understanding how, when, and where they form and using this knowledge to apply remedies in practical applications are crucial. * The most comprehensive study of natural gas hydrates * A manual for the engineer or textbook for the student * Contains cutting-edge solutions to natural gas hydrate problems

The Mathematical Theory of Non-uniform Gases Sydney Chapman 1958

Practical Supercritical Fluid

Chromatography and Extraction Thomas

Caudell 2018-05-08 An exploration of fundamental as well as practical aspects of supercritical fluid chromatography and extraction. It addresses topics such as: packed columns in SFC; detection in SFC; supercritical fluid chromatography/mass spectroscopy; and evaporative light scattering detection in SFC.

The Properties of Gases and Liquids: Their Estimation and Correlation Robert C. Reid 1966

Handbook of Chemical Property Estimation Methods Warren J. Lyman 1990 Octanol/water partition coefficient. Solubility in water. Solubility in various solvents. Adsorption coefficient for soils and sediments. Bioconcentration factor in aquatic organisms. Acid association constant. Rate of hydrolysis. Rate of aqueous photolysis. Rate of biodegradation. Atmospheric residence time. Activity coefficient. Boiling point. Heat of vaporization. Vapor pressure. Volatilization from water. Volatilization from soil. Diffusion coefficients in air and water. Flash points of pure substances. Densities of vapors, liquids and solids. Surface tension. Interfacial tension with water. Liquid viscosity. Heat capacity. Thermal conductivity. Dipole moment. Index of refraction. Simple linear regression. Evaluating propagated and total error in chemical property estimates.

Intermolecular and Surface Forces Jacob N. Israelachvili 1985-01-01 This book describes intermolecular and interparticle forces in determining the properties of systems such as gases, liquids and solids and of colloidal, polymeric and biological systems. The text includes developments on surface-force measurements, solvation and structural forces, hydration and hydrophobic forces, and ion-correlation forces.

Illustrated Handbook of Physical-Chemical Properties and Environmental Fate for Organic Chemicals Donald Mackay 1995-05-09 Illustrated Handbook of Physical-Chemical Properties and Environmental Fate for Organic Chemicals is a comprehensive series that focuses on environmental fate prediction and quantitative structure activity relationship analysis.

Viscosity of Gas Mixtures Richard S. Brokaw 1968

Pipeline Rules of Thumb Handbook E.W.

McAllister 2015-08-03 Now in its sixth edition, Pipeline Rules of Thumb Handbook has been and continues to be the standard resource for any professional in the pipeline industry. A practical and convenient reference, it provides quick solutions to the everyday pipeline problems that the pipeline engineer, contractor, or designer faces. Pipeline Rules of Thumb Handbook assembles hundreds of shortcuts for pipeline construction, design, and engineering. Workable "how-to" methods, handy formulas, correlations, and curves all come together in this one convenient volume. Save valuable time and effort using the thousands of illustrations, photographs, tables, calculations, and formulas available in an easy to use format Updated and revised with new material on project scoping, plastic pipe data, HDPE pipe data, fiberglass pipe, NEC tables, trenching, and much more A book you will use day to day guiding every step of pipeline design and maintenance

Chemical Engineering Fluid Mechanics Ron Darby 2016-11-30 This book provides readers with the most current, accurate, and practical fluid mechanics related applications that the practicing BS level engineer needs today in the chemical and related industries, in addition to a fundamental understanding of these applications based upon sound fundamental basic scientific principles. The emphasis remains on problem solving, and the new edition includes many more examples.

Physical Properties of Materials, Second Edition Mary Anne White 2011-06-28 Designed for advanced undergraduate students, Physical Properties of Materials, Second Edition establishes the principles that control the optical, thermal, electronic, magnetic, and mechanical properties of materials. Using an atomic and molecular approach, this introduction to materials science offers students a wide-ranging survey of the field and a basis to understand future materials. The author incorporates comments on applications of materials science, extensive references to the contemporary and classic literature, and problems at the end of each chapter. In addition, unique tutorials allow students to apply the principles to understand applications, such as photocopying, magnetic devices, fiber optics, and more. This fully revised and updated second

edition presents a discussion of materials sustainability, a description of crystalline structures, and discussion of current and recent developments, including graphene, carbon nanotubes, nanocomposites, magnetocaloric effect, and spintronics. Along with a new capstone tutorial on the materials science of cymbals, this edition contains more than 60 new end-of-chapter problems, bringing the total to 300 problems. Web Resource The book's companion website

(www.physicalpropertiesofmaterials.com) provides updates to the further reading sections, links to relevant movies and podcasts for each chapter, video demonstrations, and additional problems. It also offers sources of demonstration materials for lectures and PowerPoint slides of figures from the book. More information can be found on a recent press release describing the book and the website.

Theory of Simple Liquids Jean-Pierre Hansen
1990-09-24 This book gives a comprehensive and up-to-date treatment of the theory of "simple" liquids. The new second edition has been rearranged and considerably expanded to give a balanced account both of basic theory and of the advances of the past decade. It presents the main ideas of modern liquid state theory in a way that is both pedagogical and self-contained. The book should be accessible to graduate students and research workers, both experimentalists and theorists, who have a good background in elementary mechanics. Compares theoretical deductions with experimental results
Molecular dynamics Monte Carlo computations
Covers ionic, metallic, and molecular liquids

Gases, Liquids and Solids D. Tabor
1991-11-14 This is now the third edition of a well established and highly successful undergraduate text. The content of the second edition has been reworked and added to where necessary, and completely new material has also been included. There are new sections on amorphous solids and liquid crystals, and completely new chapters on colloids and polymers. Using unsophisticated mathematics and simple models, Professor Tabor leads the reader skilfully and systematically from the basic physics of interatomic and intermolecular forces, temperature, heat and thermodynamics, to a coherent understanding of the bulk properties of gases, liquids and solids.

The introductory material on intermolecular forces and on heat and thermodynamics is followed by several chapters dealing with the properties of ideal and real gases, both at an elementary and at a more sophisticated level. The mechanical, thermal and electrical properties of solids are considered next, before an examination of the liquid state. The author continues with chapters on colloids and polymers, and ends with a discussion of the dielectric and magnetic properties of matter in terms of simple atomic models. The abiding theme is that all these macroscopic material properties can be understood as resulting from the competition between thermal energy and intermolecular or interatomic forces. This is a lucid textbook which will continue to provide students of physics and chemistry with a comprehensive and integrated view of the properties of matter in all its many fascinating forms.

Numerical Simulation of Gas-liquid Reactors
Paul On-Yee Yeung 1981

Mechanics of Liquids and Gases L. G. Loitsyanskii 2014-07-18
Mechanics of Liquids and Gases, Second Edition is a 10-chapter text that covers significant revisions concerning the dynamics of an ideal gas, a viscous liquid and a viscous gas. After an expanded introduction to the fundamental properties and methods of the mechanics of fluids, this edition goes on dealing with the kinetics and general questions of dynamics. The next chapters describe the one-dimensional pipe flow of a gas with friction, the elementary theory of the shock tube; Riemann's theory of the wave propagation of finite intensity, and the theory of plane subsonic and supersonic flows. Other chapters consider the elements of the theory of three-dimensional subsonic and supersonic flows past bodies; the fluctuating laminar flow in a uniform pipe of circular cross-section; the hydrodynamic theory of lubrication; the variational principle of Helmholtz; and the theory of plane and axisymmetric laminar jets. The remaining chapters look into the semi-empirical theories of turbulence and their application in the analysis of axisymmetric jets, with and without swirl, and in the calculation of the resistance of rough plates. These chapters also discuss the dynamics of a viscous gas and the elements of the theory

of laminar and turbulent boundary layers at high speeds. This book will be of value to mechanical engineers, physicists, and researchers.

The Properties of Gases and Liquids Robert C. Reid 1987 Completely rewritten and reorganized to reflect the latest developments in estimating the properties of gases and liquids, this new edition of the highly regarded reference presents a comprehensive survey of the most reliable estimation methods in use today. It provides instantly usable information on estimating both physical and thermodynamic properties when experimental data are not available (for example, constants such as critical temperature, critical pressure, acentric factor, and others); thermodynamic properties of gases and liquids, both pure and mixtures, including enthalpies, entropies, fugacity coefficients, heat capacities, and critical points; vapor-liquid and liquid-liquid equilibria as needed in separation operations such as distillation, absorption, and extraction. An invaluable reference that provides property values for more than 600 pure chemicals, this is the only book in its field to include a critical analysis of existing methods as well as practical recommendations.

The Chemistry and Technology of Petroleum James G. Speight 2006-10-31 Refineries must not only adapt to evolving environmental regulations for cleaner product specifications and processing, but also find ways to meet the increasing demand for petroleum products, particularly for liquid fuels and petrochemical feedstocks. The Chemistry and Technology of Petroleum, Fourth Edition offers a 21st century perspective

Chemistry Data Book J. G. Stark 1982 This text is a standard reference book for A Level and equivalent examinations.

Measurement and Data Analysis for Engineering and Science, Third Edition Patrick F. Dunn 2014-05-23 The third edition of Measurement and Data Analysis for Engineering and Science provides an up-to-date approach to presenting the methods of experimentation in science and engineering. Widely adopted by colleges and universities within the U.S. and abroad, this edition has been developed as a modular work to make it more adaptable to different approaches from various schools. This text details current methods and highlights the

six fundamental tools required for implementation: planning an experiment, identifying measurement system components, assessing measurement system component performance, setting signal sampling conditions, analyzing experimental results, and reporting experimental results. What's New in the Third Edition: This latest edition includes a new chapter order that presents a logical sequence of topics in experimentation, from the planning of an experiment to the reporting of the experimental results. It adds a new chapter on sensors and transducers that describes approximately 50 different sensors commonly used in engineering, presents uncertainty analysis in two separate chapters, and provides a problem topic summary in each chapter. New topics include smart measurement systems, focusing on the Arduino® microcontroller and its use in the wireless transmission of data, and MATLAB® and Simulink® programming for microcontrollers. Further topic additions are on the rejection of data outliers, light radiation, calibrations of sensors, comparison of first-order sensor responses, the voltage divider, determining an appropriate sample period, and planning a successful experiment. Measurement and Data Analysis for Engineering and Science also contains more than 100 solved example problems, over 400 homework problems, and provides over 75 MATLAB® Sidebars with accompanying MATLAB M-files, Arduino codes, and data files available for download.

Handbook of Physical Properties of Liquids and Gases N.B. Vargaftik 2014-04-13 This book provides numerical data on physical and thermodynamic properties of a large number of elements and compounds. SI units are used throughout, and in addition, an adequate set of conversion tables is included. This volume will be a valuable source of reference for physical chemists and chemical engineers.

Thermophysical Properties of Chemicals and Hydrocarbons Carl L. Yaws 2014-06-20 Compiled by an expert in the field, the book provides an engineer with data they can trust. Spanning gases, liquids, and solids, all critical properties (including viscosity, thermal conductivity, and diffusion coefficient) are covered. From C1 to C100 organics and Ac to Zr inorganics, the data in this handbook is a perfect

quick reference for field, lab or classroom usage. By collecting a large - but relevant - amount of information in one source, the handbook enables engineers to spend more time developing new designs and processes, and less time collecting vital properties data. This is not a theoretical treatise, but an aid to the practicing engineer in the field, on day-to-day operations and long range projects. Simplifies research and significantly reduces the amount of time spent collecting properties data Compiled by an expert in the field, the book provides an engineer with data they can trust in design, research, development and manufacturing A single, easy reference for critical temperature dependent properties for a wide range of hydrocarbons, including C1 to ClOO organics and Ac to Zr inorganics

Supramolecular Chemistry Jonathan W. Steed 2013-05-21 Supramolecular chemistry is 'chemistry beyond the molecule' - the chemistry of molecular assemblies and intermolecular bonds. It is one of today's fastest growing disciplines, crossing a range of subjects from biological chemistry to materials science; and from synthesis to spectroscopy. Supramolecular Chemistry is an up-to-date, integrated textbook that tells the newcomer to the field everything they need to know to get started. Assuming little in the way of prior knowledge, the book covers the concepts behind the subject, its breadth, applications and the latest contemporary thinking in the area. It also includes coverage of the more important experimental and instrumental techniques needed by supramolecular chemists. The book has been thoroughly updated for this second edition. In addition to the strengths of the very popular first edition, this comprehensive new version expands coverage into a broad range of emerging areas. Clear explanations of both fundamental and nascent concepts are supplemented by up-to-date coverage of exciting emerging trends in the literature. Numerous examples and problems are included throughout the book. A system of "key references" allows rapid access to the secondary literature, and of course comprehensive primary literature citations are provided. A selection of the topics covered is listed below. Cation, anion, ion-pair and

molecular host-guest chemistry Crystal engineering Topological entanglement Clathrates Self-assembly Molecular devices Dendrimers Supramolecular polymers Microfabrication Nanoparticles Chemical emergence Metal-organic frameworks Gels Ionic liquids Supramolecular catalysis Molecular electronics Polymorphism Gas sorption Anion-pinteractions Nanochemistry Supramolecular Chemistry is a must for both students new to the field and for experienced researchers wanting to explore the origins and wider context of their work. Review: "At just under 1000 pages, the second edition of Steed and Atwood's Supramolecular Chemistry is the most comprehensive overview of the area available in textbook form...highly recommended." —Chemistry World, August 2009

Many-Particle Physics Gerald D. Mahan 2012-12-06 This textbook is for a course in advanced solid-state theory. It is aimed at graduate students in their third or fourth year of study who wish to learn the advanced techniques of solid-state theoretical physics. The method of Green's functions is introduced at the beginning and used throughout. Indeed, it could be considered a book on practical applications of Green's functions, although I prefer to call it a book on physics. The method of Green's functions has been used by many theorists to derive equations which, when solved, provide an accurate numerical description of many processes in solids and quantum fluids. In this book I attempt to summarize many of these theories in order to show how Green's functions are used to solve real problems. My goal, in writing each section, is to describe calculations which can be compared with experiments and to provide these comparisons whenever available. The student is expected to have a background in quantum mechanics at the level acquired from a graduate course using the textbook by either L. I. Schiff, A. S. Davydov, or I. Landau and E. M. Lifshitz. Similarly, a prior course in solid-state physics is expected, since the reader is assumed to know concepts such as Brillouin zones and energy band theory. Each chapter has problems which are an important part of the lesson; the problems often provide physical insights which are not in the text. Sometimes the answers to the problems are provided, but usually not.