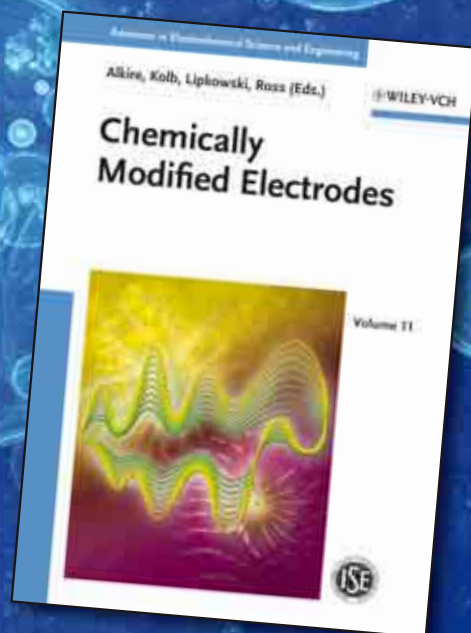
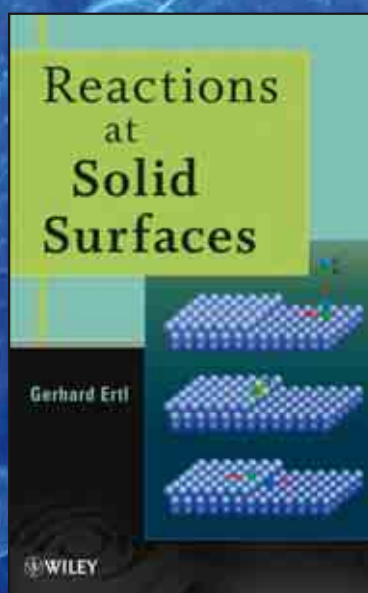
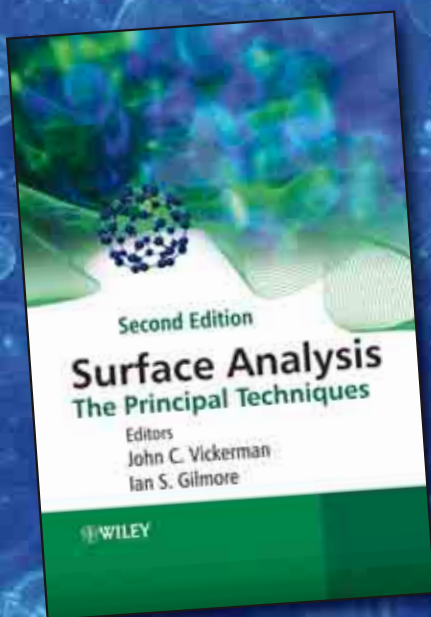
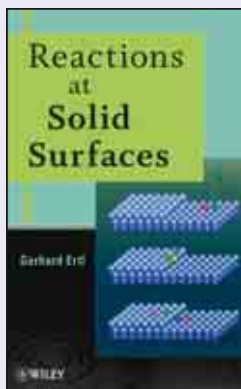


Physical Chemistry





Reactions at Solid Surfaces

new

Gerhard Ertl, *Fritz-Haber-Institut der MPG, Germany*; Editor

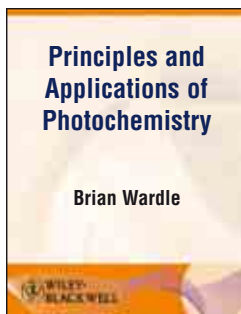
Written by 2007 Chemistry Nobel Laureate, Gerhard Ertl, this text offers readers a complete view of reactions at solid surfaces, of how chemistry works at surfaces, and how to understand and probe the dynamics of surface reactions. It provides an authoritative self-contained introduction to surface reactions by a leader in the field of surface science. With a broad view of surface reactivity, the author

draws on his 30 years of expertise to include examples from various systems, comparing traditional surface probes with more modern probes and bringing together the disciplines in a cohesive manner.

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Principles and Applications of Photochemistry

new

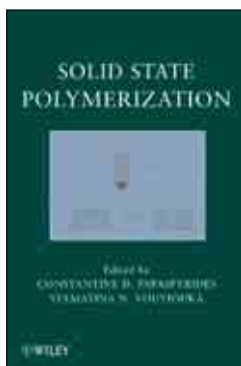
Brian Wardle, *Manchester Metropolitan Univ., UK*

Principles and Applications of Photochemistry is a thoroughly up-to-date introduction to photochemistry that starts by covering the principles and then moves on to cover the applications. The many and varied applications are drawn from such diverse subjects as lasers, the atmosphere, biochemistry, medicine,

and industry. This text also covers the latest developments, including photochemical molecular machines, photodynamic therapy applied to cancer, photochromatic imaging, and photostabilizers. It maintains a careful balance between organic and photophysical chemistry throughout, with plenty of examples included.

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Constantine D. Papispyrides,
Stamatina N. Vouyiouka

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Photochemistry of Organic Compounds

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From Concepts to Practice

Petr Klán, *Masaryk Univ.;*
Jakob Wirz, *Univ. of Basel*

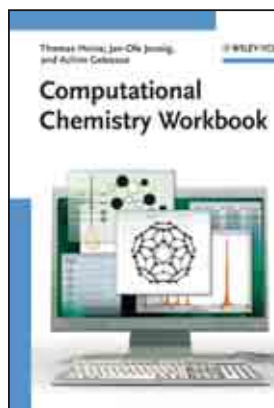
This new volume in the *Postgraduate Chemistry series* covers synthetic organic photochemistry at postgraduate student and research level. It provides a thorough overview of this important and exciting area of research, demonstrating the underlying principles of synthetic

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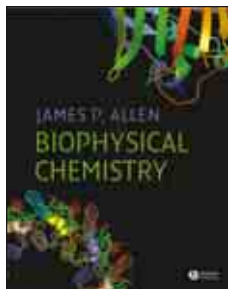
new

Thomas Heine, *Jacobs Univ. Bremen, Germany;*
Jan-Ole Joswig, *Technical Univ. Dresden, Germany;*
Achim Gelessus, *Jacobs Univ. Bremen, Germany*

A bridge between theory and practice, this text fills a real need for the growing number of aspiring scientists who are learning computational and

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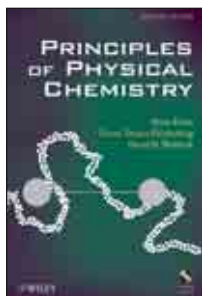
Biophysical Chemistry

James P. Allen, *Arizona State Univ.*

Examining physical chemistry through the lens of biological and biochemical topics, examples, and applications to biochemistry, *Biophysical Chemistry* offers a rigorous, up-to-date treatment of the material with no presumption of prior math theory expertise. Necessary calculus models are laid out in a step-by-step fashion for those less confident

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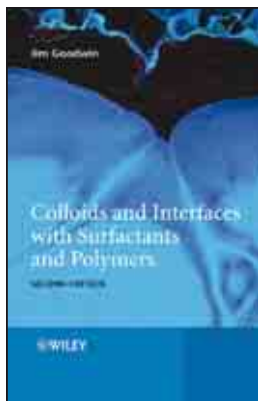
Principles of Physical Chemistry

SECOND EDITION

Hans Kuhn, *Max Planck Inst. for Biophysical Chemistry, Germany*; Horst-Dieter Försterling, *Philipps Univ., Germany*; David H. Waldeck, *Univ. of Pittsburg, USA*

Rather than dwelling on mathematical formalities, *Principles of Physical Chemistry* uniquely presents simple physical models for molecular and supramolecular systems and processes. This latest edition integrates experiments and real experimental data with theoretical developments and uses many classical results in conjunction with modern results and methods. Including numerous problems and solutions, the presentation assists readers in developing an intuitive understanding of the subjects as well as skill in quantitative manipulations.

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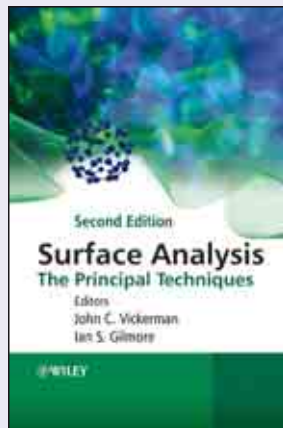
SECOND EDITION

James Goodwin, *Invitrogen Corporation*

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Surface Analysis

The Principal Techniques

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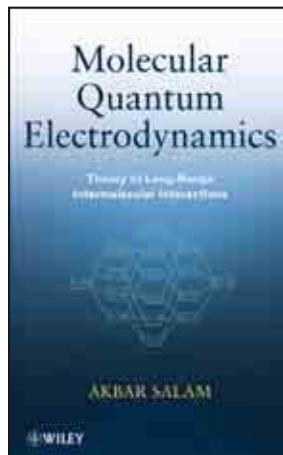
John C. Vickerman, *Surface Analysis Research Centre, UMIST, UK*; Ian S. Gilmore, *National Physical Laboratory, UK*; Editors

This completely updated and revised second edition deals with the characterization and understanding of the outer layers of substrates—how they react, look, and function. Within this comprehensive text, experts in each analysis area introduce the theory and practice of the principal

techniques that have shown themselves to be effective in both basic research and in applied surface analysis. More than 50 percent of content is new or revised, with coverage of such innovative topics as dynamic SIMS, the application of multivariate data analysis techniques, applications and developments in biotechnology, and applications and developments in nanotechnology.

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Molecular Quantum Electrodynamics

Theory of Long-Range Intermolecular Interactions

Akbar Salam

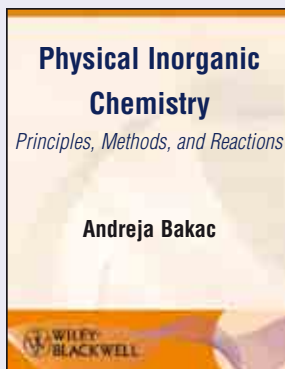
The first such book devoted exclusively to the MQED theory of long-range intermolecular forces, this resource offers the first presentation of the book details the foundations of molecular quantum electrodynamics and its application to long-range inter-particle interactions. The non-relativistic coupling of a charged particle with a radiation

field in the Coulomb gauge is explicated first via the familiar canonical quantization procedure, leading to minimal- and multipolar-coupling Hamiltonians. This is then followed by an alternative field-theoretic formulation involving the interaction of second-quantized electron and Maxwell wavefields. After introducing the concept of intermolecular interaction energy, a number of different approaches within the framework of molecular quantum electrodynamics are then applied to the calculation of a variety of long-range forces between atoms and molecules. These include diagrammatic time-dependent perturbation and response theory computations of the rate of resonance energy transfer, the retarded van der Waals dispersion energy shift, discriminatory interactions, many-body forces, and modification of pair potentials by external radiation. This exceptional work is an essential resource for theoretical and physical chemists, and all of those engaged in this fascinating field.

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Andreja Bakac

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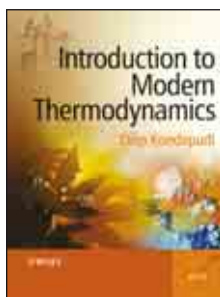
ly unreactive molecules, such as molecular nitrogen, molecular oxygen, and hydrocarbons. But it also examines developments that are currently among the most debated and researched in the world of chemistry, including those related to the future of solar energy, hydrogen energy, biorenewables, and human health.

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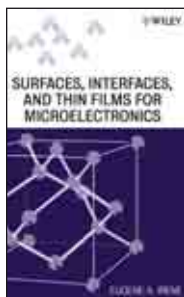
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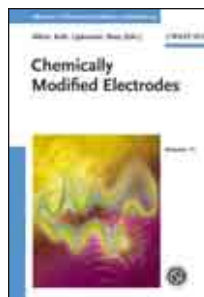
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Detailing fundamentals and important analytical techniques, this reference helps scientists and engineers in this rapidly growing field understand existing microelectronic applications and design new ones. *Surfaces, Interfaces, and Thin Films for Microelectronics* covers both geometric

and electronic structure, surface thermodynamics, morphology, and a sampling of surface science techniques. It also discusses microelectronic processes and explores films and interfaces, electronic passivation of semiconductor-dielectric film interfaces, the Si-SiO₂ interface, and other MOSFET interfaces.

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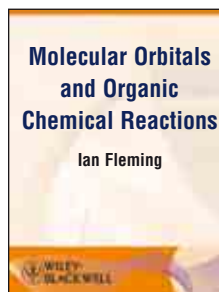
new

Richard C. Alkire, *Univ. of Illinois, USA*;
Dieter M. Kolb, *Univ. of Ulm, Germany*;
Jacek Lipkowski; Phil Ross; Series Editors

With contributions from an international group of expert authors, this book examines the latest trends in tailoring interfacial properties electrochemically. The chapters cover various organic and inorganic compounds, with applications ranging from electrochemistry to nanotechnology and biology. A partial sampling of topics includes electrode modification by self-assembled monolayers, electrochemically active polyelectrolyte modified electrodes; electrochemistry on carbon nanotube modified surfaces; nanostructured electrodes with unique properties for biological and other applications; and self-assembled monolayers (SAMs) for electrochemical sensing.

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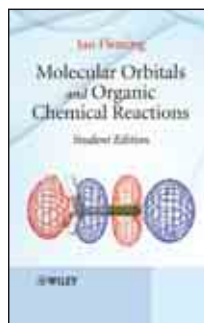
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Molecular Orbitals and Organic Chemical Reactions

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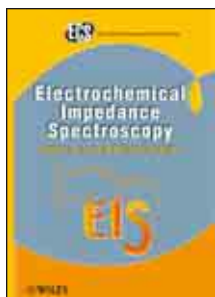
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This is the long-awaited sequel to Fleming's classic textbook *Frontier Orbitals* presented in a student-friendly first-course edition. Fully updated with a wealth of recent illustrative examples it includes key references and suggested further reading for students to find out more. A greater emphasis is put on chemistry than on quantum mechanics, and the intelligent use of the rules rather than their mathematical derivation.

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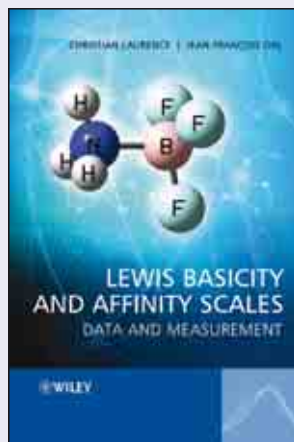
Volume 7: Inorganic Electrochemistry, William E. Geiger, Chris Pickett, Editors

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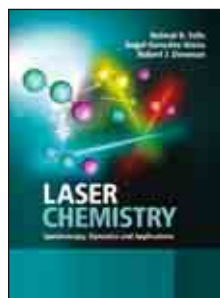
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Christian Laurence, *Univ. de Nantes*; Jean-François Gal, *Univ. de Nice*

Lewis Basicity and Affinity Scales, Data and Measurement brings together for the first time a comprehensive range of Lewis basicity/affinity data in one volume. More than 2,400 equilibrium constants of acid-base reactions, 1,500 complexation enthalpies, and nearly 2,000 infrared and ultraviolet shifts upon

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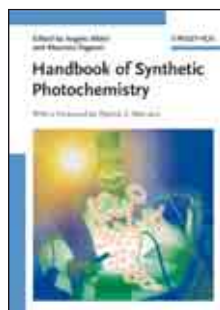
Spectroscopy, Dynamics and Applications

Helmut H. Telle, *Univ. of Wales, UK, Swansea, Wales*; Angel González Ureña, *Univ. Complutense de Madrid, Spain*; Robert J. Donovan, *Univ. of Edinburgh, Scotland*

“The book would be a valuable addition demonstrating the diversity of laser applications in chemistry”—Professor M. Ashfold, *Univ. of Bristol*.

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Handbook of Synthetic Photochemistry

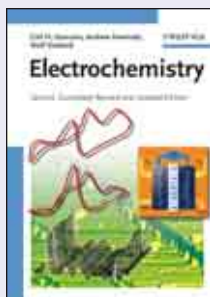
new

A. Albini, Maurizio Fagnoni, *both of Univ. of Pavia, Italy*; Editors

Unique in its focus on preparative impact rather than mechanistic details, this handbook provides an overview of photochemical reactions classed according to the structural feature that is built in the photochemical step, so as to facilitate use by synthetic

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Electrochemistry

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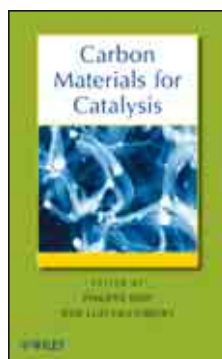
Carl H. Hamann, *Univ. of Oldenburg, Germany*; Andrew Hamnett, *Univ. of Newcastle upon Tyne, Great Britain*; Wolf Vielstich, *Univ. of Sao Paulo, Brazil*

“...an excellent introduction to the physical-chemical aspects of electrochemistry...and is strongly recommended.”—Choice

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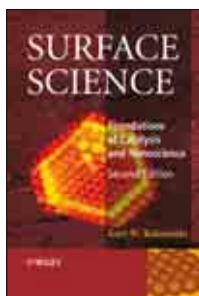
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Philippe Serp, José Luis Figueiredo, Editors

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Surface Science

Foundations of Catalysis and Nanoscience

SECOND EDITION

Kurt W. Kolasinski, *West Chester Univ.*

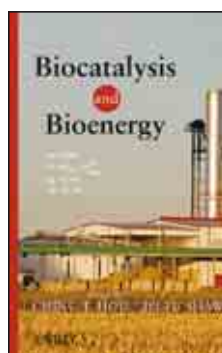
“This book should be compulsory reading for every postgraduate student starting to do research in surface science and is probably the best book on the market for undergraduate students.”—The Higher Education Academy Physical Sciences Centre

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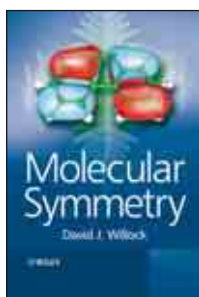
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C. T. Hou, Jei-Fu Shaw

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Molecular Symmetry

David J. Willock, *Univ. of Wales, UK*

Molecular Symmetry carefully introduces this subject by combining symmetry with spectroscopy in a clear and accessible manner. Beginning with an introduction to symmetry in nature and chemistry, the text goes on to examine point groups, the interaction of light with molecules, and electronic spectra of transition metal complexes, with a final chapter

on symmetry and the spectra of complexes. Each chapter introduces the subject gradually and ends with a series of self-test questions to enhance student understanding.

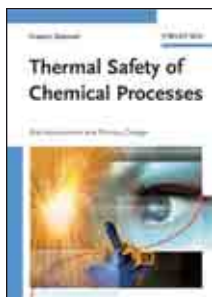
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Thermal Safety of Chemical Processes

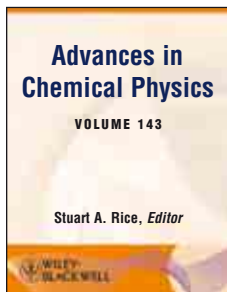
Risk Assessment and Process Design

Francis Stoessel, Swiss Inst. for the Promotion of Safety and Security, Switzerland

This excellent text presents proven methods for conducting a systematic assessment of risks due to potential loss of control over chemical reactions and for the prevention of

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Advances in Chemical Physics

VOLUME 143

Stuart A. Rice, Editor

Advances in Chemical Physics

VOLUME 143

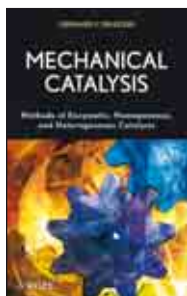
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Mechanical Catalysis

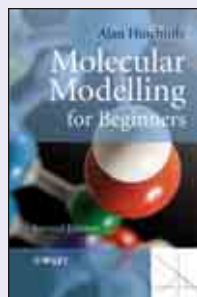
Methods of Enzymatic, Homogeneous, and Heterogeneous Catalysis

Gerhard Swiegler

This seminal text unravels the mystery of enzymatic catalysis, including the fundamental processes at work, the way it has evolved, and how it relates to catalysis in man-made systems. It also explains how the 30 or so general theories of enzymatic catalysis knit together

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SECOND EDITION

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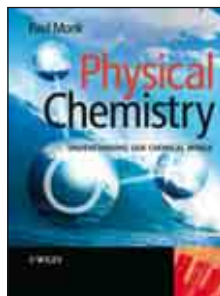
A concise, basic introduction to modelling and computational chemistry which focuses on the essentials, including MM, MC, and MD, along with a chapter devoted to QSAR and discovery

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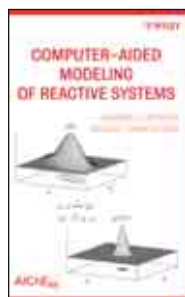
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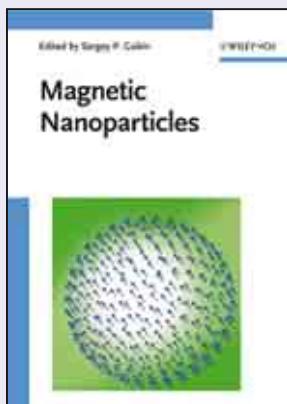


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Magnetic Nanoparticles

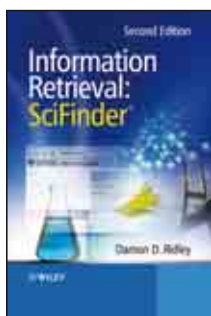
new

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Much of the development of magnetic nanoparticles has involved interdisciplinary research. Addressing this recent trend, *Magnetic Nanoparticles* takes an interdisciplinary approach to review the physics, chemistry, fabrication, and application of magnetic nanoparticles and nanostructures within a single volume. Covering the basics as well as the most recent

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Information Retrieval - SciFinder

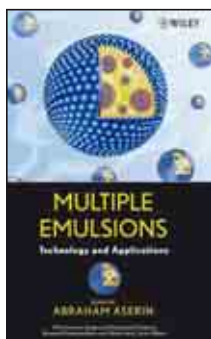
Damon Ridley, *Univ. of Sydney*

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This fully revised edition of the only companion guide to SciFinder is essential for anyone who uses chemical information in academic or industry, the new edition addresses the major new release of SciFinder in 2008, which adds a Web interface for the first time.

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Multiple Emulsion

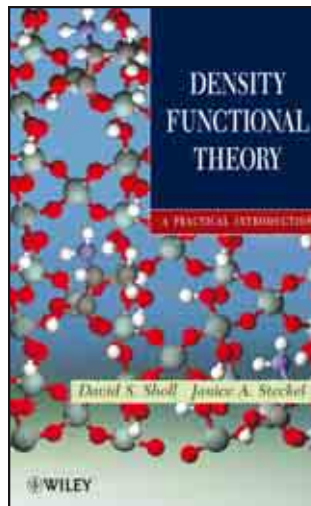
Technology and Applications

Abraham Aserin, *Casali Institute of Applied Chemistry, Hebrew Univ. of Jerusalem, Israel*, Editor

This book presents recent findings that can help formulators understand how to enhance the stability of multiple emulsions. With chapters contributed by leading experts from around the world, it covers the definition and properties of multiple emulsions, their formation and stability, and potential applications,

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Density Functional Theory

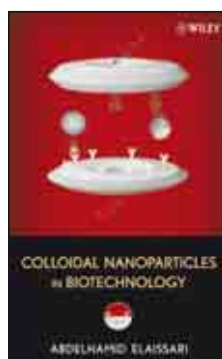
A Practical Introduction

David Sholl, *Carnegie Mellon Univ., USA*; Janice A. Steckel

Density functional theory (DFT) is one of the most frequently used computational tools for studying and predicting the properties of isolated molecules, bulk solids, and material interfaces, including surfaces. This straightforward text shows anyone with a background in chemistry, physics, engineering, or mathematics how to quickly master DFT calculations. The authors show how the widespread

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Abdelhamid Elaissari, *Director of Research, National Center for Scientific Research (CNRS), France*

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