Chem Review Journal

Advanced technologies such as artificial intelligence, big data, cloud computing, and the Internet of Things have changed the digital landscape, providing many new and exciting opportunities. However, they also provide ever-shifting gateways for information theft or misuse. Staying ahead requires the development of innovative and responsive security measures, and recent advances in optical technology have positioned it as a promising alternative to digital cryptography. Optical Cryptosystems introduces the subject of optical cryptography and provides up-to-date coverage of optical security schemes. Optical principles, approaches, and algorithms are discussed as well as applications, including image/data encryption-decryption, watermarking, image/data hiding, and authentication verification. This book also includes MATLAB(R) codes, enabling students and research professionals to carry out exercises and develop newer methods of image/data security and authentication.

Free Radicals in Biology and Medicine has become a classic text in the field of free radical and antioxidant research. Now in its fifth edition, the book has been comprehensively rewritten and updated whilst maintaining the clarity of its predecessors. Two new chapters discuss 'in vivo' and 'dietary' antioxidants, the first emphasising the role of peroxiredoxins and integrated defence mechanisms which allow useful roles for ROS, and the second containing new information on the role of fruits, vegetables, and vitamins in health and disease. This new edition also contains expanded coverage of the mechanisms of oxidative damage to lipids, DNA, and proteins (and the repair of such damage), and the roles played by reactive species in signal transduction, cell survival, death, human reproduction, defence mechanisms of animals and plants against pathogens, and other important biological events. The methodologies available to measure reactive species and oxidative damage (and their potential pitfalls) have been fully updated, as have the topics of phagocyte ROS production, NADPH oxidase enzymes, and toxicology. There is a detailed and critical evaluation of the role of free radicals and other reactive species in human diseases, especially cancer, cardiovascular, chronic inflammatory and neurodegenerative diseases. New aspects of ageing are discussed in the context of the free radical theory of ageing. This book is recommended as a comprehensive introduction to the field for students, educators, clinicians, and researchers. It will also be an invaluable companion to all those interested in the role of free radicals in the life and biomedical sciences.

Non-Stoichiometric Compounds: Tungsten Bronzes, Vanadium Bronzes and Related Compounds deals with the chemistry of non-stoichiometric compounds such as tungsten bronzes and vanadium bronzes. Topics covered include the thermodynamic basis for lattice defects and non-stoichiometry; thermodynamics of binary crystals; non-stoichiometry in ionic crystals; and interaction of defects. A structural view of non-stoichiometric compounds is also presented. Comprised of two parts, this volume begins with a historical account of developments in non-stoichiometry, focusing on the thermodynamic treatments and structural descriptions of non-stoichiometric compounds. The discussion then turns to the thermodynamic basis for lattice defects and non-stoichiometry, along with the thermodynamics of binary crystals and electronic defects in ionic crystals. Classical defect models are also described, and defect interactions in non-stoichiometric compounds are considered, together with the thermodynamics and crystallography in such compounds. The last section is devoted to tungsten bronzes, vanadium bronzes, and related compounds including bronzes of molybdenum, rhenium, niobium, tantalum, titanium, manganese, platinum, and palladium. This book is intended for inorganic chemists.

Electrochemical processes are long known but are becoming increasingly important again, due to modern applications, such as electro-mobility or energy storage. Thus, electrochemistry is not only a topic for chemists and physicists, but also for technical engineers. This book addresses all aspects of electrochemistry, which are important in these days: electrodes, corrosion, interphases, processes, energy storage, analytical methods, and sensors.

Resistance in One Dimension
Anion-Binding Catalysis
Intuitive Eating, 2nd Edition
Journal of Synthetic Methods
Third Chemical Congress of North America, Toronto, Canada, June 5-10, 1988
Syntheses, Strategies and Applications

These proceedings reflect recent developments in the field of zeolite chemistry and catalysis with an emphasis on the role of a modifying component on the properties of the molecular sieve material. The plenary lectures and contributed papers concentrate on the problem of isomorphou substitution in a zeolitic framework; on the occlusion and the structure of metal, metal oxide, and metal sulphide clusters and complexes in the intracrystalline void volume of molecular sieves and zeolites as well as in the interlaminar space of layered compounds. Catalytic applications are discussed, not only in regard to traditional hydrocarbon transformation, but also in such areas as: reduction of SO2, decomposition of NO, reactions of sulphur containing compounds and conversion of CO, CO2 to hydrocarbons or of alcohols to oxygenated products. Because the book provides valuable data and information on new achievements in the zeolite material science and application, it will be of considerable interest to all research groups involved in zeolite science.

This volume reviews the recent advances in formation of C-F bonds and X-F bonds (X = heteroatom) to produce useful fluorinated molecules for pharmaceuticals, materials and more. Reactions and methods associated with fluorination, including monofluorination, difluorination, trifluorination and other polyfluorination that have emerged within the past few years are systematically discussed. With contributions from front-line researchers in this field from both academia and industry, this book provides a valuable resource for scholars, graduate students as well as professionals.

Thorough and up-to-date, this book presents recent developments in this exciting research field. To begin with, the text covers the fabrication of chiral nanomaterials via various synthesis methods, including electron beam lithography, ion beam etching, chemical synthesis and biological DNA directed assembly. This is followed by the relevant theory and reaction mechanisms, with a discussion of the characterization of chiral nanomaterials according to the optical properties of metal nanoparticles, semiconductor nanocrystals, and nanoclusters. The whole is rounded off by a summary of applications in the field of catalysis, sensors, and biomedicine. With its comprehensive yet concise coverage of the whole spectrum of research, this is invaluable reading for senior researchers and entrants to the field of nanoscience and materials science.

Supramolecular Chemistry on Surfaces 2D Networks and 2D Structures Explore the cutting-edge in 2D chemistry on surfaces and its applications In Supramolecular Chemistry on Surfaces: 2D Networks and 2D Structures, expert chemist Neil R. Champness delivers a comprehensive overview of the rapidly developing field of two-dimensional supramolecular chemistry on surfaces. The book offers explorations of the state-of-the-art in the discipline and demonstrates the potential of the latest advances and the challenges faced by researchers in different areas. The editor includes contributions from leading researchers that address new spectroscopic methods which allow for investigations at a sub-molecular level, opening up new areas of understanding in the field. Included resources also discuss important supramolecular strategies, like hydroge bonding, van der Waals interactions, metal-ligand coordination, multicomponent assembly, and more. The book also provides: A thorough introduction to two-dimensional supramolecular chemistry on surfaces Comprehensive explorations of the characterization and interpretation of on-surface chemical reactions studied by ultra-high resolution scanning probe microscopy Practical discussions of complexity in two-dimensional multicomponent assembly, including explorations of coordination bonds and quasicrystalline structures In-depth examinations of covalently bonded organic structures via on-surface synthesis Perfect for polymer chemists, spectroscopists, and materials scientists, Supramolecular Chemistry on Surfaces: 2D Networks and 2D Structures will also earn a place in the libraries of physical and surface chemists, as well as surface physicists.

Tungsten Bronzes, Vanadium Bronzes and Related Compounds
Identity and the Museum Visitor Experience
Prudent Practices in the Laboratory
2D Networks and 2D Structures
Applications in Organic Synthesis

Carbohydrate microarrays emerged as a key technology for the deciphering of the glycospace by providing a multiplex technology where tens to hundreds of carbohydrates/protein interactions can be probed in parallel. Carbohydrate Microarrays: Methods and Protocols aims to give the reader the theoretical and experimental clues necessary for the fabrication and implementation of carbohydrate microarrays. This requires three essential steps: 1) to obtain the carbohydrate probes (monosacharides, oligosacchrides, polysacchairdes, glycoconjugates or glycoclusters), 2) to immobilize these probes, and 3) to implement the protocols for biological/biochemical interaction with the desired target. This volume gives an overview of carbohydrate microarray and carbohydrate chemistry and illustrates different detection techniques and their applications. Written in the successful Methods in Molecular BiologyTM series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols, and notes on troubleshooting and avoiding known pitfalls. Authoritative and easily accessible, Carbohydrate Microarrays: Methods and Protocols compiles a catalogue of protocols on carbohydrate microarrays to span the needs of researchers around the globe.

Understanding the visitor experience provides essential insights into how museums can affect people's lives. Personal drives, group identity, decision-making and meaning-making strategies, memory, and leisure preferences, all enter into the visitor experience, which extends far beyond the walls of the institution both in time and space. Drawing upon a career in studying museum visitors, renowned researcher John Falk attempts to create a predictive model of visitor experience, one that can help museum professionals better meet those visitors' needs. He identifies five key types of visitors who attend museums and then defines the internal processes that drive them there over and over again. Through an understanding of how museums shape and reflect their personal and group identity, Falk is able to show not only how museums can increase their attendance and revenue, but also their meaningfulness to their constituents.

Perspectives in Supramolecular Chemistry Founded by J.-M. Lehn Perspectives in Supramolecular Chemistry reflects research which develops supramolecular structures with specific new properties, such as recognition, transport and simulation of biosystems or new materials. The series covers all areas from theoretical and modelling aspects through organic and inorganic chemistry and biochemistry to materials, solid-state and polymer sciences reflecting the many and varied applications of supramolecular structures in modern chemistry. Giant Vesicles Edited by Pier Luigi Luisi and Peter Walde Institute für Polymere, ETH-Zürich, Switzerland Giant vesicles or giant liposomes are supramolecular assembles of amphiphiles, surface active substances which normally contain one or two hydrophobic chains and one hydrophilic head. Due to their relatively large size, giant vesicles are easily observed by light microscopy. This volume provides an overview of ideas and results obtained from experimental studies as well as theoretical approaches. A wide variety of aspects ranging from pure mathematics and physical considerations to biochemical and biological applications are covered. Historical and fundamental aspects are discussed as well as a range of experimental approaches including the micromanipulation and micro-puncturing of single giant vesicles. 87 international contributors comment on a wide range of issues contained under the five main part headings: Introduction Preparation Methods Basic Theoretical Aspects Physical Properties Chemical and Biological Aspects. Giant Vesicles has been written for researchers in the fields of chemistry, biochemistry and biophysics, working in supra-molecular chemistry, surfactant science, liposome and pharmaceutical sciences.

The first guide to compile current research and frontline developments in the science of process intensification (PI), Re-Engineering the Chemical Processing Plant illustrates the design, integration, and application of PI principles and structures for the development and optimization of chemical and industrial plants. This volume updates professionals on emerging PI equipment and methodologies to promote technological advances and operational efficacy in chemical, biochemical, and engineering environments and presents clear examples illustrating the implementation and application of specific process-intensifying equipment and methods in various commercial arenas.

Annual Review of Physical Chemistry
Contemporary Boron Chemistry
Electrochemistry
Surface Chemistry and Catalysis
Green Chemistry
Journal - Chemical Society, London

The continued and evolving significance of boron chemistry to the wider chemical community is demonstrated by the international and interdisciplinary nature of the research reported in this book. Contemporary Boron Chemistry encompasses inorganic and organic compounds as well as polymers, solid-state materials, medicinal aspects and theoretical studies. Covering many areas of chemistry with boron at its centre, topics include applications to polyolefin catalysis, medicine, materials and polymers; boron cluster chemistry, including carboranes and metal-containing clusters; organic and inorganic chemistry of species containing only 1 or 2 boron atoms; and theoretical studies of boron-containing compounds. New materials with novel optical and electronic properties are also discussed. Comprehensive and up to date, graduates and researchers in a wide range of fields, particularly those in organometallic and organic chemistry and materials science, will welcome this book.

The Frontiers in Chemistry Editorial Office team are delighted to present the inaugural "Frontiers in Chemistry: Rising Stars" article collection, showcasing the high-quality work of internationally recognized researchers in the early stages of their independent careers. All Rising Star researchers featured within this collection were individually nominated by the Journal's Chief Editors in recognition of their potential to influence the future directions in their respective fields. The work presented here highlights the diversity of research performed across the entire breadth of the chemical sciences, and presents advances in theory, experiment and methodology with applications to compelling problems. This Editorial features the corresponding author(s) of each paper published within this important collection, ordered by section alphabetically, highlighting them as the great researchers of the future. The Frontiers in Chemistry Editorial Office team would like to thank each researcher who contributed their work to this collection. We would also like to personally thank our Chief Editors for their exemplary leadership of this article collection; their strong support and passion for this important, community-driven collection has ensured its success and global impact. Laurent Mathey, PhD Journal Development Manager

This timely overview of the syntheses for functional pi-systems focuses on target molecules that have shown interesting properties as materials or models in physics, biology and chemistry. The unique concept allows readers to select the right synthetic strategy for success, making it invaluable for a number of industrial applications. A "must have" for everyone working in this new and rapidly expanding field.

Annual Reports in Computational Chemistry provides timely and critical reviews of important topics in computational chemistry as applied to all chemical disciplines. Topics covered include quantum chemistry, molecular mechanics, force fields, chemical education, and applications in academic and industrial settings. Focusing on the most recent literature and advances in the field, each article covers a specific topic of importance to computational chemists. Quantum chemistry Molecular mechanics Force fields Chemical education and applications in academic and industrial settings

ACS Style Guide
Process Intensification
Chiral Nanomaterials
Methods and Protocols
Cinema and Television in Singapore
Deep Eutectic Solvents

An overview of thermoplasmonics including the underlying theory in nanophotonics and applications in nanoengineering and nanomedicine.

The second edition of the "go-to" reference in this field is completely updated and features more than 80% new content, with emphasis on new developments in the field, especially in industrial applications. No other book covers the topic in such a comprehensive manner and in such high quality. Edited by the Nobel laureate R. H. Grubbs and D. J. O´Leary, Volume 2 of the 3-volume work focusses on applications in organic synthesis. With a list of contributors that reads like a "Who's-Who" of metathesis, this is an indispensable one-stop reference for chemists in academia and industry. View the set here - http://www.wiley.com/WileyCDA/WileyTitle/productCd-3527334246.html Other available volumes: Volume 1: Catalyst Development and Mechanism, Editors: R. H. Grubbs and A. G. Wenzel - http://www.wiley.com/WileyCDA/WileyTitle/productCd-3527339485.html Volume 3: Polymer Synthesis, Editors: R. H. Grubbs and E. Khosravi - http://www.wiley.com/WileyCDA/WileyTitle/productCd-3527339507.html

Explores the potential of new types of anion-binding catalysts to solve challenging synthetic problems Anion-Binding Catalysis introduces readers to the use of anion-binding processes in catalytic chemical activation, exploring how this approach can contribute to the future design of novel synthetic transformations. Featuring contributions by world-renowned scientists in the field, this authoritative volume describes the structure, properties, and catalytic applications of anions as well as synthetic applications and practical analytical methods. In-depth chapters are organized by type of catalyst rather than reaction type, providing readers with an accessible overview of the existing classes of effective catalysts. The authors discuss the use of halogens as counteranions, the combination of (thio)urea and squaramide-based anion-binding with other types of organocatalysis, anion-binding catalysis by pnictogen and tetrel bonding, nucleophilic co-catalysis, anion-binding catalysis by pnictogen and tetrel bonding, and more. Helping readers appreciate and evaluate the potential of anion-binding catalysis, this timely book: Illustrates the historical development, activation mode, and importance of anion-binding in chemical catalysis Explains the analytic methods used to determine the anion-binding affinity of the catalysts Describes catalytic and synthetic applications of common NH- and OH-based hydrogen-donor catalysts as well as C-H triazole/triazolium catalysts Covers amino-catalysis involving enamine, dienamine, or iminium activation approaches Discusses new trends in the field of anion-binding catalysis, such as the combination of anion-binding with other types of catalysis Presenting the current state of the field as well as the synthetic potential of anion-binding catalysis in future, Anion-Binding Catalysis is essential reading for researchers in both academia and industry involved in organic synthesis, homogeneous catalysis, and pharmaceutical chemistry.

Frontiers in Chemistry: Rising StarsFrontiers Media SA
Supramolecular Chemistry on Surfaces
The Scandal of the Black Child in Schools in Britain
Nanodroplets
Fluorination
Preparation, Properties and Applications
Abstracts of Papers

A useful guide to the fundamentals and applications of deep eutectic solvents Deep Eutectic Solvents contains a comprehensive review of the use of deep eutectic solvents (DESs) as an environmentally benign alternative reaction media for chemical transformations and processes. The contributors cover a range of topics including synthesis, structure, properties, toxicity and biodegradability of DESs. The book also explores myriad applications in various disciplines, such as organic synthesis and (bio)catalysis, electrochemistry, extraction, analytical chemistry, polymerizations, (nano)materials preparation, biomass processing, and gas adsorption. The book is aimed at organic chemists, catalytic chemists, pharmaceutical chemists, biochemists, electrochemists, and others involved in the design of eco-friendly reactions and processes. This important book: -Explores the promise of DESs as an environmentally benign alternative to hazardous organic solvents -Covers the synthesis, structure, properties (incl. toxicity) as well as a wide range of applications -Offers a springboard for stimulating critical discussion and encouraging further advances in the field Deep Eutectic Solvents is an interdisciplinary resource for researchers in academia and industry interested in the many uses of DESs as an environmentally benign alternative reaction media.

Natural polymers, such as proteins, starch, cellulose, hevea rubber, and gum which have been available for centuries, have been applied as materials for food, leather, sizings, fibers, structures, waterproofing, and coatings. During the past century, the use of both natural and syn thetic polymers has been expanded to include more intricate applications, such as membranes, foams, medicinals, conductors, insulators, fibers, films, packaging and applications requiring high modulus at elevated temperatures. The topics in this symposium which are summarized in this book are illustrative of some of the myriad applications of these ubiquitous mater ials. As stated in forecast in the last chapter in this book, it is cer tain that revolutionary applications of polymers will occur during the next decades. Hopefully, information presented in other chapters in this book will catalyze some of these anticipated applications. It is appropriate that these reports were presented at an American Chemical Society Polymer Science and Engineering Division Award Symposium honoring Dr. O.A. Battista who has gratifying to note that Phillips Pet roleum Company, which has paved the way in applications of many new poly mers, is the sponsor of this important award. We are all cheerfully expressing our thanks to this corporate spon sor and to Distinguished Professor Raymond B. Seymour of the University of Southern Mississippi who served as the organizer of this symposium and editor of this important book.

We've all been there-angry with ourselves for overeating, for our lack of willpower, for failing at yet another diet that was supposed to be the last one. But the problem is not you, it's that dieting, with its emphasis on rules and regulations, has stopped you from listening to your body. Written by two prominent nutritionists, Intuitive Eating focuses on nurturing your body rather than starving it, encourages natural weight loss, and helps you find the weight you were meant to be. Learn: *How to reject diet mentality forever *How our three Eating Personalities define our eating difficulties *How to feel your feelings without using food *How to honor hunger and feel fullness *How to follow the ten principles of Intuitive Eating, step-by-step *How to achieve a new and safe relationship with food and, ultimately, your body With much more compassionate, thoughtful advice on satisfying, healthy living, this newly revised edition also includes a chapter on how the Intuitive Eating philosophy can be a safe and effective model on the path to recovery from an eating disorder.

''As the summary of a vision, the book is brilliant. One can feel the enthusiasm of the authors throughout...I see it as a vehicle for initiating a fruitful dialogue between chemical producers and regulatory enforcers without the confrontation, which often characterizes such interactions.' ' -Martyn Poliakoff, Green Chemistry, February ' Its is an introductory text taking a broad view and intergrating a wide range of topics including synthetic methodologies, alternative solvents and catalysts, biosynthesis and alternative feedstocks. There are exercises for students and the last chapter deals with future trends' Aslib

How the West Indian Child is Made Educationally Subnormal in the British School System

Encyclopedia of Polymeric Nanomaterials
Theory and Practice
Frontiers in Chemistry: Rising Stars
Turkish Cinema
Effective Communication of Scientific Information

In the time since the second edition of The ACS Style Guide was published, the rapid growth of electronic communication has dramatically changed the scientific, technical, and medical (STM) publication world. This dynamic mode of dissemination is enabling scientists, engineers, and medical practitioners all over the world to obtain and transmit information quickly and easily. An essential constant in this changing environment is the requirement that information remain accurate, clear, unambiguous, and ethically sound. This extensive revision of The ACS Style Guide thoroughly examines electronic tools now available to assist STM writers in preparing manuscripts and communicating with publishers. Valuable updates include discussions of markup languages, citation of electronic sources, online submission of manuscripts, and preparation of figures, tables, and structures. In keeping current with the changing environment, this edition also contains references to many resources on the internet. With this wealth of new information, The ACS Style Guide's Third Edition continues its long tradition of providing invaluable insight on ethics in scientific communication, the editorial process, copyright, conventions in chemistry, grammar, punctuation, spelling, and writing style for any STM author, reviewer, or editor. The Third Edition is the definitive source for all information needed to write, review, submit, and edit scholarly and scientific manuscripts.

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

This book covers both the fundamental and applied aspects of advanced Na-ion batteries (NIB) which have proven to be a potential challenger to Li-ion batteries. Both the chemistry and design of positive and negative electrode materials are examined. In NIB, the electrolyte is also a crucial part of the batteries and the recent research, showing a possible alternative to classical electrolytes – with the development of ionic liquid-based electrolytes – is also explored. Cycling performance in NIB is also strongly associated with the quality of the electrode-electrolyte interface, where electrolyte degradation takes place; thus, Na-ion Batteries details the recent achievements in furthering knowledge of this interface. Finally, as the ultimate goal is commercialization of this new electrical storage technology, the last chapters are dedicated to the industrial point of view, given by two startup companies, who developed two different NIB chemistries for complementary applications and markets.

Prudent Practices in the Laboratory--the book that has served for decades as the standard for chemical laboratory safety practice--now features updates and new topics. This revised edition has an expanded chapter on chemical management and delves into new areas, such as nanotechnology, laboratory security, and emergency planning. Developed by experts from academia and industry, with specialties in such areas as chemical sciences, pollution prevention, and laboratory safety, Prudent Practices in the Laboratory provides guidance on planning procedures for the handling, storage, and disposal of chemicals. The book offers prudent practices designed to promote safety and includes practical information on assessing hazards, managing chemicals, disposing of wastes, and more. Prudent Practices in the Laboratory will continue to serve as the leading source of chemical safety guidelines for people working with laboratory chemicals: research chemists, technicians, safety officers, educators, and students.

Carbohydrate Microarrays
A Revolutionary Program That Works
Zeolite Chemistry and Catalysis
Synthesis, Properties, and Applications
Re-Engineering the Chemical Processing Plant
Functional Organic Materials

EPDF and EPUB available Open Access under CC-BY-NC-ND licence. Women in Science, Technology, Engineering and Maths (STEM) disciplines face a gender gap that has been exacerbated during COVID-19. Drawing on research carried out by the Women in Supramolecular Chemistry (WISC) network, this essential book sets out the extent to which women working in STEM face inequality and discrimination. The authors use approaches more commonly associated with social sciences, such as creative and reflective research methods, to shed light on the human experiences lying behind scientific research. They share fictional vignettes drawn from research findings to illustrate challenges faced by women working in science today. Additionally, they show how this approach helps make sense of difficult personal experiences and to create a culture of change. Offering a path forward to inclusivity and diversity, this book is crucial reading for anyone working in STEM.

As nucleophiles, simple alkenes are typically so unreactive that only highly active electrophiles, such as carbocations, peroxides, and halogens will react with them. For the generation of carbon-carbon bonds, milder methods will often be required. Fortunately, it is possible to increase the reactivity of alkene-type p-nucleophiles by introducing electron-donating substituents. Substitution of one H with an OH or OR gives an enol or a vinyl ether, which are already much better nucleophiles. Using nitrogen instead of oxygen, one obtains even better nucleophiles, enamines. Enamines are among the most reactive neutral carbon nucleophiles, exhibiting rates that are even comparable to some charged nucleophiles, such as enolates [1, 2]. Most enamines, unfortunately, are sensitive to hydrolysis. The parent enamine, N,N-dimethylvinylamine, has in fact been prepared [3], but appears to be uns- ble. Enamines of cyclic ketones and many aldehydes can readily be isolated, however [4–7]. The instability of enamines might at first appear to diminish the utility of enamines as nucleophiles, but actually this property can be viewed as an added benefit: enamines can be readily and rapidly generated catalytically by using a suitable amine and a carbonyl compound. The condensation of aldehydes or ketones with amines initially affords an imine or iminium ion, which then rapidly loses a proton to afford the corresponding enamine (Scheme 1).

In 2001 Wyn Roberts celebrated both his 70th birthday and 50 years of working in surface science, to use the term "surface science" in its broadest meaning. This book aims to mark the anniversary with a contribution of lasting value, something more than the usual festschrift issue of a relevant journal. The book is divided into three sections: Surface Science, Model Catalysts and Catalysis, topics in which Wyn has always had interests. The authors for each chapter were chosen from some of the many eminent scientists who have worked with Wyn in various ways and are all internationally acknowledged as leaders in their field. The authors have produced authoritative reviews of their own specialties which together result in a book with an unrivalled combination of breadth and depth exploring the most recent developments in surface chemistry and catalysis.

Over the last few years, nanoscience and nanotechnology have been the focus of significant research attention, both from academia and industry. This sustained focus has in-turn driven the interdisciplinary field of material science research to the forefront of scientific inquiry through the creation and study of nanomaterials. Nanomaterials play an important role in the development of new materials as they can be used to influence and control physical properties and specific characteristics of other materials. Nanostructured materials that have been created include nanoparticles, nanocapsules, nanoporous materials, polymer multi-layers to name a few. These are increasingly used across applications as diverse as automotive, environment, energy, catalysis, biomedical, pharmaceutical, and polymer industries. The Encyclopedia of Polymeric Nanomaterials (EPN) intends to be a comprehensive reference work on this dynamic field studying nanomaterials within the context of the relationship between molecular structure and the properties of polymeric materials. Alphabetically organized as an encyclopedic Major Reference Work, EPN will cover the subject along multiple classification axes represented by name, source, properties, function, and structures or even processes, applications and usage. The underlying themes of the encyclopedia has been carefully identified to be based not just on material-based and function-based representation but also on structure- and process-based representation. The encyclopedia will have an exclusive focus on polymeric nanomaterials (for e.g., nanoceramics, nanocomposites, quantum dots, thin films) and will be a first of its kind work to have such an organization providing an overview to the concepts, practices and applications in the field. The encyclopedia intends to cover research and development work ranging from the fundamental mechanisms used for the fabrication of polymeric nanomaterials to their advanced application across multiple industries.

Optical Cryptosystems
Thermoplasmonics
Non-Stoichiometric Compounds
Handbook of Metathesis, Volume 2
Handling and Management of Chemical Hazards, Updated Version
Collectively Crafting the Rhythms of Our Work and Lives in STEM

Through close readings of contemporary made-in-Singapore films (by Jack Neo, Eric Khoo, and Royston Tan) and television programs (Singapore Idol, sitcoms, and dramas), this book explores the possibilities and limitations of resistance within an advanced capitalist-industrial society whose authoritarian government skillfully negotiates the risks and opportunities of balancing its on-going nation-building project and its a oeglobal citya aspirations. This book adopts a framework inspired by Antonio Gramsci that identifies ideological struggles in art and popular culture, but maintains the importance of Herbert Marcusea (TM)s one-dimensional society analysis as theoretical limits to recognize the power of authoritarian capitalism to subsume works of art and popular culture even as they attempt consciouslya "even at times successfullya "to negate and oppose dominant hegemonic formations.

Films often act as a prism that refracts the issues facing a nation, and Turkish cinema in particular serves to encapsulate the cultural and social turmoil of modern-day Turkey. Acclaimed film scholar Gönül Dönmez-Colin examines here the way that national cinema reveals the Turkish quest for a modern identity. Marked by continually shifting ethnic demographics, politics, and geographic borders, Turkish society struggles to reconcile modern attitudes with traditional morals and centuries-old customs. Dönmez-Colin examines how contemporary Turkish filmmakers address this struggle in their cinematic works, positing that their films revolve around ideas of migration and exile, and give voice to previously subsumed “denied identities” such as that of the Kurds. Turkish Cinema also crucially examines how these films confront taboo subjects such as homosexuality, incest, and honor killings, issues that have only become viable subjects of discussion in the new generation of Turkish citizens. A deftly written and thought-provoking study, Turkish Cinema will be invaluable for scholars of Middle East studies and cinephiles alike.

Technical Data Digest
Annual Reports in Computational Chemistry
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Teaching Islam
Giant Vesicles
A Guide for Newcomers