Advances in Biochemical Engineering / Biotechnology

Series Editor: T. Scheper

Volume 112

C. Kasper, Institute of Technical Chemistry, Hannover, Germany; M. Griensven, Ludwig Boltzmann Institute, Vienna, Austria; R. Pörtner, Institute for Biotechnology and Chemical Engineering, Hamburg, Germany (Eds.)

Bioreactor Systems for Tissue Engineering

Features
- Covers trends in modern biotechnology
- All aspects of this interdisciplinary technology, where knowledge, methods and expertise are required from chemistry, biochemistry, microbiology, genetics, chemical engineering and computer science, are treated
- More information as well as the electronic version available at springer.com

From the contents

Fields of interest
Biotechnology; Human Genetics; Molecular Medicine

Target groups
Libraries and scientists in biomedicine, biotechnology, biochemical/chemical engineering and applied microbiology, university institutes, research groups in industry

Type of publication
Reviews

Discount group
P

Food Chemistry

Translated from the German by: M. M. Burghagen

For more than two decades, this work has remained the leading advanced textbook and easy-to-use reference on food chemistry and technology. Its fourth edition has been extensively re-written and enlarged, now also covering topics such as BSE detection or acrylamide. Food allergies, alcoholic drinks, or phystosterols are now treated more extensively. Proven features of the prior editions are maintained: Contains more than 600 tables, almost 500 figures, and about 1100 structural formulae of food components - Logically organized according to food constituents and commodities - Comprehensive subject index. These features provide students and researchers in food science, food technology, agricultural chemistry and nutrition with in-depth insight into food chemistry and technology.

Features
- Bestselling textbook now in its fourth, revised and enlarged edition
- New topics covered include BSE detection and acrylamide
- More extensively treated are food allergies, alcoholic Drinks, or phystosterols
- Proven features: Logically organized according to food constituents and commodities and enriched with more than 600 tables, almost 500 figures, and about 110 structural formulae of food components

From the contents

Fields of interest
Food Science; Agriculture; Analytical Chemistry

Target groups
Advanced students and professionals in food chemistry, food technology or agricultural sciences

Type of publication
Graduate/Advanced undergraduate textbook

Discount group
P

Biofuels

Securing the Planet’s Future Energy Needs

A. Demirbas, Sila Science and Energy, Trabzon, Turkey

Biofuel is a renewable energy source produced from natural materials. The benefits of biofuels over traditional petroleum fuels include greater energy security, reduced environmental impact, foreign exchange savings, and socioeconomic issues related to the rural sector. The most common biofuels are produced from classic food crops that require high-quality agricultural land for growth. However, bioethanol can be produced from plentiful, domestic, cellulosic biomass resources such as herbaceous and woody plants, agricultural and forestry residues, and a large portion of municipal and industrial solid waste streams. There is also a growing interest in the use of vegetable oils for making biodiesel. “Biofuels: Securing the Planet’s Future Energy Needs” discusses the production of transportation fuels from biomass (such as wood, straw and even household waste) by Fischer-Tropsch synthesis. The book is an important text for students and researchers in energy engineering, as well as professional fuel engineers.

Features
- Discusses the production of transportation fuels from biomass (such as wood, straw and even household waste) by Fischer-Tropsch synthesis

Contents

Fields of interest
Biochemical Engineering; Renewable Energy Sources; Environmental Engineering/Biotechnology

Target groups
Advanced undergraduates, postgraduates and researchers in energy engineering; fuel engineers

Type of publication
Monograph

Discount group
P
Microarrays
Preparation, Microfluidics, Detection Methods, and Biological Applications

Combinatorial chemistry is used to find materials that form sensor microarrays. This book discusses the fundamentals, and then proceeds to the many applications of microarrays, from measuring gene expression (DNA microarrays) to protein-protein interactions, peptide chemistry, carbohydrate chemistry, electrochemical detection, and microfluidics.

Features
► Application of combinatorial chemistry to sensor materials  ► No competition whatsoever  ► One of the first books in the series Integrated Microanalytical Systems

From the contents

Fields of interest
Analytical Chemistry; Biotechnology; Biochemical Engineering

Target groups
Chemists and engineers in industry and academia, graduate students

Type of publication
Monograph

Discount group
P

N. V. Hud, Georgia Institute of Technology, Atlanta, GA, USA (Eds.)

Nucleic Acid – Metal Ion Interactions

This book provides a perspective of nucleic acid – metal ion interactions with an emphasis on experimental biophysical studies. Topics covered range from x-ray crystallographic studies of transition metal ion coordination by the nucleotide bases to the application of polyelectrolyte theory for understanding the nature of delocalized counterions that surround nucleic acids in solution. Separate chapters cover how nucleic acid – metal ion play a role in the kinetics and thermodynamics of RNA folding, as well as the role of metal ions in RNA catalysis, in disease and in medicine.

Features
► Original material and fresh perspectives on published results are presented  ► Sufficiently detailed to serve as a reference source for researchers active in the field of nucleic acids biophysics and molecular biology  ► Chapter authors have added introductory material and enough background material in each chapter so that the book can also serve as an entry point for students and researchers

Fields of interest
Biochemistry, general; Biophysics/Biomedical Physics; Biotechnology

Target groups
Researchers and students in the field of nucleic acids biophysics and molecular biology

Type of publication
Monograph

Discount group
P

Y. Li, McMaster University, Hamilton, ON, Canada; Y. Lu, University of Illinois, Urbana-Champaign, IL, USA (Eds.)

Functional Nucleic Acids for Analytical Applications

Nature has long used nucleic acid aptamers and enzymes for regulatory activities, such as the recently discovered “riboswitches” involved in gene expression. The existence of a large array of natural and artificial functional nucleic acids has generated tremendous enthusiasm and new opportunities for molecular scientists from diverse disciplines to devise new concepts and real applications that take advantage of those nucleic acids for sensing and other analytical applications. This book provides a timely and comprehensive overview of recent advances in the field, from leading experts in biology, chemistry, and engineering. A variety of topics are covered, from fundamentals of functional nucleic acids, to their applications as sensors, to nanotechnologies; as well as integration of functional nucleic acids into practical analytical systems.

Features
► First in the rapidly emerging field on analytical applications for nucleic acids  ► With interdisciplinary approach, a valuable tool for researchers in chemistry, biology, and engineering  ► One of the first books in the series Integrated Microanalytical Systems, recently renamed Integrated Analytical Systems, edited by R. Potyrailo

Fields of interest
Analytical Chemistry; Biotechnology; Inorganic Chemistry

Target groups
Researchers in academic institutions, industrial labs, and government labs; hospital clinicians; agents or inspectors from regulatory agencies such as the U.S. EPA or HUD; graduate or advanced undergraduate students

Type of publication
Monograph

Discount group
P
Hydrosilylation
A Comprehensive Review on Recent Advances

For fifty years, Hydrosilylation has been one of the most fundamental and elegant methods for the laboratory and industrial synthesis of organosilicon and silicon related compounds. Despite the intensive research and continued interest generated by organosilicon compounds, no comprehensive book incorporating its various aspects has been published this century. The aim of this book is to comprehensively review the advances of hydrosilylation processes since 1990. The survey of the literature published over the last two decades enables the authors to discuss the most recent aspects of hydrosilylation advances (catalytic and synthetic) and to elucidate the reaction mechanism for the given catalyst used and the reaction utilization. New catalytic pathways under optimum conditions necessary for efficient synthesis of organosilicon compounds are presented. This monograph shows the extensive development in the application of hydrosilylation in organic and asymmetric syntheses and in polymer and material science.

Features
► Dedicated to the field of hydrosilylation in 15 years
► Convey a complete literature review of the most important mechanistic, structural, and synthetic developments in the field to date

Fields of interest
Organometallic Chemistry; Catalysis; Organic Chemistry

Target groups
Researchers and industrial chemists involved in silicon chemistry, organic synthetic chemists with an interest in silicones, silane coupling agents and hybrid inorganic-organic materials, researchers working on organosilicon reagents in organic and polymer chemistry, postgraduate and advanced undergraduate students working within catalysis, organometallic chemistry as well as synthesis and the technology of fine chemicals

Type of publication
Contributed volume

Discount group
P

Due October 2008

► $429.00
SBN 978-1-4020-8171-2

Due January 2009

2009. Approx. 420 p. (RSC Biomolecular Sciences) Hardcover
► $189.00
SBN 978-0-85404-148-7

Oxidative Folding of Peptides and Proteins

This is the first monograph to provide a comprehensive overview of this exciting and rapidly developing area. It offers in-depth insights into the mechanisms of in vivo and in vitro oxidative folding of proteins as well as mono- and multiple-stranded peptides. Procedures applied for laboratory and industrial purposes are also discussed by top experts in the field. The book describes the enzymes involved in the correct oxidative folding of cysteine-containing proteins in prokaryotes and eukaryotes. It then goes on to discuss the mimicking of these enzymes for successful in vitro folding of proteins (including synthetic replicates) and to deal with important issues concerning cysteine-rich peptides.

Features
► Brings peptide and protein science of disulfide bond formation together in one comprehensive volume
► Provides in-depth insights into the mechanisms of in vivo and in vitro oxidative folding of proteins, mono- and multiple-stranded peptides and information about procedures applied for laboratory and industrial access to correctly refolded bioexpressed proteins and cystine-rich bioactive peptides

Fields of interest
Organic Chemistry

Target groups
Peptide and protein chemists involved in related research and production

Type of publication
Monograph

Discount group
P
Combinatorial methods for chemical and biological sensors

Chemical sensors are in high demand for applications as varied as water pollution detection, medical diagnostics, and battlefield air analysis. Designing the next generation of sensors requires an interdisciplinary approach. The book provides a critical analysis of new opportunities in sensor materials research that have been opened up with the use of combinatorial and high-throughput technologies, with emphasis on experimental techniques. For a view of component selection with a more computational perspective, readers may refer to the complementary volume of Integrated Analytical Systems, edited by M. Ryan et al., entitled “Computational Methods for Sensor Material Selection.”

Features
- The first and only book to focus on application of high-throughput technologies to the development of chemical and biological sensors
- Interdisciplinary and straightforward approach makes for engaging reading for a wide audience, from undergrad to senior scientist
- One of the first books in the series Integrated Microanalytical Systems, recently renamed Integrated Analytical Systems, edited by R. Potyrailo

Fields of interest
Computer Applications in Chemistry; Analytical Chemistry; Biotechnology

Target groups
Graduate and postgraduate students in analytical chemistry, materials science, instrumentation and automation; scientists in industry, government, and academia developing sensors

Type of publication
Professional book

Discount group
P

Herbal Drugs: Ethnomedicine to Modern Medicine

This reference work covers for the first time the herbal drugs used in ethnomedicine and validated on modern scientific basis. In depth information prepared by experts traces the evolution of herbal drugs with civilization and their use as antioxidants, anticancerous, chemopreventors, memory enhancers, neuroprotective, immunomodulator, anti-inflammatory, and in stroke, cardiovascular disorders, erectile dysfunction; also covering safety issues and toxic effects. Many of our modern medicine have come from traditional use of plants such as Curcuma, Ginkgo, and Ginseng. Therefore, information on herbal drugs, from ethnomedicine to modern use, has been arranged based on their involvement in various ailments. This book offers researchers working on diverse aspects of medicinal plants a complete coverage of botany, ethology, pharmacology, toxicology and medicinal properties of medicinal plants.

Features
- No recent book covering this topic
- Medicinal plants and their products are in demand and gaining importance in recent years

From the contents

Fields of interest
Medicinal Chemistry; Pharmacology/Toxicology; Plant Biochemistry

Target groups
Academic research labs in the field of botany, agriculture, pharmacy, biotechnology, phytochemistry, medicinal plants industry, pharmaceutical industry

Type of publication
Reference work

Discount group
P

Chemistry of Fireworks

For centuries fireworks have been a source of delight and amazement in cultures around the world. But what produces their dazzling array of effects? This book takes you behind the scenes to explore the chemistry and physics behind the art of pyrotechnics. Topics covered include:
1. History and characteristics of gunpowder
2. Principles behind each of the most popular firework types: rockets, shells, fountains, sparklers, bangers, roman candles and wheels
3. Special effects, including sound effects, coloured smokes and electrical firing
4. Firework safety for private use and displays
5. Firework legislation

Features
- Fully updated second edition of a bestseller
- The style is concise and easy to understand
- The theory of fireworks is discussed in terms of well-known scientific concepts wherever possible

Fields of interest
Physical Chemistry; Popular Science in Mathematics/Natural Science/Technology

Target groups
For high school science level upwards; a useful source of reference for anyone studying pyrotechnics as applied to fireworks

Type of publication
Monograph

Discount group
P

Herbal Drugs: Ethnomedicine to Modern Medicine

Due November 2008
$99.00
SBN 978-0-387-73712-7

K. Ramawat, M.L. Sukhadia University, India (Ed.)
M. S. Russell, Royal Society of Chemistry, Cambridge, UK

Due December 2008
$309.00
SBN 978-3-540-79115-7

R. A. Potyrailo, General Electric Global Research, Niskayuna, NY, USA; V. M. Mirsky, University of Regensburg, Germany (Eds.)

Chemistry and Materials Science

Due January 2009
Only available in print

Distribution rights outside North and South America: Royal Society of Chemistry, Cambridge, UK

Chemistry and Materials Science

Due December 2008
2009. Approx. 165 p. Softcover
$39.95
SBN 978-0-85404-127-3
### Topics in Heterocyclic Chemistry

**Editorial board:** D. Enders, S. V. Ley, G. Mehta, K. Nicolaou, R. Noyori, L. E. Overman, A. Padwa  
**Series editor:** R. R. Gupta

**Volume 19**  
T. M. Krygowski, M. K. Cyranski, University of Warsaw, Poland (Eds.)

### Aromaticity in Heterocyclic Compounds

**Features**
- Heterocyclic chemistry is the biggest branch of chemistry covering two-third of the chemical literature  
- Series covers hot topics of frontier research summarized by reputed scientists in the field  
- Our review series is topic related  
- Online version available on SpringerLink.com

**Contents**
A.T. Balaban: Aromaticity of Six-membered Rings with one Heteroatom.  

**Field of interest**  
Organic Chemistry

**Target groups**  
Scientists and practitioners in the mentioned fields and in industry

**Type of publication**  
Reviews

**Discount group**  
P

### Topics in Organometallic Chemistry

**Series editors:** J. M. Brown, P. H. Dixneuf, A. Fürstner, L. Hegedus, P. Hofmann, P. Knochel, M. Beller, G. v. Koten, S. Murai, M. Reetz

**Volume 25**  
T. R. Ward, University of Basel, Switzerland (Ed.)

### Bio-inspired Catalysts

**Features**
- Each volume of Topics in Organometallic Chemistry provides the broad scientific readership with a comprehensive summary and critical overview of a specific topic in organometallic chemistry  
- Research in this rapidly developing transdisciplinary field is having profound influence on other areas of scientific investigation, ranging from catalytic organic synthesis to biology, medicine and material science

**Fields of interest**  
Organometallic Chemistry; Catalysis; Inorganic Chemistry

**Target groups**  
Academic and industrial researchers in organometallics, organic chemistry, inorganic chemistry, pharmaceutical and medicinal chemistry

**Type of publication**  
Reviews

**Discount group**  
P

### Topics in Organometallic Chemistry

**Series editors:** J. M. Brown, P. H. Dixneuf, A. Fürstner, L. Hegedus, P. Hofmann, P. Knochel, M. Beller, G. v. Koten, S. Murai, M. Reetz

**Volume 26**  
Z. Guan, University of California, Irvine, CA, USA (Ed.)

### Metal Catalysts in Olefin Polymerisation

**Features**
- Each volume of Topics in Organometallic Chemistry provides the broad scientific readership with a comprehensive summary and critical overview of a specific topic in organometallic chemistry  
- Research in this rapidly developing transdisciplinary field is having profound influence on other areas of scientific investigation, ranging from catalytic organic synthesis to biology, medicine and material science

**Fields of interest**  
Organometallic Chemistry; Catalysis; Inorganic Chemistry

**Target groups**  
Academic and industrial researchers in organometallics, organic chemistry, inorganic chemistry, pharmaceutical and medicinal chemistry

**Type of publication**  
Reviews

**Discount group**  
P
R. J. Williams, J. S. Rowlinson, A. Chapman, University of Oxford, UK (Eds.)

**Chemistry School at Oxford**

**A History from 1600 to 2005**

Chemistry, in various ways, has been pursued in Oxford, by Oxford figures and within the wider remit of the University for centuries. This fascinating book provides a history of the development of the Oxford Chemistry School from 1600 to 2008 and shows how the nature of the University and individuals have shaped the school and advanced the subject of chemistry. It is the only complete history of Oxford chemistry in print and chronologically follows the progress of the researchers Robert Boyle, Robert Hooke and the Royal Society groups of the 1650’s as well as 18th, 19th and 20th century developments.

**Features**

- The only complete history of Oxford chemistry in print and chronologically follows the progress of the researchers Robert Boyle, Robert Hooke and the Royal Society groups of the 1650’s as well as 18th, 19th and 20th century developments
- Of interest to historians and sociologists as well as chemists

**From the contents**


**Fields of interest**

Documentation and Information in Chemistry; History of Science

**Target groups**

Of interest to historians and sociologists and also chemists interested in how the separate branches of chemistry - organic, physical, inorganic and biological have evolved in Oxford

**Type of publication**

Monograph

**Discount group**

P

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*Due January 2009*

Only available in print

Distribution rights outside North and South America: Royal Society of Chemistry, Cambridge, UK


$79.95

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