Advances in Polymer Science


Volume 248

M. Hakkarainen, Royal Institute of Technology (KTH), Stockholm, Sweden (Ed.)

Mass Spectrometry of Polymers – New Techniques


Features

► Highest Impact Factor of all publications ranked by ISI within Polymer Science  ► Short and concise reports on physics and chemistry of polymers, each written by the world renowned experts  ► Still valid and useful after 5 or 10 years  ► The electronic version is available free of charge for standing order customers at: springer.com/series/12/

Fields of interests

Polymer Sciences; Analytical Chemistry; Characterization and Evaluation of Materials

Target groups

Research

Product category

Reviews

S. Califano, Università di Firenze, Italy

Pathways to Modern Chemical Physics

In this monograph Salvatore Califano traces the developments of ideas and theories in physical and theoretical chemistry throughout the 20th century. This seldom-told narrative provides details of topics from thermodynamics to atomic structure, radioactivity and quantum chemistry. Califano’s expertise as a physical chemist allows him to judge the historical developments from the point of view of modern chemistry. This detailed and unique historical narrative is fascinating for chemists working in the fields of physical chemistry but is also a useful resource for science historians who will enjoy access to material not previously dealt with in a coherent way.

Features

► Previously untold historical developments in physical and theoretical chemistry are told by an author with scientific competence  ► Views the history of chemistry through the eyes of a modern physical chemist  ► Fascinating read for scientists working in the field and science historians

Contents


Fields of interests

Physical Chemistry; History and Philosophical Foundations of Physics; Theoretical and Computational Chemistry

Target groups

Research

Product category

Monograph

K. Chibale, University of Cape Town, South Africa; M. Davies-Coleman, Rhodes University, South Africa; C. Masimirembwa, African Institute of Biomedical Science and Technology, Zimbabwe (Eds.)

Drug Discovery in Africa

Impacts of Genomics, Insights into Medicinal Chemistry, and Technology Platforms in Pursuit of New Anti-Parasitic Drugs

Contents


Fields of interests

Medicinal Chemistry; Organic Chemistry; Pharmacy

Target groups

Research

Product category

Monograph
A. J. Dijkstra, St. Eutrope-de-Born, France

**Edible Oil Processing from a Patent Perspective**

Patent literature has always been a mine of information, but until recently, it was difficult to access. Now, with the Internet, access to all patent documents is almost instantaneous and free. In fact, patent literature has become more accessible than journal articles. However, interpreting the technical information provided by the patent literature requires a certain skill and this monograph aims to provide that skill by explaining patent jargon and providing background information on patenting. To make the explanations less abstract, patents dealing with edible oil processing are used to explain various aspects of patenting. This means that recent developments in edible oil processing can be reviewed at the same time. To make the explanations less impersonal, some have been larded with personal remarks and experience.

**Features**

- Increases comprehension of patent jargon by using patents dealing with edible oil processing as examples
- Provides background information on patenting
- Increases reader-friendliness of text through use of personal experiences

**Contents**


**Fields of interests**

Food Science; Chemistry/Food Science, general

**Target groups**

Professional/practitioner

**Product category**

Monograph

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M. Fleischer, Siemens AG, Munich, Germany; M. Lehmann, Innovative Sensor Technology IST AG, Wattwil, Switzerland (Eds.)

**Solid State Gas Sensors - Industrial Application**

Gas sensor products are very often the key to innovations in the fields of comfort, security, health, environment, and energy savings. This compendium focuses on what the research community labels as solid state gas sensors, where a gas directly changes the electrical properties of a solid, serving as the primary signal for the transducer. It starts with a visionary approach to how life in future buildings can benefit from the power of gas sensors.

**Features**

- Written by experts
- Richly illustrated
- Encourages future research and investments in the fascinating field of gas sensors

**Contents**


**Fields of interests**

Analytical Chemistry; Industrial Chemistry/Chemical Engineering; Solid State Physics

**Target groups**

Research

**Product category**

Reviews

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W. Fritzschke, Institute of Photonic Technology, Jena, Germany; J. Popp, University of Jena, Germany (Eds.)

**Optical Nano- and Microsystems for Bioanalytics**

This book describes the state of the art in the field of bioanalytical nano- and microsystems with optical functionality. In 12 chapters distinguished scientists and leaders in their respective fields show how various optical technologies have been miniaturized and integrated over the last few decades in order to be combined with nano- and microsystems for applications in the life sciences.

**Features**

- A comprehensive review
- Written by experts
- Richly illustrated

**Contents**

Colour sensors and their applications.- Addressing of concentration spaces for bioscreenings by micro segmented flow with microphotometric and microfluorimetric detection.- Nanotechnology for diagnostic and sensing: soft and advanced imaging/sensing approaches to analyze biomolecules.- Integrated Optical microsystems for interferometric analytics.- Label-free photonic chips for biosensing.- Surface Plasmon Resonance bioanalytical platform to appraise the interaction between antimicrobial peptides and lipid membranes.- Biological applications of Surface Plasmon Resonance Imaging.- Lab-on-a-Chip Surface Enhanced Raman Spectroscopy (LOC-SERS).- Microfluidic Raman spectroscopy for biochemical sensing and analysis.- Polymeric microfluidic devices for high performance optical imaging and detection methods in bioanalytics.- Chip Systems for analysis of nucleic acids with integrated amplification and detection.- Optofluidic microsystems for application in biotechnology and life sciences.

**Fields of interests**

Analytical Chemistry; Nanotechnology and Microengineering; Medical Biochemistry

**Target groups**

Research

**Product category**

Reviews

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Due June 2012

2012. X, 210 p. 11 illus. Hardcover  
\[\text{approx. } \* \€ (D) 149,75 \text{ | } \€ (A) 153,94 \text{ | } \text{sFr 186,50} \]  
ISBN 978-1-4614-3350-7

Due March 2012

2012. 280 p. 50 illus. (Springer Series on Chemical Sensors and Biosensors, Volume 11) Hardcover  
\[\text{approx. } \* \€ (D) 245,03 \text{ | } \€ (A) 251,90 \text{ | } \text{sFr 305,00} \]  
ISBN 978-3-642-25497-0

Due February 2012

2012. XII, 329 p. 179 illus., 96 in color. (Springer Series on Chemical Sensors and Biosensors, Volume 10) Hardcover  
\[\text{approx. } \* \€ (D) 319,93 \text{ | } \€ (A) 328,90 \text{ | } \text{sFr 398,50} \]  
\[\text{approx. } \€ 229,00 \text{ | } \£ 206.50 \]  
\[\€ 299,00 \text{ | } \£ 269.50 \]  
ISBN 978-3-642-25497-0
Analytical Techniques for Studying the Physical Properties of Lipid Emulsions

This book will review old and new methods to study emulsion stability and structure. Examples of emulsion-based foods include ice cream, yoghurt, and mayonnaise. The physicochemical properties of emulsions play an important role in food systems, as they directly contribute to the texture, sensory and nutritional properties of foods. One of the main properties is stability, which refers to the ability of an emulsion to resist physical changes over time. The development of an effective strategy to prevent undesirable changes in the properties of a particular food emulsion depends on the dominant physicochemical mechanism(s) responsible for the changes. In practice, two or more of these mechanisms may operate in concert.

Contents


Fields of interest

Food Science

Target groups

Professional/practitioner

Product category

Monograph

Due March 2012

2012. VI, 66 p. 8 illus., 5 in color. (SpringerBriefs in Food, Health, and Nutrition) Softcover

* € (D) 53.45 | € (A) 54.95 | sFr 66.50
* € 49.95 | £44.99

ISBN 978-1-4614-3255-6

Early Russian Organic Chemists and Their Legacy

The organic chemists of Russia during the pre-revolutionary period included some of the most creative and talented chemists of the nineteenth and early twentieth centuries. Indeed, this is attested by the number of reactions and empirical rules bearing their names. This volume is of interest for both historians of chemistry and organic chemists wishing to discover more about the historical development of their discipline in Russia. From the founding of the Russian Academy of Sciences by Peter the Great in 1725 to the early years of the nineteenth century, Russian organic chemistry was largely in the hands of foreign scientists. However, the Russification of organic chemistry in Russia had begun before the middle of the nineteenth century, and reached its zenith during the last half of the same century, by which time vibrant schools of chemistry had arisen in the eastern city of Kazan’, at Moscow and at St. Petersburg.

Contents


Fields of interest

Organic Chemistry; History of Science; History of Chemistry

Target groups

Research

Product category

Brief

Due March 2012

2012. IX, 123 p. 103 illus., 12 in color. (SpringerBriefs in Molecular Science / SpringerBriefs in History of Chemistry) Softcover

* € (D) 53.45 | € (A) 54.95 | sFr 66.50
* € 49.95 | £44.99

ISBN 978-3-642-28218-8

Microarray Detection and Characterization of Bacterial Foodborne Pathogens

This is a review of recent advances on the use of DNA microarray for diagnosing foodborne pathogens. Rapid detection and characterization of foodborne pathogens is critical for food safety. Many relevant technologies have been intensively developed to date. DNA microarray technology offers a new way to food safety involving pathogen detection and characterization. DNA microarray can be used for detection and characterization of pathogens by analyzing hybridization patterns between capture probes and nucleic acids isolated from food samples or bacteria. It allows more rapid, accurate, and cost-effective detection of pathogens compared with traditional approaches of cultivation or immuno-assays. The application of DNA microarrays to different foodborne bacteria, such as Campylobacter, Salmonella, Listeria monocytogenes, or Shiga toxin producing Escherichia coli, will improve their rapid identification and characterization of their genetic traits (e.g., antimicrobial resistance, virulence).

Contents


Fields of interest

Food Science; Chemistry/Food Science, general

Target groups

Professional/practitioner

Product category

Monograph

Due March 2012

2012. Approx. 80 p. 11 illus. (SpringerBriefs in Food, Health, and Nutrition) Softcover

* € (D) 53.45 | € (A) 54.95 | sFr 66.50
* € 49.95 | £44.99

ISBN 978-1-4614-3249-4
Chemical Constituents of Bryophytes

Bio- and Chemical Diversity, Biological Activity, and Chemosystematics

For some 50 years, Professor Asakawa and his group have focused their research on the chemical constituents of bryophytes and have found that these plants contain large numbers of secondary metabolites, such as terpenoids, acetogenins, and aromatic compounds representative of many new skeletons, which exhibit interesting biological activities. Individual terpenoids, when found as constituents of both a bryophyte and a higher plant, tend to occur in different enantiomeric forms. Professor Asakawa has covered the literature on bryophytes in two earlier volumes of Progress in the Chemistry of Organic Natural Products, namely, Volumes 42 (1982) and 65 (1995).

Features
- Written by recognized authorities in their fields
- Provides comprehensive and up-to-date review in topic
- Classic series

Contents
1 Introduction. - 2 Biodiversity of Bryophytes. - 3 Chemical Diversity of Bryophytes. - 4 Chemical Constituents of the Marchantiophyta. - 5 Chemical Constituents of Bryophyta. - 6 Chemical Constituents of Anthocerotophyta. - 7 Biologically Active Compounds of the Marchantiophyta and Bryophyta. - 8 Chemosystematics of the Marchantio phyta. - 9 Chemical Relationships Between Algae, Bryophytes, and Pteridophytes.

Fields of interests
Organic Chemistry; Pharmacy; Plant Biochemistry

Target groups
Research

Product category
Monograph

Due April 2012
2012. XII, 760 p. 97 illus., 39 in color. (Progress in the Chemistry of Organic Natural Products, Volume 95) Hardcover
▼ approx. * € (D) 352.03 | € (A) 361.90 | sFr 438.00
▼ approx. € 329.00 | £296.50
ISBN 978-3-7091-1083-6

Due March 2012
2012. XV, 273 p. 469 illus., 42 in color. (Springer Theses) Hardcover
▼ * € (D) 106.95 | € (A) 109.95 | sFr 133.50
▼ € 99.95 | £90.00
ISBN 978-3-642-28117-4

Due June 2012
2012. V, 190 p. 48 illus., 13 in color. Softcover
▼ approx. * € (D) 32.05 | € (A) 32.95 | sFr 39.50
▼ approx. € 29.95 | £26.99

Epoxidations and Hydroperoxidations of α,β-Unsaturated Ketones
An Approach through Asymmetric Organocatalysis

Corinna Reisinger has developed a new organocatalytic asymmetric epoxidation of cyclic and acyclic α,β-unsaturated ketones.

Features
- Nominated by the Max-Planck-Institut für Kohlenforschung for a Springer Theses Prize
- A breakthrough in the field of asymmetric epoxidation chemistry
- This work could lead to numerous commercial applications

Contents

Fields of interests
Organic Chemistry; Catalysis; Industrial Chemistry/Chemical Engineering

Target groups
Research

Product category
Monograph

R. L. Shewfelt, University of Georgia, Athens, GA, USA

Becoming a Food Scientist
To Graduate School and Beyond

Becoming a Food Scientist is designed as a reservoir of ideas for those beginning a graduate education in food science or beginning a professional career in the field. Although at times it may read as a how-to manual for success in graduate school, it is meant to encourage each reader to study the research process, to challenge conventional wisdom, and to develop a career path that maximizes the probability of success both in school and beyond. The author has viewed food science graduate programs through the lenses of programs at four universities and service in numerous activities with the Institute of Food Technologists.

Features
- Helps students to develop a more thoughtful approach to graduate research
- Provides insight into the research process
- Contains anecdotes and examples of the graduate experience

Contents

Fields of interests
Food Science; Chemistry/Food Science, general; Science, general

Target groups
Upper undergraduate

Product category
Monograph
Topics in Current Chemistry


Volume 312

R. M. Metzger, University of Alabama, Tuscaloosa, AL, USA (Ed.)

**Unimolecular and Supramolecular Electronics I**

Chemistry and Physics Meet at Metal-Molecule Interfaces

Contents


**Fields of interests**

Physical Chemistry; Applied and Technical Physics; Optical and Electronic Materials

**Target groups**

Research

**Product category**

Reviews

Due February 2012

ISBN 978-3-642-27283-1

Available

2012. XI, 307 p. 144 illus., 85 in color. Hardcover

* € (D) 266,43 | € (A) 273,90 | sFr 331,50

Information as well as the electronic version of the whole content available at: springerlink.com

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**Chemistry of Nanocontainers**


**Features**

- This series presents critical reviews of the present position and future trends in modern chemical research  
- Short and concise reports on chemistry, each written by the world renowned experts  
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**Fields of interests**

Organic Chemistry; Nanochemistry; Polymer Sciences

**Target groups**

Research

**Product category**

Reviews

ISBN 978-3-642-28058-0
Topics in Current Chemistry


Volume 320

M. Heinrich, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany; A. Gansäuer, University of Bonn, Germany (Eds.)

Radicals in Synthesis III

Contents

Fields of interests
Organic Chemistry; Inorganic Chemistry; Electrochemistry

Target groups
Research

Product category
Reviews

Due March 2012

2012. XII, 447 p. Hardcover
► approx. *€ (D) 266,43 | € (A) 273,90 | sFr 331,50
► approx. € 249,00 | £224.50
ISBN 978-3-642-28122-8