Advances in Polymer Science

S. J. Ashton, University of Copenhagen, Denmark

Design, Construction and Research Application of a Differential Electrochemical Mass Spectrometer (DEMS)

Sean Ashton’s doctoral thesis, which he finished at the Technical University in Munich, describes the challenge of constructing a Differential Electrochemical Mass Spectrometer instrument (DEMS). DEMS combines an electrochemical cell with mass spectrometry via a membrane interface, allowing gaseous and volatile electrochemical reaction species to be monitored online. The thesis carefully introduces the fuel cell electrocatalyst development concerns before reviewing the pertinent literature on DEMS. This is followed by the presentation and discussion of the new extended design, including a thorough characterization of the instrument.

Contents

Fields of interests
Electrochemistry; Mass Spectrometry; Catalysis

Due June 2012
2012. XV, 290 p. 112 illus., 57 in color. (Springer Theses, Volume 8) Hardcover
► € (D) 139,75 | € (A) 153,94 | sFr 186,50
► € 139,95 | £126.00
ISBN 978-3-642-30549-8

Antioxidant Properties of Spices, Herbs and Other Sources

D. J. Charles, Frontier Natural Products Coop, Norway, IA, USA

The scientific world and modern society today is experiencing the dawning of an era of herbal medicine.

Features
► Includes detailed descriptions of 52 herbs and spices ► Discusses the various assays used to evaluate the antioxidant properties of natural compounds ► Describes in detail the range of antioxidants found in plants, microorganisms, fungi, and animal tissue

Contents

Fields of interests
Food Science; Nutrition; Health Promotion and Disease Prevention

Target groups
Professional/practitioner

Product category
Monograph

Due June 2012
2012. XII, 173 p. Hardcover
► approx. * € (D) 203,25 | € (A) 208,94 | sFr 253,00
► approx. € 189,95 | £171.00
ISBN 978-3-642-30462-0

Due September 2012
2012. X, 465 p. 6 illus. Hardcover
► approx. * € (D) 139,05 | € (A) 142,94 | sFr 177,00
► approx. € 129,95 | £119.50
ISBN 978-1-4614-4309-4

Nucleic Acid Drugs


Fields of interests
Polymer Sciences; Medicinal Chemistry; Pharmacy

Target groups
Research

Product category
Reviews
Metallocorroles for Attenuation of Atherosclerosis

Features
- Nominated by the Technion Israel Institute of Technology as an outstanding PhD thesis
- Covers a complete study from pure chemistry through biochemical and cell culture tests to in vivo examinations
- Describes the way forward for ongoing regulated preclinical studies to develop metallocorroles as potential drugs

Contents

Fields of interests
Organometallic Chemistry; Biochemistry, general; Biomedicine general

Target groups
Research

Product category
Monograph

M. F. Ladd, University of Surrey, Guildford, UK;
R. A. Palmer, University of London, UK

Structure Determination by X-Ray Crystallography

Analysis by X-rays and Neutrons

Features
- Most thorough treatment of crystal geometry and symmetry of any book on the market
- New chapter on neutrons, neutron diffractions, and neutron facilities with several examples of solved structures
- Discussion of computational methods of structure determination, including a suite of computer programs
- New section on Bioinformatics

Contents

Fields of interests
Physical Chemistry; Crystallography; Protein Structure

Target groups
Upper undergraduate

Product category
Graduate/Advanced undergraduate textbook

C. Lefrou, LEPMI, Saint Martin d’Heres, France;
P. Fabry, Meylan, France; J.-C. Poignet, Saint Martin D’Heres, France

Electrochemistry

The Basics, With Examples

This textbook offers original and new approaches to the teaching of electrochemical concepts, principles and applications. Throughout the text the authors provide a balanced coverage of the thermodynamic and kinetic processes at the heart of electrochemical systems. The first half of the book outlines fundamental concepts appropriate to undergraduate students and the second half gives an in-depth account of electrochemical systems suitable for experienced scientists and course lecturers. Concepts are clearly explained and mathematical treatments are kept to a minimum or reported in appendices.

Features
- A two level approach with a first level providing a smooth introduction to the subject and a second level providing a more in-depth coverage of the topic
- Problems and solutions included
- A breadth of topics including electrochemistry in liquid and solid systems
- Mathematically treatments are kept to a minimum or reported in appendices

Contents

Fields of interests
Electrochemistry; Energy Storage; Optical and Electronic Materials

Target groups
Graduate

Product category
Graduate/Advanced undergraduate textbook

Due June 2012

2012. XVI, 87 p. 63 illus., 17 in color. (Springer Theses)
Hardcover
- *€ (D) 106,95 | € (A) 109,95 | sFr 133,50
- € 99,95 | £90.00
ISBN 978-3-642-30327-2

Due September 2012

5th ed. 2012. 700 p. 376 illus., 76 in color. With online files/update. Softcover
- *€ (D) 64,15 | € (A) 65,95 | sFr 92,00
- € 59,95 | £53.99
ISBN 978-1-4614-3956-1

Due June 2012

2012. XVI, 353 p. 113 illus. Hardcover
- *€ (D) 74,85 | € (A) 76,95 | sFr 100,50
- € 69,95 | £62.99
ISBN 978-3-642-30249-7
Chemistry

Y. Marcus, The Hebrew University of Jerusalem, Israel

Ions in Water and Biophysical Implications
From Chaos to Cosmos

Over the past decade, numerous books have attempted to explain ions in aqueous solutions in relation to biophysical phenomena. Ions in Water and Biophysical Implications, from Chaos to Cosmos offers a physicochemical point of view of the spread of this matter and suggests innovative solutions that will challenge the biophysics research establishment. Starting with a throughout discussion of the properties of liquid water, in particular as a structured liquid with an extensive hydrogen bonded structure, the book examines water as a solvent for gases, non-electrolytes, and electrolytes and reviews the properties, sizes and thermodynamics of isolated and aqueous ions, as well as their interactions, including those of poly-electrolytes. The effects of ions on water structure, including those on solvent dynamics and certain thermodynamic quantities, are presented. This volume investigates water surfaces with its vapour, with another liquid, and with a solid, as well as the effects of solutes, including simple ions and the water-miscible non-electrolytes.

Features
► Presents an up-to-date picture of the effects that ions have in water and biological systems ► Explores the biophysical consequences of ions ► Based on a state-of-the-art physicochemical discussion of the underlying principles

Contents

Fields of interests
Physical Chemistry; Biophysics and Biological Physics

Target groups
Graduate

Product category
Monograph

M. Mura, King’s College London, UK

Self-Assembly of Flat Organic Molecules on Metal Surfaces
A Theoretical Characterisation

Manuela Mura’s thesis is devoted to ab initio studies of self-assembled organic molecules on a gold surface. This area of research is particularly vibrant because of the various applications such studies have in nanoscience and surface science and physics. In this thesis Manuela Mura uses theory to suggest atomistic models for the observed assembled and she proposes an assembly mechanism. The methods and results developed as part of this work will be of wide interest to physicists and chemists working on the assemblies of organic molecules on crystal surfaces.

Features
► Nominated by King’s College London as an outstanding PhD thesis ► Describes new methods and results relevant for physicists and chemists working on the assemblies of organic molecules on crystal surfaces ► Results discussed lead to applications in nanoscience

Contents

Fields of interests
Theoretical and Computational Chemistry; Surface and Interface Science, Thin Films; Surfaces and Interfaces, Thin Films

Target groups
Research

Product category
Monograph

P. J. Pérez, University of Huelva, Spain (Ed)

Alkane C-H Activation by Single-Site Metal Catalysis

Over the past decade, much research effort has been devoted to the design and synthesis of new reagents and catalysts that can influence carbon-hydrogen bond activation, mainly because of the prospect that C−H activation could enable the conversion of cheap and abundant alkanes into valuable functionalized organic compounds. Alkane C-H Activation by Single-Site Metal Catalysis presents the current state-of-the-art development in the catalytic systems for the catalytic trans-formations of alkanes under homogeneous conditions. Chapter 1 offers a comprehensive summary of the main discoveries realized so far. Chapter 2 reviews the so-called electrophilic activation, initiated by Shulpín in the late 60s, and the base for the Catalytica system.

Features
► Provides state of the art in the field of catalytic functionalization of alkanes under homogeneous conditions ► Each chapter concludes with a perspective of the topics discussed to inspire future works on alkanes ► Challenges researchers in finding new ways to convert alkanes in practical raw materials for industrial Chemistry

Contents

Fields of interests
Organic Chemistry; Catalysis

Target groups
Research

Product category
Monograph

Due August 2012
2012. XVII, 197 p. 100 illus., 32 in color. (Springer Theses, Volume 12) Hardcover
► * € (D) 106,95 | € (A) 109,95 | sFr 133,50
► € 99,95 | £90.00
ISBN 978-3-642-30324-1

Due July 2012
2012. X, 286 p. 272 illus. (Catalysis by Metal Complexes, Volume 38) Hardcover
► approx. * € (D) 106,95 | € (A) 109,95 | sFr 143,50
► approx. € 99,95 | £90.00

Due August 2012
2012. I, 199 p. 9 illus., 1 in color. Hardcover
► approx. * € (D) 106,95 | € (A) 109,95 | sFr 133,50
► approx. € 99,95 | £90.00
ISBN 978-94-007-4646-6
Today, young cosmetics researchers who have completed their graduate studies and have entered a cosmetics company are put through several years of training before they become qualified to design cosmetics formulations themselves. They are trained so that they can design formulas not by a process of logic but by heart, like craftsmen, chefs, or carpenters. This kind of training seems a terrible waste of labor and time. To address this issue and allow young scientists to design novel cosmetics formulations, effectively bringing greater diversity of innovation to the industry, this book provides a key set of skills and the knowledge necessary for such pursuits. The volume provides the comprehensive knowledge and instruction necessary for researchers to design and create cosmetics products.

Features
- Serves as a guideline for manufacturers of cosmetic products
- Includes theoretical formulation of polymers to be used in designing formulas
- Contains methods for designing prescriptions based on the chemical structures of raw materials

Contents
Developing the formulations of cosmetics.
- Raw materials of cosmetics.
- Emulsions.
- Sensory properties of cosmetics.
- Practice of designing cosmetics formulations.

Fields of interests
Industrial Chemistry/Chemical Engineering; Polymer Sciences; Pharmaceutical Sciences/Technology

Target groups
Professional/practitioner

Product category
Monograph

Due August 2012
2013. Approx. 200 p. Hardcover
- *€ (D) 106,95 | € (A) 109,95 | sFr 133,50
- € 99,95 | £90.00
ISBN 978-4-431-54060-1

Due June 2012
2012. IX, 236 p. 186 illus., 94 in color. Hardcover
- *€ (D) 245,03 | € (A) 251,90 | sFr 305,00
- € 229,00 | £206.50
ISBN 978-3-642-29617-8
Analytical Tools for Assessing the Chemical Safety of Meat and Poultry

The goal of the Brief is to summarize the state of the art on the chemical safety issues currently concerning meat and poultry, and to discuss the current international legislation on the tools available for their control. The Brief will review the analytical controls and instrumentation available for the control of residues of growth promoters, antibiotics, and any other environmental substances in raw meat and poultry.

Contents
1 Introduction.- 2 Control tools to assure chemical safety of meat and poultry and its derived products.- 2.1 Control of raw meats and poultry.- 2.2 Controls during processing.- 2.3 Controls of the final products.- 3 Veterinary drugs.- 3.1 Causes of concern for the presence of veterinary drugs residues in meat and poultry.- 3.2 Growth promoters.- 3.3 Antimicrobial and antibiotic drugs.- 3.4 Other veterinary drugs.- 3.5 Control of residues of growth promoters and antibiotics in meat and poultry.- 3.6 Analytical methodologies for detection of veterinary drugs.- 3.6.1. Sample preparation.- 3.6.2. Screening techniques.- 3.6.3. Confirmatory methods.- 4 Carcass disinfectants.- 5 Residues of environmental contaminants (dioxins, pesticides, heavy metals).- 6 Substances generated during the processing of meat and poultry.- 6.1 N-nitrosamines.- 6.2 Heterocyclic amines.- 6.3 Polycyclic aromatic hydrocarbons.- 6.4 Biogenic amines in fermented meats and poultry.- 6.5 Lipid oxidation.- 6.6 Protein oxidation.- 6.7 Irradiation-derived compounds.- 7 References.

Fields of interests
Food Science; Analytical Chemistry; Biochemical Engineering

Target groups
Professional/practitioner

Product category
Brief

Orthogonal Supramolecular Interaction Motifs for Functional Monolayer Architectures

Deniz Yilmaz' thesis describes a combination of orthogonal supramolecular interactions for the design of functional monolayer architectures on surfaces, that can be used as chemical and biosensors in a wide range of applications. The term “orthogonal supramolecular interactions” refers to non-covalent interactions that do not influence each other’s assembly properties.

Contents

Fields of interests
Nanochemistry; Surface and Interface Science, Thin Films; Surfaces and Interfaces, Thin Films

Target groups
Research

Product category
Monograph