Advance Book Information

Chemical Modelling
Volume 15

Michael Springborg University of Saarland, Germany
Jan-Ole Joswig Dresden University of Technology, Germany

Synopsis
Chemical modelling covers a wide range of disciplines and this book is the first stop for any materials scientist, biochemist, chemist or molecular physicist wishing to acquaint themselves with major developments in the applications and theory of chemical modelling. Containing both comprehensive and critical reviews, this volume is a convenient reference to the current literature.

Brief Contents
- Modeling Nanoparticle Aggregation
- Paths of Chemical Reactions and Their Networks: From Geometry Optimization to Automated Search and Systematic Analysis
- Charge Transport Through Nanocontacts
- Activation of Small Molecules by Transition-metal Complexes
- Modeling Electronic Excitations/Formation of Trap States in Semiconducting Nanocrystals

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Advance Book Information

Green Chemistry
Principles and Case Studies
Felicia Etzkorn Virginia Tech, USA

Synopsis
Targeted at advanced undergraduate students and first-year graduate students with a background in General and Organic Chemistry this textbook illustrates the principles of Green Chemistry with real-world case studies.

Brief Contents
- Prevent Waste
- Synthetic Efficiency
- Less Toxic Chemical Synthesis
- Benign Products
- Safer Auxiliaries
- Energy Efficiency
- Use of Renewable Feedstocks
- Avoid Protecting Groups
- Catalysis
- Degradation or Recovery

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Lipidomics
Current and Emerging Techniques

William Griffiths Swansea University, UK
Yuqin Wang Swansea University, UK

Synopsis
Lipidomics is one of the newest 'omics' techniques with growing importance in bioscience. This book discusses interesting standard and non-standard techniques relevant to the measurement and analysis of lipids by mass spectrometry. It provides a guide to the possibilities of the techniques and introduces the reader to exciting newer methods which allow isomer differentiation, improve sensitivity, allow spatial location and go beyond annotation of simply matching a mass to a database entry. For the first time in a book, the emerging methods and advantages and disadvantages of new technologies for lipid structure characterization are highlighted.

Brief Contents
- Lipidomics Basics
- Multivariate Statistics in Lipidomics;
- Low-Flow Rate Separations of Lipids
- Ion Mobility-Mass Spectrometry for Lipid Analysis
- Mass Spectrometry Imaging of Lipids
  Derivatisation for Direct Infusion - and Liquid Chromatography -
- Mass Spectrometry
  Unsaturated Lipid Analysis via Coupling the Paternó–Büchi Reaction
- with ESI-MS/MS
- Conventional and Current Methods for the Analysis of Hydroxy Fatty Acids

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The Handbook of Continuous Crystallization

Nima Yazdanpanah Massachusetts Institute of Technology, USA
Zoltan Nagy University of Purdue, USA

Synopsis
Improvements in continuous crystallization technologies offer chemical industries significant financial gains, through reduced expenditure and operational costs. This book is first authoritative guide to the field, covering fundamental and applied knowledge, process intensification, scaling up, best practice and regulatory considerations. With contributions from leading academics and researchers in industry, this definitive guide is ideal for those working in crystallization, particulate matters, pharmaceutical engineering, processing engineering, and advanced manufacturing.

Brief Contents
- Nucleation and Crystal Growth in Continuous Crystallization
- Fundamentals of population balance based crystallization process modeling
- Continuous Crystallisation with Oscillatory Baffled Crystalliser Technology
- Process Control
- Slug-flow Continuous Crystallization: Fundamentals and Process Intensification
- Continuous Crystallization of Bulk and Fine Chemicals
- Process Intensification in Continuous Crystallization
- Continuous Membrane Crystallization
- Process analytical technology in continuous crystallization