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Organometallic Chemistry

Hiroshi Nakazawa Osaka City University, Japan Julian Koe International Christian University, Japan

Synopsis

Designed for teaching, this book can be used as an introductory text for chemistry undergraduates and will also provide a bridge to more advanced courses. The book is split into two parts, the first acts as a concise introduction to the field, explaining fundamental organometallic chemistry. The latter covers cutting edge theories and applications, suitable for further study. Organometallic complexes are now well known and widely used. In addition, transition metal complexes with main group element other than carbon as a ligating atom are becoming more important. It is thus important to have a bird's-eye view of transition metal complexes, regardless of the ligand type. This book acts as solid introduction for chemistry students and newcomers in various fields who need to deal with transition metal complexes.

Brief Contents

- What is Organometallic Chemistry
- Basic Concepts Relating to Organometallic Complexes
- Bonds in Organometallic Complexes
- Carbonyl, Olefin and Phosphine Complexes
- Carbene Complexes Complexes with MQC Double Bonds
- Basic Reactions of Organometallic Complexes
- Catalysis by Organometallic Complexes
- Chemistry of Transition Metal Complexes with Group 14 Elements: Transition
- Metal Complexes with Silicon, a Heavier Carbon Group Element
- Chemistry of Transition Metal Complexes with Group 13 Elements: Transition Metal Complexes with Lewis Acidic Ligands
- Chemistry of Transition Metal Complexes with Group 15 Elements: Transition Metal Complexes with One Lone Pair of Electrons on the Coordinating Atom
- Chemistry of Transition Metal Complexes with Group 16 Elements: Transition Metal Complexes with Two Lone Pairs of Electrons on the Coordinating Atom
- Nobel Prizes Relating to Organometallic Chemistry

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Series: Specialist Periodical Reports ISSN: 2049-3541 Publisher: Royal Society of Chemistry ISBN: 978-1-83916-250-3 Price: £314.95 | \$440.00 Publishing date: 14/07/2021 Target Audience: Professional and scholarly Format: Hardback Size: 234 x 156 (Royal 8vo) mm Pages: 302 BIC: TBN, TGM THEMA: PDT, TBN BISAC: TEC027000

Nanoscience Volume 7

Neerish Revaprasadu University of Zululand, South Africa Malik Dilshad Khan University of Zululand, South Africa

Synopsis

The field of nanoscience continues to grow and, with such a vast landscape of material, careful distillation of the most important discoveries will help researchers find the key information they require. Nanoscience provides a critical and comprehensive assessment of the most recent research and opinion from across the globe. Anyone practising in any nano-allied field, or wishing to enter the nano-world will benefit from this resource, presenting the current thought and applications of nanoscience.

Brief Contents

- 2-D Materials for Li-ion Batteries
- Porous Organic Polymers as an Emerging Platform for Photocatalytic Water Splitting
- 3-D Zn Anode Materials Based on Nanoarchitectural Host Assemblies
 Deday Enzyme minicipal Nanomatorials Influence Easters and Detanti
- Redox Enzyme-mimicking Nanomaterials: Influence Factors and Potential Biological Applications

• Facile Synthesized Smart Nanomaterials for Indoor/Outdoor Gas Detection and Monitoring: A Perspective of Flammable and Volatile Organic Compounds Gas Sensors

• Bio-nano Interface as an Emerging Trend in Assembling Multi-Functional Metal Nanoparticles

- Synthesis of Metal Chalcogenide Nanomaterials by Solid State Decomposition of Metal Organic Precursors
- Innovations of Nanomaterials towards Flexible Batteries
- Synthesis and Applications of MXenes for Energy Storage
- Halide Perovskite Nanocrystals: Synthesis and Photodetection Applications

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Series: Nanoscience & Nanotechnology Series ISSN: 1757-7136 Publisher: Royal Society of Chemistry ISBN: 978-1-83916-213-8 Price: £169.00 | \$235.00 Publishing date: 07/07/2021 Target Audience: College/higher education Format: Hardback Size: 234 x 156 (Royal 8vo) mm Pages: 378 BIC: TBN, TGM, THX, TQK THEMA: PDT, TBN, TGM, THV, TQK BISAC: SCI024000, SCI026000, SCI050000

Carbon Nitride Nanostructures for Sustainable Energy Production and Environmental Remediation

Kamel Abdelmoniem Mohamed Eid Qatar University, Qatar Aboubakr M Abdullah Qatar University, Qatar

Synopsis

Applications of graphitic carbon nitride (gCN) have flourished in recent years in such fields as renewable energy production and environmental remediation. This book covers recent advances in the rational design and characterization of gCN nanostructures for energy and environmental remediation, and discusses achievements in fabrication approaches of gCN nanostructures using various chemical and physical approaches. With contributions from leading global researchers, this title will appeal to graduate students and researchers in nanoscience, chemistry, chemical engineering and materials science who are interested in developing new gCN materials or devices.

Brief Contents

- Recent Advances in the Controlled Design of One-dimensional Carbon
- Nitrides for Thermal CO Oxidation Reaction
- Graphitic Carbon Nitride-based Chemiluminescent and
- Electrochemiluminescent Sensors
- Template-based Fabrication of Porous Carbon Nitride Nanostructures for Electrochemical Energy Conversion
- Graphitic Carbon Nitride Nanostructures as Potent Catalysts for Water
- Splitting: Theoretical Insights
 Graphitic Carbon Nitride-polymer Hybrids: A Win-Win Combination with Advanced Properties for Different Applications
- Atomic and Molecular Functionalization of Graphitic Carbon Nitride for Solar Cell Applications
- Hybrid Graphitic Carbon Nitride (gCN)-based Devices for Energy Storage and Production
- $\bullet\,$ Emerging Applications for Graphitic Carbon Nitride-based Materials: CO_2
- Reduction as a Case Study
- Combination of Carbon Nitride and Semiconductors for the Enhancement of the Photocatalytic Degradation of Organic Pollutants and Hydrogen Production

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Series: Specialist Periodical Reports ISSN: 0306-0713 Publisher: Royal Society of Chemistry ISBN: 978-1-83916-205-3 Price: £314.95 | \$440.00 Publishing date: 23/07/2021 Target Audience: Professional and scholarly Format: Hardback Size: 234 x 156 (Royal 8vo) mm Pages: 484 BIC: PNN, TDC THEMA: PNN, TDC BISAC: SCI013040

Organophosphorus Chemistry Volume 50

Lee J Higham Newcastle University, UK David W Allen Sheffield Hallam University, UK John C Tebby Sheffield Hallam University, UK

Synopsis

Marking its golden anniversary, this annual review of the literature presents a comprehensive and critical survey of the vast field of study involving organophosphorus compounds, from phosphines and related P-C bonded compounds to phosphorus acids, phosphine chalcogenides and green synthetic approaches in organophosphorus chemistry. The Editors have added a new chapter on homogeneous catalysis for bulk and fine chemicals. This chapter details the research in this area with phosphorus ligands and reflects current interest. With an emphasis on interdisciplinary content, this book will appeal to the worldwide organic chemistry and engineering research communities.

Brief Contents

- Phosphines: Preparation and Reactivity
- Tertiary Phosphines: Preparation and Reactivity
- Tervalent Phosphorus Acid Derivatives
- Phosphine Chalcogenides
- Phosphonium Salts and P-Ylides
- Homogeneous Catalysis for Bulk and Fine Chemicals. Adventures with
- Phosphorus Ligands
- Quinquevalent Phosphorus Acids
- Pentacoordinated and Hexacoordinated Compounds
- Phosphazenes
- Green Synthetic Approaches in Organophosphorus Chemistry: Recent Developments

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Series: New Developments in Mass Spectrometry ISSN: 2045-7545 Publisher: Royal Society of Chemistry ISBN: 978-1-83916-163-6 Price: £169.00 | \$235.00 Publishing date: 21/07/2021 Target Audience: Professional and scholarly Format: Hardback Size: 234 x 156 (Royal 8vo) mm Pages: 346 BIC: PNFS, PSB THEMA: PNFS, PSB BISAC: SCI007000, SCI013010

Advanced Mass Spectrometry-based Analytical Separation Techniques for Probing the Polar Metabolome

Rawi Ramautar Leiden University, The Netherlands

Synopsis

The efficient analysis of polar and charged metabolites in biological samples remains a huge challenge in the field of metabolomics. Novel mass spectrometry-based analytical tools have been developed to enable the sensitive and efficient profiling of polar ionogenic metabolites in various biological samples. This book gives the reader a comprehensive overview of these recent technological developments. Discussing the state-of-the-art of the proposed topics in one single book for probing the polar metabolome, using relevant examples, is unique and needed in the metabolomics field. This book has relevance and appeal to an international audience of analytical and biomedical researchers in industry and academia.

Brief Contents

- Probing the Polar Metabolome Stability of Energy Metabolites
- State-of-the-art LC-MS Approaches for Probing the Polar Metabolome
- Chemical Labelling and Derivatization Strategies for Mass Spectrometry-
- based Metabolomics of Polar and Charged Compounds
- Ion-Pair Reversed Phase LC-MS Approaches for Metabolomics
- HILIC-MS Systems for Metabolomics
- SPE Systems for Metabolomics
- Advances in SPME for Metabolomics
- State-of-the-art CE-MS Approaches for Metabolomics
- Utility of Ion-Mobility Mass Spectrometry for Metabolomics
- NMR Approaches for Probing the Polar Metabolome
- High-throughput MS Approaches for Profiling Polar and Charged Metabolites
- Nanoscale Analytical Approaches for Metabolomics
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Series: Biomaterials Science Series ISSN: 2397-1401 Publisher: Royal Society of Chemistry ISBN: 978-1-78801-883-8 Price: £179.00 | \$250.00 Publishing date: 30/07/2021 Target Audience: Professional and scholarly Format: Hardback Size: 234 x 156 (Royal 8vo) mm Pages: 470 BIC: PNNP, TDCB, TGM THEMA: PNNP, TGML BISAC: TEC009010, TEC021040, TEC059000

Injectable Hydrogels for 3D Bioprinting

Insup Noh Seoul National University of Science and Technology, Korea Xiumei Wang Tsinghua University, China Sandra van Vlierberghe Ghent University, Belgium

Synopsis

Edited by three leaders in the field, users of this book will learn about different classes of hydrogels, properties and synthetic techniques to produce bioinks. A section devoted to the key processing and design challenges at the hydrogel/3D bioprinting/ tissue interface is also covered. The final section of the book closes with pertinent clinical applications.

Brief Contents

- Overview of Injectable Hydrogels for 3D Bioprinting and Tissue Regeneration
 Introduction to Hydrogel Synthesis and Crosslinking Methods for Developing
- Bioinks for 3D Bioprinting
- Characterizations of Hydrogels
- Naturally Occurring and Nature-derived Polymers as Injectable Hydrogels
- Self-assembling Hydrogels Based on Natural Building Blocks
- In Situ Forming Hydrogels
- Injectable Biopolymer Hydrogels for Regenerative Medicine
- Introduction to 3D Bioprinting of Injectable Hydrogels
- Hydrogel Processing Techniques and Vascular Tissue Engineering
- Rheological Aspects of Hydrogel Processing
- Interface (Cell, Gel, Surface) and Biocompatibility in Gel Processing
- Bioprinting Hydrogels and Tissue Engineering
- 3D Bioprinting Hydrogel for Hard Tissue Regeneration
- 3D Bioprinting Hydrogel for Hard Tissue Regeneration
- 3D-bioprinting for Engineering Complex Tissues and Vascularization
- 3D-bioprinting for Engineering Complex Tissues and Vascularization
- Immuno-response and Hydrogels
- Application of Natural Hydrogels for Cell Therapy: Focus on Osteoarthritis
- Clinical Application and Regulation of Bioprinting Biomaterials Focusing on
- Hydrogels
- Status for Commercialization of FDA-approved Hydrogels and Their Intellectual Properties

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Cellulose Nanoparticles Two-volume Set

Vijay Kumar Thakur Scotland's Rural College (SRUC), UK Elisabete Frollini University of Sao Paulo, Brazil Janet Scott University of Bath, UK

Synopsis

Cellulose nanoparticles (CNP) are a class of bio-based nanoscale materials, which are of interest due to their unique structural features and properties such as biocompatibility, biodegradability, and renewability. This two-volume set covers Cellulose Nanoparticles: Chemistry and Fundamentals and Cellulose Nanoparticles: Synthesis and Manufacturing. Written by an international collection of contributors in the field, these books form a useful reference work for graduate students and researchers in chemistry, materials science, nanoscience and green nanotechnology.

Brief Contents

Cellulose Nanoparticles, Volume 1: Chemistry and Fundamentals ISBN: 978-1-78801-793-0
Cellulose Nanoparticles, Volume 2: Synthesis and Manufacturing ISBN: 978-1-78801-794-7

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Cellulose Nanoparticles Volume 1: Chemistry and Fundamentals

Vijay Kumar Thakur Scotland's Rural College (SRUC), UK Elisabete Frollini University of Sao Paulo, Brazil Janet Scott University of Bath, UK

Synopsis

Cellulose nanoparticles (CNP) are a class of bio-based nanoscale materials, which are of interest due to their unique structural features and properties such as biocompatibility, biodegradability, and renewability. Cellulose Nanoparticles: Chemistry and Fundamentals covers the synthesis, characterization and processing of cellulose nanomaterials, aiming to address recent progress in production methodologies for cellulose nanoparticles, covering principal cellulose resources and the main processes used for isolation. Together with Volume 2, these books form a useful reference work for graduate students and researchers in chemistry, materials science, nanoscience and green nanotechnology.

Brief Contents

- Hairy Cellulose Nanocrystals: Chemistry and Fundamentals
- CNP Based Functional Materials: Chemistry and Fundamentals
- CNP: Fundamentals
- Characterization of CNP
- CNP: Extractions
- Nanocellulose: Extraction, Surface Functionalization and Potential Applications
- Engineering and Surface Modification of CNP and Their Characterization
- Thermal Characterization of CNP Based Advanced Materials
- Spectroscopic Characterization of CNP
- CNP Enhanced Green Composites
- Additive Manufacturing of Nanocellulose Based Soft Composite Materials For Advanced Applications
- Scattering Studies of CNP Based Advanced Materials
- Rheological Characterization of Cellulose Nanocrystal Stabilized Emulsions
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Cellulose Nanoparticles Volume 2: Synthesis and Manufacturing

Vijay Kumar Thakur Scotland's Rural College (SRUC), UK Elisabete Frollini University of Sao Paulo, Brazil Janet Scott University of Bath, UK

Synopsis

Cellulose nanoparticles (CNP) are a class of bio-based nanoscale materials, which are of interest due to their unique structural features and properties such as biocompatibility, biodegradability, and renewability. This volume concentrates on advanced high performance cellulose nanocomposites. Together with Volume 1, these books form a useful reference work for graduate students and researchers in chemistry, materials science, nanoscience and green nanotechnology.

Brief Contents

- Hairy Cellulose Nanocrystals
- Application of Nanocelluloses in Rubbers
- Manufacturing of CNP Based Advanced Materials
- CNP Based Flexible Advanced Materials
- CNP Based Hybrid Advanced Materials
- CNP/Thermosetting Polymer Based Nanocomposites
- Morphological Analysis of CNP Based Advanced Materials
- Polymer Composites Having a High Filler Content of CNP
 - Dynamic Mechanical Analysis Study Of CNP-based Advanced Materials
- Physico-chemical Properties of CNP Based Advanced Materials
- Fabrication of Biodegradable Cellulose Composite Through Greener Reaction
 Process
- CNP Based Gel Materials
- CNP Based Advanced Polymer Nanocomposites
- Mechanical Characterization of CNP Based Advanced Materials
- Electrospinning of Nanocellulose for Advanced Nanocomposite Materials
 3D Printing Using CNP
- In Situ Polymerized CNP Based Advanced Materials
- CNP Based Advanced Materials for Optical Sensors Technology and Applications
- CNP Based Advanced Materials for Energy Storage
- CNP/Polysaccharide-type Polymer Based Materials
- Fully Biodegradable CNP Based Advanced Materials
- Dried Distiller's Grain with Solubles (DDGS) Based Bioadhesive to Make No-
- formaldehyde Added (Nfa) Bio and Nanocomposite
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