Biobased Aerogels
Polysaccharide and Protein-based Materials

Sabu Thomas  Mahatma Gandhi University, India
Laly A Pothan  Bishop Moore College, India
Rubie Mavelil-Sam  Bishop Moore College, India

Synopsis
Bringing together results on the latest research in this field, this book provides a comprehensive reviews of current developments in polysaccharide and protein based aerogels. It explores their preparation from various sources, characterisation methods; and their properties, such as surface morphology, shape recovery, mechanical properties and absorption capacities. It is an information introduction for researchers and industrialists working in chemical engineering, biomolecular chemistry and materials science.

Brief Contents
- Polysaccharide and Protein Based Aerogels: State of the Art, Challenges and Opportunities
- Source and Chemistry of Polysaccharide and Protein Based Aerogels
- Starch Based Aerogels: Processing and Morphology
- Native, Modified and Recycled Cellulose Based Aerogels: Processing and Morphology
- Nano Cellulose and Bacterial Cellulose Based Aerogels: Processing and Morphology
- Chitin/chitosan Based Aerogels: Processing and Morphology
- Marine Polysaccharide Based Aerogels: Processing and Morphology
Enantioselective Cobalt-catalysed Transformations

Hélène Pellissier CNRS, France

Synopsis
Cobalt catalysts are a cheaper, more environmentally responsible alternative to many of the more commonly used transition metal catalysts. This book collects the major developments reported in the past thirty years in the field of enantioselective reactions promoted by chiral cobalt catalysts. It is a useful reference resource for chemists, both academic and industrial, working in organic synthesis and interested in greener or more economical catalytic alternatives.

Brief Contents
- Foreword; Enantioselective Cobalt-Catalysed [2+1] Cycloadditions
- Other Enantioselective Cobalt-Catalysed Cycloadditions
- Enantioselective Cobalt-Catalysed Cyclisations through Domino Reactions
- Miscellaneous Enantioselective Cobalt-Catalysed Cyclisations
- Synthesis of Chiral Acyclic Compounds through Enantioselective Cobalt-Catalysed Reduction Reactions
- Synthesis of Chiral Acyclic Compounds through Enantioselective Cobalt-Catalysed Ring-Opening Reactions
- Synthesis of Chiral Acyclic Compounds through Enantioselective Cobalt-Catalysed Michael and (Nitro)-Aldol Reactions
Integrated Solar Fuel Generators

Ian D Sharp Lawrence Berkeley National Laboratory, USA
Harry A Atwater California Institute of Technology, USA
Hans-Joachim Lewerenz Helmholtz-Zentrum Berlin, Germany

Synopsis
Exploring integrated artificial photosystems, this book discusses the scientific and engineering efforts to overcome the formidable challenges involved with this solar fuels technology. It describes the critical areas of research and development towards viable integrated solar fuels systems, the current state of the art of these efforts, and outlines the future research needs that will accelerate progress towards a deployable technology. It is an important reference for researchers and industrialists in chemistry and engineering working in solar energy conversion.

Brief Contents
- Challenges to Overcome for Developing Complete Solar Fuel Generators
- Durable Interfaces for Semiconductor Light Absorber-solid Catalyst Assemblies
- Accelerating the Search for Light Absorbers and Heterogeneous Catalysts by High Throughput Experimentation
- Novel Membrane Materials for Separating Product Streams from Water Oxidation Chemistry
- Integrating Light Absorber-catalyst Assemblies into Prototypes with Separation Membranes
- Corrosion Challenges of Components and Interfaces
Small-molecule Transcription Factor Inhibitors in Oncology

Khondaker Miraz Rahman King’s College London, UK
David Thurston King’s College London, UK

Synopsis
This title highlights recent progress in the development of small-molecule inhibitors of oncogenic transcription factors. It also presents the evidence that this important protein class can be modulated in a number of ways to develop novel classes of therapeutic agents for anticancer treatments. This book is a unique reference book for postgraduates, academic researchers and practitioners working in the fields of biochemistry, biotechnology, cell and molecular biology and bio-inorganic chemistry.

Brief Contents

• Small Molecule Transcription Factor Inhibitors
• Synthetic Approaches and Challenges Towards Transcription Factor Inhibitors
• Computational Approaches in the Development of Small Molecule Transcription Factor Inhibitors
• Natural Products as Promising Leads Against Oncogenic Transcription Factors and Associated Signalling Pathways
• Pyrrolobenzodiazepines as Transcription Factor Inhibitors: An Overview
• Small Molecule Inhibitors of NF-kB and Their Therapeutic Potential in Leukaemia

To order

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Optogenetics
Light-driven Actuators and Light-emitting Sensors in Cell Biology
Sophie Vriz Paris Diderot University, France
Takeaki Ozawa The University of Tokyo, Japan

Synopsis
Optogenetic tools have allowed significant advances in the understanding of biological problems, particularly in the neurosciences field. Biological tools as well as optical set-ups have evolved and a wide range of probes is now available. This book provides a comprehensive overview of optogenetic tools and their more recently growing application in areas of cell biology outside of the neurosciences. With detailed information on different illumination and data analysis methods, this will be a valuable manual for photobiologists, cell biologists, biophysicists and those involved in biological imaging.

Brief Contents
- Fast Volumetric Imaging Using Light-sheet Microscopy - Principle and Applications
- Super-Resolution Microscopy
- The Glowing Panoply of Fluorogen-based Markers for Advanced Bioimaging
- Optogenetic Reporters for Cell Biology and Neuroscience
- Spatiotemporal Dynamics of Cellular Signaling Processes
- Optogenetic Control of Generation of Reactive Oxygen Species for Photo-inducible Protein Inactivation and Cell Ablation
Supercritical and Other High-pressure Solvent Systems
For Extraction, Reaction and Material Processing

Andrew J Hunt University of York, UK
Thomas M Attard University of York, UK

Synopsis
Exploring the range and utility of high-pressure solvent systems across a variety of different chemical applications, this book brings together recent advances in supercritical technology and other pressurised-solvent systems. It provides an in-depth overview of the latest advances and developments and discusses the limitations and drawbacks that need to be addressed. Wherever possible, the greenness and economic viability of the different solvent systems is highlighted. This book is ideal for researchers and industrialists working in environmental science, green chemistry and biorefineries.

Brief Contents
- Introduction to High-pressure Solvent Systems
- Understanding entrainer effects in scCO2
- Supercritical carbon dioxide extraction of lipophilic molecules
- Subcritical water: current status, advances, and applications for extractions, reactions and separations
- Supercritical Fluid Chromatography (SFC)
- Heterogeneous Catalysis in Supercritical Carbon Dioxide
- Biocatalysis in supercritical and liquid carbon dioxide and carbon dioxide expanded liquids
- Selective hydrogenation in carbon dioxide dissolved expanded liquid phases
Understanding Intermolecular Interactions in the Solid State
Approaches and Techniques
Deepak Chopra IISER Bhopal, India

Synopsis
Technological and computational advances in the past decade have meant a vast increase in knowledge about crystalline matter. This book will focus on the role of intermolecular interactions in the assembly of molecules in periodic arrangements in crystals. It highlights experimental and computational approaches to understanding weak intermolecular interactions in the solid state. This will be a useful resource for postgraduates and researchers in crystal engineering, crystallography, physical chemistry, solid-state chemistry, supramolecular chemistry and materials science.

Brief Contents
- Integrating Computed Crystal Energy Landscapes in Crystal Form Discovery and Characterisation
- High Pressure Crystallography: Elucidating the role of intermolecular interactions in the crystals of organic and coordination compounds
- Intermolecular interactions in in situ cryocrystallized compounds
- Experimental Electron Density Studies of Inorganic Solids
- Experimental Charge Density Analysis in Organic Solids
- Charge Density Studies and Topological Analysis of Hydrogen Bonds in Proteins
- Towards a generalized database of atomic polarizabilities

To order
Royal Society of Chemistry
Marston Book Services Ltd
160 Eastern Avenue, Milton Park
Abingdon
Oxfordshire
OX14 4SB, UK
Tel: +44 (0) 1235 465555
Fax: +44 (0) 1235 465556
Email: enquiries@marston.co.uk
www.marston.co.uk

USA and Canada
Please contact:
Ingram Publisher Services
Customer Service, Box 631
14 Ingram Blvd
La Vergne, TN 37086, USA
Tel: +1 (866) 400 5351
Fax: +1 (800) 838 1149
Email: ips@ingramcontent.com

www.rsc.org/books
Registered charity number: 207890