

## Bimetallic Wear Resistant Products Hensley

This book presents in-depth information on the state of the art of global biodiesel production and investigates its impact on climate change. Subsequently, it comprehensively discusses biodiesel production in terms of production systems (reactor technologies) as well as biodiesel purification and upgrading technologies. Moreover, the book reviews essential parameters in biodiesel production systems as well as major principles of operation, process control, and trouble-shooting in these systems. Conventional and emerging applications of biodiesel by-products with a view to further economize biodiesel production are also scrutinized. Separate chapters are dedicated to economic risk analysis and critical comparison of biodiesel production systems as well as techno-economical aspects of biodiesel plants. The book also thoroughly investigates the important aspects of biodiesel production and combustion by taking advantage of advanced sustainability analysis tools including life cycle assessment (LCA) and exergy techniques. In closing, the application of Omics technologies in biodiesel production is presented and discussed. This book is relevant to anyone with an interest in renewable, more sustainable fuel and energy solutions.

The safe disposal and reuse of industrial and consumer rubber waste continues to pose a serious threat to environmental safety and health, despite the fact that the technology now exists for its effective recycling and reuse. Mountains of used tires confirm the belief that chemically crosslinked rubber is one of the most difficult materials to recycle. That coupled with a long history of failed attempts to create quality products from crumb rubber has resulted in such a resistance to new ideas concerning rubber recycling that very little literature on the subject has even seen the light of day. Rubber Recycling is one of those rare books that has the potential to directly impact our ecological well-being. The editors of this important volume have filled a void in technological responsibility by bringing together a group of international experts who, using substantial research evidence, prove that the utilization of recycled rubber is not just desirable, but is also quite feasible and profitable. This text provides a thorough overview of the fundamentals of rubber and the challenges of recycling. However, the heart of the book lies in its detailed explanation of the various processes currently available to breakdown, recycle, and reuse crosslinked rubber. These include -- Unconventional polymer recycling High-pressure, high-temperature sintering Ultrasonic and non ultrasonic devulcanization The use of tire particles as replacement aggregates for low-strength concrete material The utilization of powdered rubber waste in the production of rubber compounds The future potential for recycling waste rubber by blending it with waste plastics Never forgetting that these technologies are meaningless without industry participation, the book concludes with a highly practical discussion on how present market demands can be met with recycled rubber.

This book presents advances in computational methods, experimental synthesis, and advanced characterizations for novel catalytic materials. The authors show how catalytic materials can be used for various engineering oil & gas applications – mainly in low contaminants fuel production. All contributors, describe in detail novel experimental and theoretical techniques and concepts for synthesis, evaluation and scaling catalytic materials and research advances in evaluation, extensive characterization and theoretical modeling using computer assisted methods and algorithms. Describes computational methods, experimental synthesis and advanced characterization for novel catalytic materials; Examines catalytic materials and corresponding engineering applications with a focus on low contaminant fuel production and derivatives; Covers the application of computer assisted quantum mechanical for fundamental understanding of electronic structure of molecular dimension catalytic materials.

Ceramic Abstracts Nontraditional Careers for Chemists New Formulas in Chemistry Oxford University Press on Demand

Biomass, Biofuels, Biochemicals: Lignin Biorefinery discusses the scientific and technical information relating to the structure and physico-chemical characteristics of lignin. The book covers the different processes (biological, thermal and catalytic routes) available for lignin conversion into specialty chemicals or fuels, activity relationships, and how optimized process parameters help establish the feasible size of the commercial plant in a centralized or decentralized model. In addition, the advantages and limitations of different technologies are discussed, considering local energy, chemicals, biopolymers, drug intermediates, activated carbons, and much more. Includes information on the most advanced and innovative processes for lignin conversion Covers information on biochemical and thermo-chemical processes for lignin valorization Provides information on lignin chemistry and its conversion into high value chemicals and fuels Presents a book designed as a text book, not merely a collection of research articles

The ten-volume set LNCS 12949 – 12958 constitutes the proceedings of the 21st International Conference on Computational Science and Its Applications, ICCSA 2021, which was held in Cagliari, Italy, during September 13 – 16, 2021. The event was organized in a hybrid mode due to the Covid-19 pandemic. The 466 full and 18 short papers presented in these proceedings were carefully reviewed and selected from 1588 submissions. The books cover such topics as multicore architectures, computational astrochemistry, mobile and wireless security, sensor networks, open source software, collaborative and social computing systems and tools, computational geometry, applied mathematics human computer interaction, software design engineering, and others. Part V of the set includes the the proceedings on the following workshops: International Workshop on Computational Geometry and Applications (CGA 2021); International Workshop on Collaborative Intelligence in Multimodal Applications (CIMA 2021); International Workshop on Computational Science and HPC (CSHPC 2021); International Workshop on Computational Optimization and Applications (COA 2021); International Workshop on Cities, Technologies and Planning (CTP 2021); International Workshop on Computational Astrochemistry (CompAstro 2021); International Workshop on Advanced Modeling E-Mobility in Urban Spaces (DEMOS 2021). The chapters "On Local Convergence of Stochastic Global Optimization Algorithms" and "Computing Binding Energies of Interstellar Molecules by Semiempirical Quantum Methods: Comparison between DFT and GFN2 on Crystalline Ice" are published open access under a CC BY license (Creative Commons Attribution 4.0 International License).

With contributors from Massachusetts General Hospital and Harvard Medical School, the unique and thorough Anesthesia Review: 1000 Questions and Answers to Blast the BASICS and Ace the ADVANCED covers both BASIC or ADVANCED levels of Anesthesiology training in a single volume. Any resident in Anesthesiology will find a gold mine of material—including topic-specific chapters with exam-like questions, answers with explanations, and references for further, in-depth review—for fast, efficient preparation.

The inspection and evaluation of bridges in Indiana is critical to ensure their safety to better serve the citizens of the state. Part of this evaluation includes bridge load rating.

Bridge load rating, which is a measure of the safe load capacity of the bridge, is a logical process that is typically conducted by utilizing critical information that is available on the bridge plans. For existing, poorly-documented bridges, however, the load rating process becomes challenging to adequately complete because of the missing bridge information. Currently, the Indiana Department of Transportation (INDOT) does not have a prescribed methodology for such bridges. In an effort to improve Indiana load rating practices INDOT commissioned this study to develop a general procedure for load rating bridges without plans. The general procedure was developed and it was concluded that it requires four critical parts. These parts are bridge characterization, bridge database, field survey and inspection, and bridge load rating. The proposed procedure was then evaluated on two bridges in Indiana that do not have plans as a proof of concept. As a result, it was concluded that load rating of bridges without plans can be successfully completed using the general procedure. A flowchart describing the general procedure was created to make the load rating process more user-friendly. Additional flowcharts that summarize the general procedure for different type of bridges were also provided.

The present stage of technological development makes new and ever more complex demands on materials that have to work under conditions of high temperature and pressure, in high vacuum, and in corrosive media. In consequence special importance is now attached to the refractory compounds of transition metals of groups IV to VI with such nonmetals as boron, carbon, silicon, and nitrogen. These compounds possess high melting points, great hardness, and high refractory and corrosion-resisting properties. The most widely used and important compounds of this type from a technological point of view are the carbides, which are already fairly widely used in various fields of technology. The present collection of papers contains the results of recent investigations into methods of producing high-purity carbides and also components made of the carbides and their alloys. Great attention has been paid to the study of a wide range of properties of the carbides and of alloys based on them, viz., the electro- and thermophysical, thermodynamic, mechanical, and chemical properties, and also to the utilization of the carbides as wear- and abrasion-resistant materials. In contrast to many previous publications dealing with carbides, the results presented in this collection relate to the properties of carbides having a definite phase composition, corresponding to a higher degree of purity. In some of the contributions the physical and chemical properties of the carbides are interpreted in terms of certain solid-state models and concepts concerning the types of chemical bonding in these compounds.

The "Bible on Anesthesia Equipment" returns in a new Fifth Edition, and once again takes readers step-by-step through all the basic anesthesia equipment. This absolute leader in the field includes comprehensive references and detailed discussions on the scientific fundamentals of anesthesia equipment, its design, and its optimal use. This thoroughly updated edition includes new information on suction devices, the magnetic resonance imaging environment, temperature monitoring and control, double-lumen tubes, emergency room airway equipment, and many other topics. Readers will have access to an online quizbank at a companion Website.

This book provides a detailed description of metal-complex functionalized carbon allotrope forms, including classic (such as graphite), rare (such as M- or T-carbon), and nanoforms (such as carbon nanotubes, nanodiamonds, etc.). Filling a void in the nanotechnology literature, the book presents chapters generalizing the synthesis, structure, properties, and applications of all known carbon allotropes. Metal-complex composites of carbons are described, along with several examples of their preparation and characterization, soluble metal-complex carbon composites, cost-benefit data, metal complexes as precursors of carbon allotropes, and applications. A lab manual on the synthesis and characterization of carbon allotropes and their metal-complex composites is included. Provides a complete description of all carbon allotropes, both classic and rare, as well as carbon nanostructures and their metal-complex composites; Contains a laboratory manual of experiments on the synthesis and characterization of metal-complex carbon composites; Discusses applications in diverse fields, such as catalysis on supporting materials, water treatment, sensors, drug delivery, and devices.

Although the most sophisticated fault diagnosis and condition monitoring systems have their origin in the aerospace and nuclear energy industries, their use is by no means restricted to such areas of 'high technology'. Modern machinery in most industrial plants is now so complex and expensive that mechanics find it increasingly difficult to detect failure by, for instance, recognising changes in sound 'signatures', and few plants can afford the luxury of regular 'stripping down'. Increasingly, therefore, early-warning devices are being employed in an effort to prevent catastrophic breakdown. This book provides the first co-ordinated compilation of fault diagnosis and condition monitoring devices. It proceeds in three logical steps. The early chapters deal with those conditions which contribute to deterioration and the consequent likely development of faults. The middle part of the book considers the various techniques of monitoring and discusses the criteria for their selection in different situations. The final chapters provide a guide to the interpretation of the information signals deriving from monitoring, relating to reliability science and the mathematics of probability, and thus providing decision data on which management can act.

This book presents the proceedings of the THERMEC'2018: 10th International Conference on Processing and Manufacturing of Advanced Materials, which took place between July 09 and July 13, 2018 in Paris, France, under the co-sponsorship of Universite de Lille, MINES ParisTech, PSL and Universite de Tours, France. The presented book will be useful for many researchers and engineers/technologists working in different aspects of processing and fabrication of materials, structure/property evaluation and applications of both ferrous and nonferrous materials including biomaterials, smart materials as well as the advanced measurement techniques in the materials science.

Handbook on Biological Warfare Preparedness provides detailed information on biological warfare agents and their mode of transmission and spread. In addition, it explains methods of detection and medical countermeasures, including vaccine and post-exposure therapeutics, with specific sections detailing diseases, their transmission, clinical signs

and symptoms, diagnosis, treatment, vaccines, prevention and management. This book is useful reading for researchers and advanced students in toxicology, but it will also prove helpful for medical students, civil administration, medical doctors, first responders and security forces. As the highly unpredictable nature of any event involving biological warfare agents has given rise to the need for the rapid development of accurate detection systems, this book is a timely resource on the topic. Introduces different bacterial and viral agents, including Ebola and other emerging threats and toxins Discusses medical countermeasures, including vaccines and post-exposure therapeutics Includes a comprehensive review of current methods of detection

Refractory Materials, Volume 7: Transition Metal Carbides and Nitrides discusses the developments in transition metal carbide and nitride research. This volume is organized into nine chapters that emphasize the mechanical and superconducting properties of these compounds. The introductory chapters deal with the general properties, preparation techniques, characterization, crystal chemistry, phase relationships, and thermodynamics of transition metal carbides and nitrides. The following chapter highlights the mechanical properties of these compounds, such as elastic and plastic deformation, fracture, strengthening mechanisms, and hardness. The discussion then shifts to specific electrical and magnetic properties, including electrical resistivity, Hall coefficient, and magnetic susceptibility. A separate chapter is devoted to carbides and nitrides as superconductors. The concluding chapters explore certain theories that explain the mechanisms of band structure and bonding in carbides and nitrides. This volume is of great value to research workers in metallurgy, ceramics, physics, chemistry, and related fields, as well as to advanced students investigating problems concerning high temperature materials or interstitial compounds.

This book reviews research activities around fabrication of these kinds of two dimensional nanostructured coatings with examples of enhanced mechanical properties, corrosion resistance, and physical characteristics. As one of the useful and simple methods for fabrication of nanocomposite coatings, electrochemical deposition (electroplating) techniques are a strong focus in this book. The relation among nanotechnology and these kinds of nanostructures that come from "size effect" and "distribution effect" is discussed through different chapters of this book. Nanocomposite coatings have numerous advantages.

Handbook of Offshore Oil and Gas Operations is an authoritative source providing extensive up-to-date coverage of the technology used in the exploration, drilling, production, and operations in an offshore setting. Offshore oil and gas activity is growing at an expansive rate and this must-have training guide covers the full spectrum including geology, types of platforms, exploration methods, production and enhanced recovery methods, pipelines, and environmental management and impact, specifically worldwide advances in study, control, and prevention of the industry's impact on the marine environment and its living resources. In addition, this book provides a go-to glossary for quick reference. Handbook of Offshore Oil and Gas Operations empowers oil and gas engineers and managers to understand and capture on one of the fastest growing markets in the energy sector today. Quickly become familiar with the oil and gas offshore industry, including deepwater operations Understand the full spectrum of the business, including environmental impacts and future challenges Gain knowledge and exposure on critical standards and real-world case studies

"Contrary to what some people think, an education and background in chemistry prepares you for much more than just a laboratory career. The broad science education, logical and analytical thinking, research methods, and other professional skills are of value to a wide variety of employers, and are essential for a plethora of positions. In addition, those who are interested in chemistry tend to have some similar personality characteristics, which lead to success in certain types of positions. Realizing these two things opens up a world of possibilities for the professional chemist, and allows the selection of a career path that truly is the best fit for your own personal skills, abilities, and interests." "Each chapter in this book provides background information on a nontraditional field and a variety of positions within that field, including typical tasks, education or training requirements, and personal characteristics that contribute to a successful career. Each chapter also contains detailed profiles of several chemists who have achieved success and personal satisfaction in various types of positions in that field. These interesting and varied career histories explain how these chemists got where they are, details what motivates them, and gives advice for others considering the same path, in both the short and long term." "Specific career fields profiled include communication, chemical information, patents, sales and marketing, business development, regulatory affairs, public policy, safety, human resources, and computers, among others. Along the way you will learn how to seek out and evaluate new career options, so even if none of the careers profiled is right for you, you can continue the exploration on your own until you find the one that is."--Back cover.

The authors provide new insights into the theoretical and applied aspects of metal electrodeposition. The theory largely focuses on the electrochemistry of metals. Details on the practice discuss the selection and use of metal coatings, the technology of deposition of metals and alloys, including individual peculiarities, properties and structure of coatings, control and investigations. This book aims to acquaint advanced students and researchers with recent advances in electrodeposition while also being an excellent reference for the practical electrodeposition of metals and alloys.

The seven volumes LNCS 12249-12255 constitute the refereed proceedings of the 20th International Conference on Computational Science and Its Applications, ICCSA 2020, held in Cagliari, Italy, in July 2020. Due to COVID-19 pandemic the conference was organized in an online event. Computational Science is the main pillar of most of the present research, industrial and commercial applications, and plays a unique role in exploiting ICT innovative technologies. The 466 full papers and 32 short papers presented were carefully reviewed and selected from 1450 submissions. Apart from the general track, ICCSA 2020 also include 52 workshops, in various areas of computational sciences, ranging from computational science technologies, to specific areas of computational sciences, such as software engineering, security, machine learning and artificial intelligence, blockchain technologies, and of applications in many fields.

This book presents the unique mechanical, electrical, and optical properties of nanomaterials, which play an important role in the recent advances of energy-related applications. Different nanomaterials have

been employed in energy saving, generation, harvest, conversion, storage, and transport processes very effectively and efficiently. Recent progress in the preparation, characterization and usage of 1D, 2D nanomaterials and hybrid architectures for energy-related applications and relevant technologies and devices, such as solar cells, thermoelectronics, piezoelectronics, solar water splitting, hydrogen production/storage, fuel cells, batteries, and supercapacitors is covered. Moreover, the book also highlights novel approaches in nanomaterials design and synthesis and evaluating materials sustainability issues. Contributions from active and leading experts regarding important aspects like the synthesis, assembly, and properties of nanomaterials for energy-related applications are compiled into a reference book. As evident from the diverse topics, the book will be very valuable to researchers working in the intersection of physics, chemistry, biology, materials science and engineering. It may set the standard and stimulates future developments in this rapidly emerging fertile frontier of nanomaterials for energy.

Based on a former popular course of the same title, Concepts of Chemical Engineering for Chemists outlines the basic aspects of chemical engineering for chemistry professionals. It clarifies the terminology used and explains the systems methodology approach to process design and operation for chemists with limited chemical engineering knowledge. The book provides practical insights into all areas of chemical engineering with well explained worked examples and case studies. The new edition contains a revised chapter on Process Analysis and two new chapters "Process and Personal Safety" and "Systems Integration and Experimental Design", the latter drawing together material covered in the previous chapters so that readers can design and test their own pilot process systems. This book is a guide for chemists (and other scientists) who either work alongside chemical engineers or who are undertaking chemical engineering-type projects and who wish to communicate with their colleagues and understand chemical engineering principles.

In the rapidly developing information society there is an ever-growing demand for information-supplying elements or sensors. The technology to fabricate such sensors has grown in the past few decades from a skilful activity to a mature area of scientific research and technological development. In this process, the use of silicon-based techniques has appeared to be of crucial importance, as it introduced standardized (mass) fabrication techniques, created the possibility of integrated electronics, allowed for new transduction principles, and enabled the realization of micromechanical structures for sensing or actuation. Such micromechanical structures are particularly well-suited to realize complex microsystems that improve the performance of individual sensors. Currently, a variety of sensor areas ranging from optical to magnetic and from micromechanical to (bio)chemical sensors has reached a high level of sophistication. In this MESA Monograph the proceedings of the Dutch Sensor Conference, an initiative of the Technology Foundation (STW), held at the University of Twente on March 2-3, 1998, are compiled. It comprises all the oral and poster contributions of the conference, and gives an excellent overview of the state of the art of Dutch sensor research and development. Apart from Dutch work, the contributions of two external invited experts from Switzerland are included.

Nanostructures for Oral Medicine presents an up-to-date examination of the applications and effects of nanostructured materials in oral medicine, with each chapter addressing recent developments, specific applications, and uses of nanostructures in the oral administration of therapeutic agents in dentistry. The book also includes coverage of the biocompatibility of nanobiomaterials and their remarkable potential in improving human health and in reducing environmental pollution. Emerging advances, such as Dr. Franklin Tay's concept of a new nanotechnology process of growing extremely small, mineral-rich crystals and guiding them into the demineralized gaps between collagen fibers to prevent the aging and degradation of resin-dentin bonding is also discussed. This work will be of great value to those who work in oral medicine, providing them with a resource to gain a greater understanding of how nanotechnology can help them create more efficient, cost-effective products. In addition, it will be of great interest to those who work in materials science who wish to gain a greater appreciation of how nanostructured materials are applied in this field. Outlines the major uses of nanostructured materials for oral medicine, including the properties of each material discussed and how it should best be applied Explores how nanostructured materials enable the creation of more effective drug delivery systems in oral medicine Discusses how novel uses of nanostructured materials may be applied in oral medicine to create more effective devices

The Second Edition of this bestselling B2B marketing textbook offers the same accessible clarity of insight, combined with updated and engaging examples. Each chapter contains a detailed case study to further engage the reader with the topics examined. - Featuring updated case studies and a range of new examples. - Incorporating additional coverage of B2B branding and the B2B strategic marketing process, and issues of sustainability. - Extended coverage of Key Account Management - Online lecturer support including PowerPoint slides and key web links Drawing on their substantial experience of business-to-business marketing as practitioners, researchers and educators, the authors make this exciting and challenging area accessible to advanced undergraduate and to postgraduate students of marketing, management and business studies. Praise for the Second Edition: 'I found that the first edition of Brennan, Canning and McDowell's text was excellent for raising students' awareness and understanding of the most important concepts and phenomena associated with B2B marketing. The second edition should prove even more successful by using several new case studies and short 'snapshots' to illustrate possible solutions to common B2B marketing dilemmas, such as the design and delivery of business products and services, the selection of promotional tools and alternative routes to market. The new edition also deals clearly with complex issues such as inter-firm relationships and networks, e-B2B, logistics, supply chain management and B2B branding' - Michael Saren, Professor of Marketing, University of Leicester 'This textbook makes a unique contribution to business-to-business teaching: not only does it provide up-to-date cases and issues for discussion that reach to the heart of business-to-business marketing; it also brings in the latest academic debates and makes them both relevant and accessible to the readers. A fantastic addition to any library or course' - Dr Judy Zolkiewski, Senior Lecturer in Business-to-Business Marketing, Manchester Business School 'The advantage of the approach taken by Brennan and his colleagues is that this book manages to convey both the typical North American view of B2B marketing as the optimisation of a set of marketing mix variables, and the more emergent European view of B2B Marketing as being focused on the management of relationships between companies. This updated second edition sees the addition of a number of 'snapshots' in each chapter that bring the subject alive through the description of current examples, as well as some more expansive end-of-chapter case studies. It is truly a most welcome addition to the bookshelves of those students and faculty interested in this facet of marketing' - Peter Naudé, Professor of Marketing, Manchester Business School 'The strength of this text lies in the interconnection of academic theory with real world examples. Special attention has been given to the role that relationships play within the Business-to business environment, linking these to key concepts such as segmentation, targeting and marketing communications, which importantly encompasses the role personal selling as relationshipmmunications building and not just order taking. With good coverage of international cultural differences this is a valuable resource for both students of marketing and sales' - Andrew Whalley, Lecturer in Business-to-Business Marketing,

Royal Holloway University of London 'The text provides an authoritative, up-to-date review of organisational strategy development and 'firmographic' market segmentation. It provides a comprehensive literature review and empiric examples through a range of relevant case studies. The approach to strategy formulation, ethics and corporate social responsibility are especially strong' - Stuart Challinor, Lecturer in Marketing, Newcastle University 'This revised second edition offers an excellent contemporary view of Business-to-Business Marketing. Refreshingly, the text is packed with an eclectic mix of largely European case studies that make for extremely interesting reading. It is a 'must read' for any undergraduate or postgraduate Marketing student' - Dr Jonathan Wilson, Senior Lecturer, Ashcroft International Business School, Anglia Ruskin University, Cambridge

In the context of wastewater treatment, Bioelectrochemical Systems (BESs) have gained considerable interest in the past few years, and several BES processes are on the brink of application to this area. This book, written by a large number of world experts in the different sub-topics, describes the different aspects and processes relevant to their development. Bioelectrochemical Systems (BESs) use micro-organisms to catalyze an oxidation and/or reduction reaction at an anodic and cathodic electrode respectively. Briefly, at an anode oxidation of organic and inorganic electron donors can occur. Prime examples of such electron donors are waste organics and sulfides. At the cathode, an electron acceptor such as oxygen or nitrate can be reduced. The anode and the cathode are connected through an electrical circuit. If electrical power is harvested from this circuit, the system is called a Microbial Fuel Cell; if electrical power is invested, the system is called a Microbial Electrolysis Cell. The overall framework of bio-energy and bio-fuels is discussed. A number of chapters discuss the basics - microbiology, microbial ecology, electrochemistry, technology and materials development. The book continues by highlighting the plurality of processes based on BES technology already in existence, going from wastewater based reactors to sediment based bio-batteries. The integration of BESs into existing water or process lines is discussed. Finally, an outlook is provided of how BES will fit within the emerging biorefinery area.

The series Structure and Bonding publishes critical reviews on topics of research concerned with chemical structure and bonding. The scope of the series spans the entire Periodic Table and addresses structure and bonding issues associated with all of the elements. It also focuses attention on new and developing areas of modern structural and theoretical chemistry such as nanostructures, molecular electronics, designed molecular solids, surfaces, metal clusters and supramolecular structures. Physical and spectroscopic techniques used to determine, examine and model structures fall within the purview of Structure and Bonding to the extent that the focus is on the scientific results obtained and not on specialist information concerning the techniques themselves. Issues associated with the development of bonding models and generalizations that illuminate the reactivity pathways and rates of chemical processes are also relevant. The individual volumes in the series are thematic. The goal of each volume is to give the reader, whether at a university or in industry, a comprehensive overview of an area where new insights are emerging that are of interest to a larger scientific audience. Thus each review within the volume critically surveys one aspect of that topic and places it within the context of the volume as a whole. The most significant developments of the last 5 to 10 years should be presented using selected examples to illustrate the principles discussed. A description of the physical basis of the experimental techniques that have been used to provide the primary data may also be appropriate, if it has not been covered in detail elsewhere. The coverage need not be exhaustive in data, but should rather be conceptual, concentrating on the new principles being developed that will allow the reader, who is not a specialist in the area covered, to understand the data presented. Discussion of possible future research directions in the area is welcomed. Review articles for the individual volumes are invited by the volume editors. Readership: research scientists at universities or in industry, graduate students.

This book offers an insight into three promising and innovative pathways for the biological production of biodiesel, ethanol and methane.

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