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# Online Library Green Applications And Fundamentals Manufacturing Green

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## **KEY=APPLICATIONS - MCKAYLA KERR**

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### **GREEN MANUFACTURING**

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#### **FUNDAMENTALS AND APPLICATIONS**

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**Springer Science & Business Media** *Green Manufacturing: Fundamentals and Applications* introduces the basic definitions and issues surrounding green manufacturing at the process, machine and system (including supply chain) levels. It also shows, by way of several examples from different industry sectors, the potential for substantial improvement and the paths to achieve the improvement. Additionally, this book discusses regulatory and government motivations for green manufacturing and outlines the path for making manufacturing more green as well as making production more sustainable. This book also: Discusses new engineering approaches for manufacturing and provides a path from traditional manufacturing to green manufacturing Addresses regulatory and economic issues surrounding green manufacturing Details new supply chains that need to be in place before going green Includes state-of-the-art case studies in the areas of automotive, semiconductor and medical areas as well as in the supply chain and packaging areas

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### **GREEN CHEMISTRY**

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#### **FUNDAMENTALS AND APPLICATIONS**

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**CRC Press** *This book highlights the potential and scope of green chemistry for clean and sustainable development. Covering the basics, the book introduces readers to the need and the many applications and benefits and advantages of environmentally friendly chemical practice and application in industry. The book addresses such*

topics as ecologically safe products, catalysts and solvents, conditions needed to produce such products, types of chemical processes that are conducive to green chemistry, and much more.

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## **FUNDAMENTALS OF DIGITAL MANUFACTURING SCIENCE**

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**Springer Science & Business Media** *The manufacturing industry will reap significant benefits from encouraging the development of digital manufacturing science and technology. Digital Manufacturing Science uses theorems, illustrations and tables to introduce the definition, theory architecture, main content, and key technologies of digital manufacturing science. Readers will be able to develop an in-depth understanding of the emergence and the development, the theoretical background, and the techniques and methods of digital manufacturing science. Furthermore, they will also be able to use the basic theories and key technologies described in Digital Manufacturing Science to solve practical engineering problems in modern manufacturing processes. Digital Manufacturing Science is aimed at advanced undergraduate and postgraduate students, academic researchers and researchers in the manufacturing industry. It allows readers to integrate the theories and technologies described with their own research works, and to propose new ideas and new methods to improve the theory and application of digital manufacturing science.*

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## **RENEWABLE AND SUSTAINABLE MATERIALS IN GREEN TECHNOLOGY**

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**Springer** *This book discusses recent developments in renewable and sustainable materials from a green technology perspective and how these materials interact with the environment. It highlights the fundamental processes involved in the production of renewable and sustainable materials, including chemical and biological approaches as well as these materials' potential application as green technological option. Written in a didactic style, it offers a guide and insights into renewable and sustainable materials. Each chapter provides in-depth technical information on the material's theory and its applications. The book shows how new materials may help us solve human and environmental issues in the future and suggests where current research may lead.*

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## **DESIGN FOR SUSTAINABILITY**

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### **GREEN MATERIALS AND PROCESSES**

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**Elsevier** *Design for Sustainability: Green Materials and Processes provides fundamental and practical knowledge surrounding product development applications throughout the entire lifecycle of green materials, ranging from conceptual design, material and manufacturing process selection, and environmental lifecycle assessment. In addition, several topics covering recent advances in the application of sustainable design within the automotive, building and construction, packaging and consumer product industries are also included in this book to provide practical examples of this philosophy in current applications. Lastly, a section on implementation of design for sustainability in education is added to aid readers that*

wish to introduce this philosophy to younger students. This book will be beneficial to researchers, students in higher education institutions, design practitioners and engineers in private and public sector organization with aspirations to develop sustainable products in the future. Design for sustainability is one of the primary focuses in human advancement nowadays, with the aim of developing products and services that meet the needs of the present without compromising the ability of future generations to meet their own needs. Provides an overview on materials and process design for sustainability Discusses theoretical aspects about design for sustainability Includes a discussion of the most recent advances and applications in design for sustainability

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## **LOGISTICS OPERATIONS, SUPPLY CHAIN MANAGEMENT AND SUSTAINABILITY**

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**Springer** The aim of this book is to present qualitative and qualitative aspects of logistics operations and supply chain management which help to implement the sustainable policy principles in the companies and public sector's institutions. Authors in individual chapters address the issues related to reverse network configuration, forward and reverse supply chain integration, CO2 reduction in transportation, improvement of the production operations and management of the recovery activities. Some best practices from different countries and industries are presented. This book will be valuable to both academics and practitioners wishing to deepen their knowledge in the field of logistics operations and management with regard to sustainability issues.

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## **ADVANCES IN PRODUCTION MANAGEMENT SYSTEMS: INNOVATIVE AND KNOWLEDGE-BASED PRODUCTION MANAGEMENT IN A GLOBAL-LOCAL WORLD**

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### **IFIP WG 5.7 INTERNATIONAL CONFERENCE, APMS 2014, AJACCIO, FRANCE, SEPTEMBER 20-24, 2014, PROCEEDINGS, PART II**

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**Springer** The three volumes IFIP AICT 438, 439, and 440 constitute the refereed proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2014, held in Ajaccio, France, in September 2014. The 233 revised full papers were carefully reviewed and selected from 271 submissions. They are organized in 6 parts: knowledge discovery and sharing; knowledge-based planning and scheduling; knowledge-based sustainability; knowledge-based services; knowledge-based performance improvement, and case studies.

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## **FUNDAMENTALS OF MODERN MANUFACTURING**

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### **MATERIALS, PROCESSES, AND SYSTEMS**

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**John Wiley & Sons** Engineers rely on Groover because of the book's quantitative and engineering-oriented approach that provides more equations and numerical problem exercises. The fourth edition introduces more modern topics, including new materials, processes and systems. End of chapter problems are also thoroughly

revised to make the material more relevant. Several figures have been enhanced to significantly improve the quality of artwork. All of these changes will help engineers better understand the topic and how to apply it in the field.

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## MULTIPHASE POLYLACTIDE BLENDS

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### TOWARD A SUSTAINABLE AND GREEN ENVIRONMENT

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**Elsevier** *Multiphase Polylactide Blends: Toward a Sustainable and Green Environment* guides the reader through fundamentals, science, preparation, and key areas of innovation in polylactide (PLA) blends. Bio-based polymers, and notably PLA, have not only gained increasing interest as a more sustainable alternative but also bring challenges in terms of mechanical, rheological, thermal and physical properties, processability, shapability, and foamability. The use of blends looks to address these, with the development of new types of economically viable and environmentally friendly systems. This is a valuable book for academic researchers, scientists, and graduate students across bio-based polymers, polymer science, chemistry, and materials science, as well as engineers, R&D professionals, and all those in industry with interest in PLA-based blends, biopolymers, and sustainable materials and products. More specifically, the first three chapters of this book overview the fundamentals of thermoplastic polymers, polymer blends, and structure and properties of PLA. These chapters could technically be used as a valuable textbook on the noted topics. The rest of the chapters inclusively study the fundamentals, investigations, and achievements in PLA-based blends with various types of polymers. These include miscible blends of poly L-lactide and poly D-lactide, binary immiscible/miscible blends of PLA with other thermoplastics and elastomers, PLA-based ternary blends and blend nanocomposites, as well as PLA-based blend foams. Overall, this book provides a thorough and critical overview of the state of the art in PLA-based blends, including significant past and recent advances, with the aim of supporting and shaping further research and industrial application of these materials for the development of a green and sustainable future. Overviews the fundamentals of thermoplastic polymers, polymer blends, and the structure and properties of PLA. Provides detailed coverage of the fundamentals and science of PLA blends, including phase miscibility, thermal and mechanical properties, interface and rheological properties, the use of compatibilizers, and phase morphological analysis. Offers a thorough critical overview of the state of the art in processing and development of PLA-based blends, addressing key challenges and future perspectives. Covers the latest advances, including PLA-based ternary blends, blend nanocomposites, and PLA-based blend microcellular foams.

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### LEAN ENGINEERING FOR GLOBAL DEVELOPMENT

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**Springer** This edited book discusses lean production as a suitable platform for global development by developing systems and products in a quicker, costless and sustainable way and educate people for a lean consumption. Lean thinking principles are totally and synergistically aligned with a lot of disciplines and current issues such as logistic, supply chain, construction, healthcare, ergonomics, education, project

management, leadership, coaching, startup, product development, farming and sustainable development. Lean-Green is particularly related to this last issue, sustainable development, the first global challenge for humanity that are totally connected to all remaining 14 global challenges because they are interdependent. Attaining these challenges could bring solutions for the 17 Sustainable Development Goals. Lean Production and Consumption have an important role in providing these solutions, by systematically reducing wastes in all activities performed, and at the same time, instruct people in having a lean consumption. The target audience primarily comprises research experts in lean management, but the book may also be beneficial for practitioners alike.

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## **GREEN NANOMATERIALS**

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### **SUSTAINABLE TECHNOLOGIES AND APPLICATIONS**

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**CRC Press** Recent technological advancements in green nanotechnology have opened a brand-new avenue for research and development in the field of medicinal plant-mediated nanoparticles, biopolymers, biotechnology, and antimicrobial and biomedical research. This new volume explores several eco-friendly technologies in green materials synthesis, which are of considerable importance. It takes an inter- and cross-multidisciplinary approach to the green chemistry of nanoengineering and green nanotechnology application in materials research. It provides informative coverage of this exciting and dynamic new field as well as relates the fundamentals of soft-nanomaterials fabrication and spectroscopic integration. The book explores bio-inspired self-assembly green nanomaterials for multifunctional applications as well as the design and synthesis of green polymeric nanomaterials for several pharmaceutical and biomedical applications, including biosensors, drug delivery, antimicrobial applications, etc. Also discussed is the fabrication of green polymer nanocomposites from waste and natural fibers, such as chitin fiber, chitin whisker fiber, cellulose fiber, nanocellulose fiber, eggshells, and cotton waste.

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### **GLOBAL APPROACHES TO SUSTAINABILITY THROUGH LEARNING AND EDUCATION**

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**IGI Global** Unequal distribution of wealth, poverty, pollution, and gender inequality are just a few of the problems we face and struggle to eliminate. Sustainable development offers a long-term holistic solution to these problems through meeting the needs of the current generation without endangering the capability of future generations in meeting their own needs. Sustainable education or education for sustainability is a transformative learning paradigm that prepares learners and provides them with knowledge, ethical awareness, skills, values, and attitudes to achieve sustainable goals. *Global Approaches to Sustainability Through Learning and Education* is a comprehensive academic publication that facilitates a greater understanding of sustainable development and fosters a culture of sustainability through learning and education. Highlighting a range of topics such as ethics, game-based learning, and knowledge management, this book is ideal for teachers, environmentalists, higher education faculty, activists, curriculum developers,

academicians, researchers, professionals, administrators, and policymakers.

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## **GREEN AND SUSTAINABLE ADVANCED MATERIALS**

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### **APPLICATIONS**

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**John Wiley & Sons** *Sustainable development is a very prevalent concept of modern society. This concept has appeared as a critical force in combining a special focus on development and growth by maintaining a balance of using human resources and the ecosystem in which we are living. The development of new and advanced materials is one of the powerful examples in establishing this concept. Green and sustainable advanced materials are the newly synthesized material or existing modified material having superior and special properties. These fulfil today's growing demand for equipment, machines and devices with better quality for an extensive range of applications in various sectors such as paper, biomedical, textile, and much more. Volume 2, provides chapters on the valorization of green and sustainable advanced materials from a biomedical perspective as well as the applications in textile technology, optoelectronics, energy materials systems, and the food and agriculture industry.*

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## **ARTIFICIAL INTELLIGENT TECHNIQUES FOR WIRELESS COMMUNICATION AND NETWORKING**

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**John Wiley & Sons** *ARTIFICIAL INTELLIGENT TECHNIQUES FOR WIRELESS COMMUNICATION AND NETWORKING* The 20 chapters address AI principles and techniques used in wireless communication and networking and outline their benefit, function, and future role in the field. Wireless communication and networking based on AI concepts and techniques are explored in this book, specifically focusing on the current research in the field by highlighting empirical results along with theoretical concepts. The possibility of applying AI mechanisms towards security aspects in the communication domain is elaborated; also explored is the application side of integrated technologies that enhance AI-based innovations, insights, intelligent predictions, cost optimization, inventory management, identification processes, classification mechanisms, cooperative spectrum sensing techniques, ad-hoc network architecture, and protocol and simulation-based environments. Audience Researchers, industry IT engineers, and graduate students working on and implementing AI-based wireless sensor networks, 5G, IoT, deep learning, reinforcement learning, and robotics in WSN, and related technologies.

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## **PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM FOR PRODUCTION RESEARCH 2019**

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**Springer Nature** *This book discusses the conference that forms a unique platform to bring together academicians and practitioners from industrial engineering and management engineering as well as from other disciplines working on production function applying the tools of operational research and production/operational management. Topics treated include: computer-aided manufacturing, Industry 4.0, big data and analytics, flexible manufacturing systems, fuzzy logic, industrial*

*applications, information technologies in production management, optimization, production economy, production planning and control, productivity and performance management, project management, quality management, risk analysis and management, and supply chain management*

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## **SUSTAINABLE MACHINING**

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**Springer** *This book provides an overview on current sustainable machining. Its chapters cover the concept in economic, social and environmental dimensions. It provides the reader with proper ways to handle several pollutants produced during the machining process. The book is useful on both undergraduate and postgraduate levels and it is of interest to all those working with manufacturing and machining technology.*

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## **PUBLICATION OF PRODUCTION AND PROFITS IN COAL**

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**HEARINGS BEFORE THE COMMITTEE ON MANUFACTURES, UNITED STATES SENATE, SIXTY-SIXTH CONGRESS, THIRD SESSION, ON S. 4828, A BILL TO PROMOTE THE GENERAL WELFARE BY GATHERING INFORMATION RESPECTING THE OWNERSHIP, PRODUCTION, DISTRIBUTION, COSTS, SALES, AND PROFITS IN THE COAL INDUSTRY AND BY PUBLICATION OF SAME, AND TO RECOGNIZE AND DECLARE COAL AND ITS PRODUCTION AND DISTRIBUTION CHARGED WITH PUBLIC INTEREST AND USE, AND FOR OTHER PURPOSES ...**

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## **GREEN AND SUSTAINABLE MANUFACTURING OF ADVANCED MATERIAL**

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**Elsevier** *Sustainable development is a globally recognized mandate and it includes green or environment-friendly manufacturing practices. Such practices orchestrate with the self-healing and self-replenishing capability of natural ecosystems. Green manufacturing encompasses synthesis, processing, fabrication, and process optimization, but also testing, performance evaluation and reliability. The book shall serve as a comprehensive and authoritative resource on sustainable manufacturing of ceramics, metals and their composites. It is designed to capture the diversity and unity of methods and approaches to materials processing, manufacturing, testing and evaluation across disciplines and length scales. Each chapter incorporates in-depth technical information without compromising the delicate link between factual data and fundamental concepts or between theory and practice. Green and sustainable materials processing and manufacturing is designed as a key enabler of sustainable development. A one-stop compendium of new research and technology of green manufacturing of metals, ceramics and their composites In-depth cutting-edge treatment of synthesis, processing, fabrication, process optimization, testing, performance evaluation and reliability which are of critical importance to green manufacturing Stimulates fresh thinking and exchange of ideas and information on approaches to green materials processing across disciplines*

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## THE GREEN BOOK

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### APPRAISAL AND EVALUATION IN CENTRAL GOVERNMENT : TREASURY GUIDANCE

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**Stationery Office** *This new edition incorporates revised guidance from H.M Treasury which is designed to promote efficient policy development and resource allocation across government through the use of a thorough, long-term and analytically robust approach to the appraisal and evaluation of public service projects before significant funds are committed. It is the first edition to have been aided by a consultation process in order to ensure the guidance is clearer and more closely tailored to suit the needs of users.*

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### SUPPLY CHAIN OPTIMIZATION, MANAGEMENT AND INTEGRATION: EMERGING APPLICATIONS

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#### EMERGING APPLICATIONS

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**IGI Global** *Our rapidly changing world has forced business practitioners, in corporation with academic researchers, to respond quickly and develop effective solution methodologies and techniques to handle new challenges in supply chain systems. Supply Chain Optimization, Management and Integration: Emerging Applications presents readers with a rich collection of ideas from researchers who are bridging the gap between the latest in information technology and supply chain management. This book includes theoretical, analytical, and empirical research, comprehensive reviews of relevant research, and case studies of effective applications in the field of SCM. The use of new technologies, methods, and techniques are emphasized by those who have worked with supply chain management across the world for those in the field of information systems.*

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### GREEN CHEMISTRY AND ENGINEERING

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#### A PATHWAY TO SUSTAINABILITY

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**John Wiley & Sons** *Although many were skeptical of the green chemistry movement at first, it has become a multimillion-dollar business. In preventing the creation of hazardous wastes, laboratories and corporations can save millions in clean up efforts and related health costs. This book supplies students with concepts commonly taught in undergraduate general chemistry and general engineering courses, but with a green perspective. It is unique in presenting an integrated discussion of green chemistry and engineering from first principles - not as an afterthought. Real-world examples show creative problem solving based on the latest issues.*

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### STRONTIUM ALUMINATE

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#### CEMENT FUNDAMENTALS, MANUFACTURING, HYDRATION, SETTING

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## BEHAVIOUR AND APPLICATIONS

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**BoD - Books on Demand** *Strontium aluminate cement is special inorganic cement with the properties which make it favorable for various special applications such as refractory products, macro defect free (MDF) composites, blended cements and expansive cements for high temperature applications. There is an immense number of possible combinations which can be made to prepare blended and multicomponent cements and to investigate the influence of substitutions on the properties of strontium aluminate. Divided into ten sections, this book provides the latest research achievements in many aspects of this binder. The manufacturing, the hydration process, the setting behavior and the properties are described. The book contains many original and firstly published experimental research results obtained during writing. Currently there is no comprehensive work on this topic in literature. From this point of view, the book is a pilot work on this topic and should attract the attention of researchers and bring further progress of this topic.*

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## DEVOPS CULTURE AND PRACTICE WITH OPENSIFT

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### DELIVER CONTINUOUS BUSINESS VALUE THROUGH PEOPLE, PROCESSES, AND TECHNOLOGY

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**Packt Publishing Ltd** *A practical guide to making the best use of the OpenShift container platform based on the real-life experiences, practices, and culture within Red Hat Open Innovation Labs* **Key Features** *Learn how modern software companies deliver business outcomes that matter by focusing on DevOps culture and practices* **Adapt** *Open Innovation Labs culture and foundational practices from the Open Practice Library* **Implement** *a metrics-driven approach to application, platform, and product, understanding what to measure and how to learn and pivot* **Book Description** *DevOps Culture and Practice with OpenShift features many different real-world practices - some people-related, some process-related, some technology-related - to facilitate successful DevOps, and in turn OpenShift, adoption within your organization. It introduces many DevOps concepts and tools to connect culture and practice through a continuous loop of discovery, pivots, and delivery underpinned by a foundation of collaboration and software engineering. Containers and container-centric application lifecycle management are now an industry standard, and OpenShift has a leading position in a flourishing market of enterprise Kubernetes-based product offerings. DevOps Culture and Practice with OpenShift provides a roadmap for building empowered product teams within your organization. This guide brings together lean, agile, design thinking, DevOps, culture, facilitation, and hands-on technical enablement all in one book. Through a combination of real-world stories, a practical case study, facilitation guides, and technical implementation details, DevOps Culture and Practice with OpenShift provides tools and techniques to build a DevOps culture within your organization on Red Hat's OpenShift Container Platform. What you will learn* **Implement** *successful DevOps practices and in turn OpenShift within your organization* **Deal** *with segregation of duties in a continuous delivery world* **Understand** *automation and its significance through an application-centric view* **Manage** *continuous deployment strategies, such as A/B, rolling, canary, and*

*blue-greenLeverage OpenShift's Jenkins capability to execute continuous integration pipelinesManage and separate configuration from static runtime softwareMaster communication and collaboration enabling delivery of superior software products at scale through continuous discovery and continuous deliveryWho this book is for This book is for anyone with an interest in DevOps practices with OpenShift or other Kubernetes platforms. This DevOps book gives software architects, developers, and infra-ops engineers a practical understanding of OpenShift, how to use it efficiently for the effective deployment of application architectures, and how to collaborate with users and stakeholders to deliver business-impacting outcomes.*

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## **FUNDAMENTALS OF MODERN MANUFACTURING**

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### **MATERIALS, PROCESSES, AND SYSTEMS**

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**John Wiley & Sons Incorporated** *This book takes a modern, all-inclusive look at manufacturing processes, but also provides a substantial coverage of engineering materials and production systems. Materials, processes, and systems are the basic building blocks of manufacturing and the three broad subject areas of this book.*

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### **TECHNO-ECONOMIC CHALLENGES OF GREEN AMMONIA AS AN ENERGY VECTOR**

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**Academic Press** *Techno-Economic Challenges of Green Ammonia as an Energy Vector presents the fundamentals, techno-economic challenges, applications, and state-of-the-art research in using green ammonia as a route toward the hydrogen economy. This book presents practical implications and case studies of a great variety of methods to recover stored energy from ammonia and use it for power, along with transport and heating applications, including its production, storage, transportation, regulations, public perception, and safety aspects. As a unique reference in this field, this book can be used both as a handbook by researchers and a source of background knowledge by graduate students developing technologies in the fields of hydrogen economy, hydrogen energy, and energy storage. Includes glossaries, case studies, practical concepts, and legal, public perception, and policy viewpoints that allow for thorough, practical understanding of the use of ammonia as energy carrier Presents its content in a modular structure that can be used in sequence, as a handbook, in individual parts or as a field reference Explores the use of ammonia, both as a medium for hydrogen storage and an energy vector unto itself*

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### **HETEROGENEOUS PHOTOCATALYSIS**

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#### **FROM FUNDAMENTALS TO GREEN APPLICATIONS**

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**Springer** *The book explains the principles and fundamentals of photocatalysis and highlights the current developments and future potential of the green-chemistry-oriented applications of various inorganic, organic, and hybrid photocatalysts. The book consists of eleven chapters, including the principles and fundamentals of heterogeneous photocatalysis; the mechanisms and dynamics of surface*

photocatalysis; research on TiO<sub>2</sub>-based composites with unique nanostructures; the latest developments and advances in exploiting photocatalyst alternatives to TiO<sub>2</sub>; and photocatalytic materials for applications other than the traditional degradation of pollutants, such as carbon dioxide reduction, water oxidation, a complete spectrum of selective organic transformations and water splitting by photocatalytic reduction. In addition, heterogeneized polyoxometalate materials for photocatalytic purposes and the proper design of photocatalytic reactors and modeling of light are also discussed. This book appeals to a wide readership of the academic and industrial researchers and it can also be used in the classroom for undergraduate and graduate students focusing on heterogeneous photocatalysis, sustainable chemistry, energy conversion and storage, nanotechnology, chemical engineering, environmental protection, optoelectronics, sensors, and surface and interface science. Juan Carlos Colmenares is a Professor at the Institute of Physical Chemistry, Polish Academy of Sciences, Poland. Yi-Jun Xu is a Professor at the State Key Laboratory of Photocatalysis on Energy and Environment, College of Chemistry, Fuzhou University, China.

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## **FLUCTUATION THEOREMS UNDER DIVERGENT ENTROPY PRODUCTION AND THEIR APPLICATIONS FOR FUNDAMENTAL PROBLEMS IN STATISTICAL PHYSICS**

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**Springer Nature** This book presents the derivation of the fluctuation theorems with divergent entropy production and their application to fundamental problems in statistical physics. It explores the two basic aspects of the fluctuation theorems: i) Applicability in extreme situations with divergent entropy production, concluding that the fluctuation theorems remain valid under the notion of absolute irreversibility, and ii) utility in the investigation of classical enigmas in the framework of statistical physics, i.e., Gibbs and Loschmidt paradoxes. The book offers readers an overview of the research in fundamental statistical physics. Firstly it briefly but skillfully reviews the modern development of fluctuation theorems to found the key theme of the book. Secondly it concisely discusses historical issues of statistical physics in chronological order, along with the key literature in the field. They help readers easily follow the key developments in the fundamental research of statistical physics.

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## **FUNDAMENTALS OF ENVIRONMENTAL CHEMISTRY, THIRD EDITION**

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**CRC Press** Written by an expert, using the same approach that made the previous two editions so successful, *Fundamentals of Environmental Chemistry, Third Edition* expands the scope of book to include the strongly emerging areas broadly described as sustainability science and technology, including green chemistry and industrial ecology. The new edition includes: Increased emphasis on the applied aspects of environmental chemistry Hot topics such as global warming and biomass energy Integration of green chemistry and sustainability concepts throughout the text More and updated questions and answers, including some that require Internet research Lecturers Pack on CD-ROM with solutions manual, PowerPoint presentations, and chapter figures available upon qualifying course adoptions The book provides a basic

course in chemical science, including the fundamentals of organic chemistry and biochemistry. The author uses real-life examples from environmental chemistry, green chemistry, and related areas while maintaining brevity and simplicity in his explanation of concepts. Building on this foundation, the book covers environmental chemistry, broadly defined to include sustainability aspects, green chemistry, industrial ecology, and related areas. These chapters are organized around the five environmental spheres, the hydrosphere, atmosphere, geosphere, biosphere, and the anthrosphere. The last two chapters discuss analytical chemistry and its relevance to environmental chemistry. Manahan's clear, concise, and readable style makes the information accessible, regardless of the readers' level of chemistry knowledge. He demystifies the material for those who need the basics of chemical science for their trade, profession, or study curriculum, as well as for readers who want to have an understanding of the fundamentals of sustainable chemistry in its crucial role in maintaining a livable planet.

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## **ELECTROPHORETIC DEPOSITION, FUNDAMENTALS AND APPLICATIONS**

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### **PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM**

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**The Electrochemical Society**

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## **GREEN CHEMISTRY AND ENGINEERING**

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**Academic Press** Chemical processes provide a diverse array of valuable products and materials used in applications ranging from health care to transportation and food processing. Yet these same chemical processes that provide products and materials essential to modern economies, also generate substantial quantities of wastes and emissions. Green Chemistry is the utilization of a set of principles that reduces or eliminate the use or generation of hazardous substances in design. Due to extravagant costs needed to managing these wastes, tens of billions of dollars a year, there is a need to propose a way to create less waste. Emission and treatment standards continue to become more stringent, which causes these costs to continue to escalate. Green Chemistry and Engineering describes both the science (theory) and engineering (application) principles of Green Chemistry that lead to the generation of less waste. It explores the use of milder manufacturing conditions resulting from the use of smarter organic synthetic techniques and the maintenance of atom efficiency that can temper the effects of chemical processes. By implementing these techniques means less waste, which will save industry millions of dollars over time. Chemical processes that provide products and materials essential to modern economies generate substantial quantities of wastes and emissions, this new book describes both the science (theory) and engineering (application) principles of Green Chemistry that lead to the generation of less waste. This book contains expert advice from scientists around the world, encompassing developments in the field since 2000. Aids manufacturers, scientists, managers, and engineers on how to implement ongoing changes in a vast developing field that is important to the environment and our lives.

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## **FUNDAMENTALS OF COMPUTER-INTEGRATED MANUFACTURING**

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Pearson College Division M->CREATED

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## **SUSTAINABLE BIOPROCESSING FOR A CLEAN AND GREEN ENVIRONMENT**

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### **CONCEPTS AND APPLICATIONS**

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**CRC Press** *Sustainable Bioprocessing for a Clean and Green Environment: Concepts and Applications* highlights the importance of waste to health in which waste is safely converted to value-added products via bioprocess technologies. Providing fundamental concepts and applications, this book also offers readers the methodology behind the operation of a variety of biological processes used in developing valuable products from waste. Features: Discusses synthesis and use of environmentally friendly biobased materials, such as biopolymer films and biobased plasticizers Highlights nanotechnology applications in the treatment of pollution and emphasizes the synthesis of biogenic nanomaterials for environmental remediation Describes the use of biosurfactants and emerging algal technologies, such as applications of microalgae in nutraceuticals and biofuel production Details delignification for lignocellulosic biomass This interdisciplinary book offers researchers and practitioners in chemical engineering, environmental engineering, and related fields a broad perspective on fundamentals, technologies, and environmental applications of sustainable bioprocessing.

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## **APPLICATION OF BIG DATA, DEEP LEARNING, MACHINE LEARNING, AND OTHER ADVANCED ANALYTICAL TECHNIQUES IN ENVIRONMENTAL ECONOMICS AND POLICY**

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Frontiers Media SA

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## **FUNDAMENTALS OF BIOFUEL PRODUCTION PROCESSES**

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**CRC Press** *Focusing on fundamentals of biofuel production from renewable energy sources and biohydrogen production, this book offers a complete understanding of the bioconversion processes. Each chapter begins with a fundamental explanation for general readers and ends with in-depth scientific details suitable for expert readers. It discusses different types of production technologies covering basic concepts, production strategies, commercial usage, and advances.*

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## **GREEN TECHNOLOGIES IN FOOD PRODUCTION AND PROCESSING**

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**Springer Science & Business Media** *Examining the full cycle from farm to fork, this book reviews the current status of green processing in the agriculture and agri-food sector, and provides strategies for enhancing the use of environmentally-friendly technologies for production and processing.*

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## **GREEN BIOCOMPOSITES FOR BIOMEDICAL ENGINEERING**

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## DESIGN, PROPERTIES, AND APPLICATIONS

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**Woodhead Publishing** *Green Biocomposites for Biomedical Engineering: Design, Properties, and Applications* combines emergent research outcomes with fundamental theoretical concepts relevant to processing, properties and applications of advanced green composites in the field of biomedical engineering. The book outlines the design elements and characterization of biocomposites, highlighting each class of biocomposite separately. A broad range of biomedical applications for biocomposites is then covered, with a final section discussing the ethics and safety regulations associated with manufacturing and the use of biocomposites. With contributions from eminent editors and recognized authors around the world, this book is a vital reference for researchers in biomedical engineering, materials science and environmental science, both in industry and academia. Provides comprehensive information regarding current advances in the interdisciplinary field of eco-friendly green composite materials for biomedical applications Offers coverage of state-of-the-art physics-based advanced models used in composites Lists a broad range of characterization techniques and biomedical applications

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## GREEN FUNCTIONALIZED NANOMATERIALS FOR ENVIRONMENTAL APPLICATIONS

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**Elsevier** *Green nanomaterials are classed as nanomaterials with no environmentally harmful, toxic, properties. The photocatalysis of nanomaterials involves photo-conduction value in efficient removal/degradation of noxious pollutants. Green nanotechnology has objectives for the development of products and processes which are environmentally friendly, economically sustainable, safe, energy-efficient, and produce little waste or emissions. Such products and processes are based on renewable materials and/or have a low net impact on the environment. Green functionalized nanomaterials, formed by a combination of nanomaterials with natural materials or are derived through a green source, are the new trends in the remediation of pollutants in environmental industries. This has the effect of making photoactive nanomaterials work under UV/sunlight radiation in order to produce reactive radical species that rapidly remove pollutants by redox mechanism. Green Functionalized Nanomaterials for Environmental Applications focuses on recent developments in the area of fabrication of green nanomaterials and their properties. It also looks at ways of lowering the risk of exposure of green functionalized nanomaterials. This needs to be pursued in the future for investigating and assessing health risks, which may be due to exposure to green nanomaterials. It is an important reference source for all those seeking to improve their understanding of how green functionalized nanomaterials are being used in a range of environmental applications, as well as considering potential toxicity implications. Highlights innovative industrial technologies for green functionalized nanomaterials Covers major fabrication techniques for sustainable functionalized nanomaterials Shows how sustainable functionalized nanomaterials are being developed for commercial applications*

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## GREEN SUSTAINABLE PROCESS FOR CHEMICAL AND ENVIRONMENTAL ENGINEERING AND SCIENCE

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### SOLID STATE SYNTHETIC METHODS

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**Elsevier** *Green Sustainable Process for Chemical and Environmental Engineering and Science: Solid State Synthetic Methods* cover recent advances made in the field of solid-state materials synthesis and its various applications. The book provides a brief introduction to the topic and the fundamental principles governing the various methods. Sustainable techniques and green processes development in solid-state chemistry are also highlighted. This book also provides a comprehensive literature on the industrial application using solid-state materials and solid-state devices. Overall, this book is intended to explore green solid-state techniques, eco-friendly materials involved in organic synthesis and real-time applications. Provides a broad overview of solid-state chemistry Outlines an eco-friendly solid-state synthesis of modern nanomaterials, organometallic, coordination compounds and pure organic Gives a detailed account of solid-state chemistry, fundamentals, concepts, techniques and applications Deliberates cutting-edge recent advances in industrial technologies involved in energy, environmental, medicinal and organic chemistry fields

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### INTELLIGENT GREEN TECHNOLOGIES FOR SUSTAINABLE SMART CITIES

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**John Wiley & Sons** *Intelligent Green Technologies for Sustainable Smart Cities* Presenting the concepts and fundamentals of smart cities and developing “green” technologies, this volume, written and edited by a global team of experts, also goes into the practical applications that can be utilized across multiple disciplines and industries, for both the engineer and the student. Smart cities and green technologies are quickly becoming two of the most important areas of development facing today’s engineers, scientists, students, and other professionals. Written by a team of experts in these fields, this outstanding new volume tackles the problem of detailing advances in smart city development, green technologies, and where the two areas intersect to create innovation and revolutionary solutions. This group of hand-selected and vetted papers deals with the fundamental concepts of adapting artificial intelligence, machine learning techniques with green technologies, and many other advances in concepts related to these key areas. Including the most recent research and developments available, this book is an extraordinary source of knowledge for students, engineers seeking the latest research, and facilities and other professionals working in the area of green technologies and challenges and solutions in urban planning and smart city development.

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### GREEN CHEMISTRY FOR SUSTAINABLE TEXTILES

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#### MODERN DESIGN AND APPROACHES

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**Woodhead Publishing** *Green Chemistry for Sustainable Textiles: Modern Design and Approaches* provides a comprehensive survey of the latest methods in green

*chemistry for the reduction of the textile industry's environmental impact. In recent years industrial R&D has been exploring more sustainable chemicals as well as eco-friendly technologies in the textile wet processing chain, leading to a range of new techniques for sustainable textile manufacture. This book discusses and explores basic principles of green chemistry and their implementation along with other aspects of cleaner production strategies, as well as new and emerging textile technologies, providing a comprehensive reference for readers at all levels. Potential benefits to industry from the techniques covered in this book include: Savings in water, energy and chemical consumption, waste minimization as well as disposal cost reduction, and production of high added value sustainable textile products to satisfy consumer demands for comfort, safety, aesthetic, and multi-functional performance properties. Innovative emerging methods are covered as well as popular current technologies, creating a comprehensive reference that facilitates comparisons between methods Evaluates the fundamental green chemistry principles as drivers for textile sustainability Explains how and why to use renewable green chemicals in the textile wet processing chain*