Catalise Heterogenea Figueiredo

Chemical Reaction EngineeringCarbon Fibers Filaments and CompositesAdvances in CatalysisO Estado das ciências em PortugalSurface Chemistry of Froth FlotationRevista de GuimarãesMetallopolymer NanocompositesBiomaterials and Their ApplicationsPortafolio de investigacionesPreparation of Catalysts IIIEthnicity, Inc.Thermal AnalysisIndustrial Organic ChemistryTitanium Dioxide PhotocatalysisLivros disponíveisChemical Synthesis of Nucleoside AnaloguesCharacterisation of CatalystsChemistry on Modified Oxide and Phosphate Surfaces: Fundamentals and ApplicationsInorganic NanoparticlesNatural Gas ConversionCarbon and Coal GasificationCATALISE HETEROGENEACatalysis from Theory to Application: An Integrated CourseAdvances in Eco-Fuels for a Sustainable EnvironmentBioremediation and SustainabilityMolecular Biology of the CellScientific Bases for the Preparation of Heterogeneous CatalystsCinética química: estrutura molecular e reactividade químicaBoletim de bibliografia portuguesaHeterogeneous Catalysis and its Industrial ApplicationsDesigning the Molecular WorldCientistas do nosso estadoMolecular sieve zeolitesGreen Chemistry and CatalysisPerovskite MaterialsCatalyst PreparationNonthermal Processing Technologies for FoodZeolites for Cleaner TechnologiesAdvanced Powder Technology VIIIProgress in Catalyst Deactivation

Chemical Reaction Engineering

Bioremediation and Sustainability is an up-to-date and comprehensive treatment of research and applications for some of the most important low-cost, "green," emerging technologies in chemical and environmental engineering.

Carbon Fibers Filaments and Composites

These proceedings reflect the extensive fundamental and applied research efforts that are currently being made on the conversion of gas, in particular on the direct conversion of methane. The Symposium in Oslo focused on the following topics: Direct conversion of methane, Fischer-Tropsch chemistry, methanol conversion and natural gas conversion processes. The main aim was to present the state-of-the-art and progress currently being made within each of these areas. The book contains the papers presented and includes plenary lectures, short communications and posters. The papers will be of interest to scientists and engineers working in the field of gas conversion, transportation fuels, primary petrochemicals and catalysis.

Advances in Catalysis

O Estado das ciências em Portugal

Selected, peer reviewed papers from the Eighth Latin American Conference on Powder Technology, November 6-9, 2011, Florianópolis, Brazil

Surface Chemistry of Froth Flotation

Advances in Eco-fuels for Sustainable Environment presents the most recent developments in the field of environmentally friendly eco-fuels. Dr. Kalad Azad and his team of contributors analyze the latest bio-energy technologies and emission control strategies, while also considering other important factors, such as environmental sustainability and energy efficiency improvement. Coverage includes biofuel extraction and conversion technologies, the implementation of biotechnologies and system improvement methods in the process industries. This book will help readers develop a deeper understanding of the relevant concepts and solutions to global sustainability issues with the goal of achieving cleaner, more efficient energy. Energy industry practitioners, energy policymakers and government organizations, renewables researchers and academics will find this book extremely useful. Focuses on recent developments in the field of eco-fuels, applying concepts to various medium-large scale industries Considers the societal and environmental benefits, along with an analysis of technologies and research Includes contributions from industry experts and global case studies to demonstrate the application of the research and technologies discussed

Revista de Guimarães

A universidade tem duas missões primordiais, a de transmitir conhecimento através do ensino e a de o criar através da investigação. Raramente da combinação destas duas missões se adquirem novas perspetivas no conhecimento científico que têm reflexos na formação básica de alunos universitários. O ensino da cinética química desde cedo se processou através da Teoria do Estado de Transição (TST), a base de entendimento da velocidade de processos cinéticos elementares. Desde meados do século XIX que os químicos reconhecem que a velocidade das transformações químicas depende da estrutura molecular de reagentes e produtos. Mas faltava esta importante ligação entre TST e estrutura molecular para completar o entendimento da reatividade química. A barreira de energia da maioria das reações químicas não podia ser facilmente estimada a partir das estruturas moleculares. E variações neste parâmetro fenomenológico dão conta de mudanças de velocidade de reação na ordem das 30 ordens de grandeza. A partir de uma preocupação pedagógica, que remonta aos inícios da década de 70, os progressos científicos conduziram a um programa de investigação a partir de 1985 que só se completou em 2003. Assim se criou uma teoria ISM que associada à TST permite dar conta da formação e quebra de ligações químicas, o mais essencial da transformação química. Havia pois que rever todo o ensino da Cinética Química à

luz deste novo entendimento. Eis o objetivo desta obra com interesse para estudante de licenciatura e de pós-graduação.

Metallopolymer Nanocomposites

Chemical Reaction Engineering: Essentials, Exercises and Examples presents the essentials of kinetics, reactor design and chemical reaction engineering for undergraduate students. Concise and didactic in its approach, it features over 70 resolved examples and many exercises.The work is organized in two parts: in the first part kinetics is presented

Biomaterials and Their Applications

Portafolio de investigaciones

Compiles current tested and proven approaches tosynthesize novel nucleoside analogues Featuring contributions from leading synthetic chemists fromaround the world, this book brings together and describes testedand proven approaches for the chemical synthesis of common familiesof nucleoside analogues. Readers will learn to create newnucleoside analogues with desired therapeutic properties by using avariety of methods to chemically modify natural nucleosides,including: Changes to the heterocyclic base Modification of substituents at the sugar ring Replacement of the furanose ring by a different carbo- orheterocyclic ring Introduction of conformational restrictions Synthesis of enantiomers Preparation of hydrolitically stable C-nucleosides Chemical Synthesis of Nucleoside Analogues covers all themajor classes of nucleosides, including pronucleotides,C-nucleosides, carbanucleosides, and PNA monomers which have showngreat promise as starting points for the synthesis of nucleosideanalogues. The book also includes experimental procedures for keyreactions related to the synthesis of nucleoside analogues,providing a valuable tool for the preparation of a number ofdifferent compounds. Throughout the book, chemical schemes and figures help readersbetter understand the chemical structures of nucleoside analoguesand the methods used to synthesize them. Extensive references serveas a gateway to the growing body of original research studies andreviews in the field. Synthetically modified nucleosides have proven their value astherapeutic drugs, in particular as antiviral and antitumor agents.However, many of these nucleoside analogues have undesirable sideeffects. With Chemical Synthesis of Nucleoside Analogues astheir guide, researchers have a new tool for synthesizing a newgeneration of nucleoside analogues that can be used as therapeuticdrugs with fewer unwanted side effects.

Preparation of Catalysts III

This first book to focus on catalytic processes from the viewpoint of green chemistry presents every important aspect: ·

Numerous catalytic reductions and oxidations methods · Solid-acid and solid-base catalysis · C-C bond formation reactions · Biocatalysis · Asymmetric catalysis · Novel reaction media like e.g. ionic liquids, supercritical CO2 · Renewable raw materials Written by Roger A. Sheldon -- without doubt one of the leaders in the field with much experience in academia and industry -- and his co-workers, the result is a unified whole, an indispensable source for every scientist looking to improve catalytic reactions, whether in the college or company lab.

Ethnicity, Inc.

It has become a tradition that every four years, the Université Catholique de Louvain and the Katholieke Universiteit Leuven jointly organize a symposium devoted to the scientific bases for the preparation of heterogeneous catalysts. These meetings bring together researchers from academia and industry and offer a forum for discussions on the chemistry involved in the preparation of industrial heterogeneous catalysts. This volume containing the Proceedings of the 8th International Symposium on Scientific Bases for the Preparation of Heterogeneous Catalysts consists of papers summarizing most of the 139 oral communications and posters selected by the international scientific committee, composed of 27 experts in the field of catalyst preparation, holding an industrial or academia appointment. The contributions focus on the aspects of catalyst preparation. The main topics are: new approaches in catalyst preparation; advanced preparations of nanoporous and mesoporous catalysts; catalysts preparation for special performances and purposes; catalysts for environmental purposes; and molecular catalysis. Emphasis is put on the role that catalysis can play as an essential element of sustainable development.

Thermal Analysis

This book, written and edited by leading authorities from academia and industrial groups, covers both preventive- and curative-zeolite-based technologies in the field of chemical processing. The opening chapter presents the state of the art in zeolite science. The two subsequent chapters summarize the chemistries involved in the processes and the constraints imposed on the catalyst/adsorbent. Three major areas are covered: oil refining, petrochemicals and fine chemicals. A chapter on the (curative) use of zeolites in pollution abatement completes this overview. In the area of oil refining, a general lecture sets the scene for present and future challenges. It is followed by in-depth case studies involving FCC, hydrocracking and light naphtha isomerization. Also, an entire chapter is devoted to the often-overlooked subject of base oils. In the area of petrochemicals, the processing of aromatics and olefins is described and special attention is paid to the synergy between catalysis and separation on molecular sieves. Contents:Introduction to Zeolite Science and Technology (M Guisnet & J-P Gilson)The Chemistry of Catalytic Processes (A Corma & A Martínez)Preparation of Zeolite Catalysts (T G Roberie et al.)Refining Processes: Setting the Scene (R H Jensen)Advances in Fluid Catalytic Cracking (E T Habib et

al.)Hydrocracking (J A R Van Veen)C4-C6 Alkane Isomerisation (F Schmidt & E Köhler)Base Oil Production and Processing (M Daage)Para-Xylene ManufacturingCatalytic Reactions and Processes (F Alario & M Guisnet)Separation of Paraxylene by Adsorption (A Méthivier)Aromatic Alkylation: Towards Cleaner Processes (J S Beck et al.)Methanol to Olefins (MTO) and Beyond (P Barger)Zeolite Effects on Catalytic Transformations of Fine Chemicals (D E De Vos & P A Jacobs)Functionalization of Aromatics over Zeolite Catalysts (P Marion et al.)Zeolites and 'Non-Zeolite' Molecular Sieves in the Synthesis of Fragrances and Flavors (W F Hoelderich & M C Laufer)Pollution Abatment Using Zeolites: State of the Art and Further Needs (G Delahay & B Coq) Readership: Undergraduates, graduate students, academics and researchers in catalyst chemistry. Reviews:"Chapter authors have provided a teaching text that gives excellent introductory chapters to zeolites, and to the nature and significance of the processes that they can catalyse … This excellent book should be required reading for all scientists who have an interest in improving the environment."Chemistry & Industry

Industrial Organic Chemistry

Titanium Dioxide Photocatalysis

New edition of a text in which six researchers from leading institutions discuss what is known and what is yet to be understood in the field of cell biology. The material on molecular genetics has been revised and expanded so that it can be used as a stand-alone text. A new chapter covers pathogens, infection, and innate immunity. Topics include introduction to the cell, basic genetic mechanisms, methods, internal organization of the cell, and cells in their social context. The book contains color illustrations and charts; and the included CD-ROM contains dozens of video clips, animations, molecular structures, and high-resolution micrographs. Annotation copyrighted by Book News Inc., Portland, OR.

Livros disponíveis

Chemical Synthesis of Nucleoside Analogues

Chemistry on Modified Oxide and Phosphate Surfaces: Fundamentals and Applications is in the authoritative Interface Science and Technology Series and presents the key features and applications of modified oxide and phosphate surfaces. Examines both basic and applied aspects Incorporates examples from recent publications

Characterisation of Catalysts

This book Catalysis from Theory to Application. An Integrated Course encompasses the lectures of an integrated course on Catalysis (CIC2006) organized in the University of Coimbra according to the guidelines set up by the ERA-Net ACENET (Applied Catalysis European Network). The book is subdivided in five sections: heterogeneous, homogeneous, photo- and electro-catalysis and a fifth section covering experimental design and planning.The course and the lectures presented in this book intend to offer a broad and comprehensive survey on the different subjects of catalysis. Indeed, most graduate students in Chemistry or Chemical Engineering have only fragmented knowledge. Accordingly, the book is intended for undergraduate and post-graduate students or Industrial Researchers of Chemistry and Chemical Engineering interested in acquiring integrated knowledge in this field.

Chemistry on Modified Oxide and Phosphate Surfaces: Fundamentals and Applications

Inorganic Nanoparticles

'Ideal for getting an overview of applied organic chemistry' This bestselling standard, now in its 3rd completely revised English edition, is an excellent source of technological and economic information on the most important precursors and intermediates used in the chemical industry. Right and left columns containing synopsis of the main text and statistical data, and numerous fold-out flow diagrams ensure optimal didactic presentation of complex chemical processes. The translation into eight languages, the four German and three English editions clearly evidence the popularity of this book. ' it is where I look first to get a quick overview of the manufacturing process of a product Weissermel/Arpe has been serving me for years as an indispensable reference work.' (Berichte der Bunsengesellschaft für Physikalische Chemie) 'Whether student or scientist, theorist or practician - everyboby interested in industrial organic chemistry will appreciate this work.' (farbe + lack) 'it should be ready to hand to every chemist or process engineer envolved directly or indirectly with industrial organic chemistry . It should be in the hand of every higher-graduate student, especially if chemical technology is not part of the study, like in many college universities' (Tenside-Surfactants-Detergents)

Natural Gas Conversion

Conventional synthetic materials, like metals, ceramics or glass, are usually isotropic substances, and their suitability for structural applications is achieved by morphological design and combination in the macroscopic scale. However, in modem engineering this is often not acceptable. As an alternative, the use of non-homogeneous, anisotropic materials, with significant stiffness and strength only in the directions these mechanical properties are really needed, can lead to enormous material (and weight) savings. This is the case of multiphase systems called composite materials. In these composites,

different material parts are added and arranged geometrically, under clearly designed and controlled conditions. Usually, a structure of fibers provides strength and stiffness and a matrix helds them together, whilst providing the geometric form. Carbon fibers are among the high-performance fibers employed in these advanced structural composites, which are profoundly changing many of today's high technology industries. New research and development challenges in this area include upgrading the manufacturing process of fibers and composites, in order to improve characteristics and reduce costs, and modifying the interfacial properties between fibers and matrix, to guarantee better mechanical properties. The interdisciplinary nature of this "new frontier" is obvious, involving chemistry, materials science, chemical and mechanical engineering. Other topics, which more often are treated separately, are also important for the understanding of the processes of fiber production. Carbon filaments is one such topic, as the study of their mechanisms of nucleation and growth is clearly quite relevant to the production of vapour-grown carbon fibers.

Carbon and Coal Gasification

Lincoln scholar Ronald C. White, Jr., describes Lincoln as a man of integrity whose moral compass holds the key to understanding his life.

CATALISE HETEROGENEA

In Ethnicity, Inc. anthropologists John L. and Jean Comaroff analyze a new moment in the history of human identity: its rampant commodification. Through a wide-ranging exploration of the changing relationship between culture and the market, they address a pressing question: Wherein lies the future of ethnicity? Their account begins in South Africa, with the incorporation of an ethno-business in venture capital by a group of traditional African chiefs. But their horizons are global: Native American casinos; Scotland’s efforts to brand itself; a Zulu ethno-theme park named Shakaland; a world religion declared to be intellectual property; a chiefdom made into a global business by means of its platinum holdings; San “Bushmen” with patent rights potentially worth millions of dollars; nations acting as commercial enterprises; and the rapid growth of marketing firms that target specific ethnic populations are just some of the diverse examples that fall under the Comaroffs’ incisive scrutiny. These phenomena range from the disturbing through the intriguing to the absurd. Through them, the Comaroffs trace the contradictory effects of neoliberalism as it transforms identities and social being across the globe. Ethnicity, Inc. is a penetrating account of the ways in which ethnic populations are remaking themselves in the image of the corporation—while corporations coopt ethnic practices to open up new markets and regimes of consumption. Intellectually rigorous but leavened with wit, this is a powerful, highly original portrayal of a new world being born in a tectonic collision of culture, capitalism, and identity.

Catalysis from Theory to Application: An Integrated Course

Advances in Eco-Fuels for a Sustainable Environment

Most catalysts used in the chemical and petrochemical indus tries are strongly affected by one or another form of deactivation, leading to poor performances and reduced life. The increasing num ber of scientific communications devoted to the subject in recent years, and culminating with an International Symposium held in Antwerp in October 1980, is a measure of the interest it arouses in both the industrial and academic communities. A stage has been reached whereby it was thought that a NATO Advanced Study Institute on "Catalyst Deactivation" might be fruit ful in establishing the state of the art and in stimulating a more systematic research on the phenomenon. Such a meeting was held ~n Lagos, Portugal, from 18 to 29 May 1981. The purpose of the Institute was to present and discuss in a didatic and systematic way the various processes that lead to cata lyst deactivation, namely coking, poisoning and solid state trans formations, and at the same time to promote the exchange of ideas and experiences among the participants, drawn from industry and uni versity. The lectures presented at the Institute are collected in this volume with the exception of Dr. L.L.Hegedus "Catalyst Poisoning", which has been previously published (Catalysis Reviews, Science md Engineering, 23, 377-476, 1981).

Bioremediation and Sustainability

Among the various nanomaterials, inorganic nanoparticles are extremely important in modern technologies. They can be easily and cheaply synthesized and mass produced, and for this reason, they can also be more readily integrated into applications. Inorganic Nanoparticles: Synthesis, Applications, and Perspectives presents an overview of these special materials and explores the myriad ways in which they are used. It addresses a wide range of topics, including: Application of nanoparticles in magnetic storage media Use of metal and oxide nanoparticles to improve performance of oxide thin films as conducting media in commercial gas and vapor sensors Advances in semiconductors for light-emitting devices and other areas related to the energy sector, such as solar energy and energy storage devices (fuel cells, rechargeable batteries, etc.) The expanding role of nanosized particles in the field of catalysis, art conservation, and biomedicine The book’s contributors address the growing global interest in the application of inorganic nanoparticles in various technological sectors. Discussing advances in materials, device fabrication, and large-scale production—all of which are urgently required to reduce global energy demands—they cover innovations in areas such as solid-state lighting, detailing how it still offers higher efficiency but higher costs, compared to conventional lighting. They also address the impact of nanotechnology in the biomedical field, focusing on topics such as quantum dots for bioimaging, nanoparticle-based cancer therapy, drug delivery, antibacterial agents, and more. Fills the informational gap on the wide range of applications for inorganic

nanoparticles in areas including biomedicine, electronics, storage media, conservation of cultural heritage, optics, textiles, and cosmetics Assembling work from an array of experts at the top of their respective fields, this book delivers a useful analysis of the vast scope of existing and potential applications for inorganic nanoparticles. Versatile as either a professional research resource or textbook, this effective tool elucidates fundamentals and current advances associated with design, characterization, and application development of this promising and ever-evolving device.

Molecular Biology of the Cell

Although the seminal work of Fujishima et al. dates back to 1971, TiO2 still remains the most diffused and studied semiconductor, employed in photo-oxidation processes for cleantech (i.e., polluted water and air treatment), in solar fuel production (mainly hydrogen production by water photo splitting), and in Carbon Capture and Utilization (CCU) processes by CO2 photoreduction. The eleven articles, among them three reviews, in this book cover recent results and research trends of various aspects of titanium dioxide photocatalysis, with the chief aim of improving the final efficiency of TiO2-based materials. Strategies include doping, metal co-catalyst deposition, and the realization of composites with plasmonic materials, other semiconductors, and graphene. Photocatalysts with high efficiency and selectivity can be also obtained by controlling the precise crystal shape (and homogeneous size) and the organization in superstructures from ultrathin films to hierarchical nanostructures. Finally, the theoretical modeling of TiO2 nanoparticles is discussed and highlighted. The range of topics addressed in this book will stimulate the reader’s interest as well as provide a valuable source of information for researchers in academia and industry.

Scientific Bases for the Preparation of Heterogeneous Catalysts

Thermal Analysis Fundamentals and Applications to Polymer Science T. Hatakeyama Otsuma Women's University, Tokyo, Japan F. X. Quinn L'Oréal Recherche Advancée, Aulnay-sous-Bois, France The first edition of this classic book remains one of the very few introductory books covering both theoretical and practical aspects of thermal analysis (TA). This new edition includes a much enlarged section on MDSC, in which the instrument is described and a critical appraisal of the technique presented. Other additions include new sections on rate-controlled TGA, OTTER, and Specific Heat Spectroscopy, and a thoroughly updated section on X-Ray DSC. This very practical book is a must for people who use thermal analysis techniques in their everyday work. "An excellent introductory text" - Review of 1st Edition.

Cinética química: estrutura molecular e reactividade química

Boletim de bibliografia portuguesa

Catalysis is the acceleration of a chemical reaction by a catalyst, a substance that notably affects the rate of a chemical reaction without itself being consumed or altered. Since 1948, Advances in Catalysis has filled the gap between the papers that report on and the textbooks that teach in the diverse areas of catalysis research. The editors of and contributors to Advances in Catalysis are dedicated to recording progress in this area. Provides a comprehensive review of all aspects of catalytic research Contains in-depth, critical, state-of-the-art reports

Heterogeneous Catalysis and its Industrial Applications

Molecular chemistry.

Designing the Molecular World

The process of froth flotation is an outstanding example of applied surface chemistry. It is extensively used in the mining, mineral, metallurgical, and chemical industries for separation and selective concentration of individual minerals and other solids. Substances so concentrated serve as raw materials for producing appropriate metals and chemicals. The importance of flotation in technology is chiefly due to the ease with which it can be made selective and versatile and to the economy of the process. The objective of this book is to review the fundamentals of surface chemistry together with the relevant aspects of organic and inorganic chemistry that-in the opinion of the author-are important ~ control of the froth flotation process. The review updates the information that had been available in books by Sutherland and Wark (1955), Gaudin (1957), Klassen and Mokrousov (1963), and GIembotsky et al. (1963). It emphasizes mainly the surface chemical aspects of the process, leaving other relevant topics such as hydrodynamics, mechanical and electrical technology, cir cuit design and engineering, operations research, instrumentation tech nology, modeling, etc., to appropriate specialized treatments.

Cientistas do nosso estado

Studies in Surface Science and Catalysis is one of the oldest and most cited series in the field. It offers a privileged view of the topic covering the theory, applications and engineering of all topics of catalysis, including Heterogeneous-Homogeneous, Biocatalysis and Catalysis for Polymerization. This volume provides an invaluable source of information for academics and industrialists as well as graduate students.

Molecular sieve zeolites

This book presents and analyzes the essential data on nanoscale metal clusters dispersed in, or chemically bonded with polymers. Special attention is paid to the in situ synthesis of the nanocomposites, their chemical interactions, and the size and distribution of the particles in the polymer matrix. Numerous novel nanocomposites are described with regard to their mechanical, electrophysical, optical, magnetic, catalytic and biological properties. Their applications, present and future, are outlined.

Green Chemistry and Catalysis

This short book presents an overview of different types of biomaterial such as bio ceramics, bio polymers, metals and bio composites, while especially focusing on nano biomaterials and their applications in different tissues. It provides a compact introduction to nano materials for drug delivery systems, tissue engineering and implants, while also reviewing essential trends in the biomaterial field over the last few decades and the latest developments.

Perovskite Materials

Catalyst Preparation

This book aims to introduce the basic concepts involved in industrial catalytic processes. It is profusely illustrated with experimental results with the main objective of guiding how to select a suitable catalyst for specific processes. The book is divided in two parts. In the first part the basic concepts are addressed, regarding the existing theories, activity patterns and adsorption-desorption phenomena. In the second part the key experimental methods for the physicochemical characterization of catalysts are presented, as well as the currently used catalyst pre and post treatments. The last chapter describes some important in situ characterization techniques (e.g. XPS and TEM) and surface model patterns related to surface modifications occurring during the reaction. Thoroughly illustrated with microscopy images, spectroscopy data and schematics of reaction mechanisms, the book provides a powerful learning tool for students in undergraduate and graduate level courses on the field of catalysis. Exercises and resolved problems are provided, as well as experimental procedures to support laboratory classes. Furthermore, the content is presented in a carefully chosen sequence, reflecting the 30 year teaching experience of the author. The author, Professor Martin Schmal, sees the present book as a way of conveying basic knowledge needed for the development of more efficient catalysts (i.e. nanostructured materials) and novel industrial chemical processes in the fields of environmental chemistry, fine chemistry, hydrotreating of heavy oils, hydrogen production and biomass processing.

Nonthermal Processing Technologies for Food

Nonthermal Processing Technologies for Food offers a comprehensive review of nonthermal processing technologies that are commercial, emerging or over the horizon. In addition to the broad coverage, leading experts in each technology serve as chapter authors to provide depth of coverage. Technologies covered include: physical processes, such as high pressure processing (HPP); electromagnetic processes, such as pulsed electric field (PEF), irradiation, and UV treatment; other nonthermal processes, such as ozone and chlorine dioxide gas phase treatment; and combination processes. Of special interest are chapters that focus on the "pathway to commercialization" for selected emerging technologies where a pathway exists or is clearly identified. These chapters provide examples and case studies of how new and nonthermal processing technologies may be commercialized. Overall, the book provides systematic knowledge to industrial readers, with numerous examples of process design to serve as a reference book. Researchers, professors and upper level students will also find the book a valuable text on the subject.

Zeolites for Cleaner Technologies

Carbon gasification reactions form the basis of many important industrial processes, such as the combustion of coal and the produc tion of synthesis gas, fuel gases and activated carbons. They are also involved in metallurgical processes and in the regeneration of coked catalysts. Thus, understanding the fundamentals of carbon gasification is of vital importance for further technological development. Moreover, the subject is of interdisciplinary nature, involving chemistry, ma terials science and chemical engineering. Therefore, it was thought that an Advanced Study Institute would be fruitful in establishing the state of the art, in bringing together experts from the various sectors involved and in identifying areas of required research and industrial development. Such a meeting was held at Alvor, Portugal, from the 20th to the 31st May 1985, and the lectures presented the reof are collected in this volume. The present volume is organized in seven chapters. The Intro duction presents the carbon gasification reactions an~ their rele vance for particular processes and industrial uses. In the second chapter, the structures of carbon and coal are reviewed, together with methods of structural, chemical and textural characterization.

Advanced Powder Technology VIII

The book summarizes the current state of the know-how in the field of perovskite materials: synthesis, characterization, properties, and applications. Most chapters include a review on the actual knowledge and cutting-edge research results. Thus, this book is an essential source of reference for scientists with research fields in energy, physics, chemistry and materials. It is also a suitable reading material for graduate students.

Progress in Catalyst Deactivation

Improving the effectiveness of catalysts is the best way to ensure cleaner, more efficient industrial processes for a wide range of applications. Catalyst Preparation: Science and Engineering explores the optimization of catalytic materials through traditional and novel methods of catalyst preparation, characterization, and monitoring on laboratory and industrial scales. The book presents many key principles of heterogeneous catalyst preparation and the methods used to synthesize a catalyst with a particular composition and morphology. The first chapters examine the synthesis of bulk materials including amorphous and mesoporous oxide supports, heteropolyacids, and colloidal metals. Subsequent chapters focus on the syntheses of heterogeneous nanoscale materials, including those based on metal complex–substrate interactions and those using non-interacting precursors via viscous drying. The final chapters concentrate on pretreatment, drying, and finishing effects before concluding with a prognosis on future applications involving catalyst preparation and the technological advances necessary for continued progress. An ideal companion for scientists exploring the preparation of application-specific catalysts based on desired catalytic properties, Catalyst Preparation: Science and Engineering provides a balanced overview of important synthesis parameters to consider for good catalyst design.