

Comparative Methods For The Pore Size Distribution

Sets the stage for environmentally friendly industrialorganic syntheses From basic principles to new and emerging industrialapplications, this book offers comprehensive coverage of heterogeneous liquid-phase selective oxidation catalysis. It fullyexamines the synthesis, characterization, and application ofcatalytic materials for environmentally friendly organic syntheses.Readers will find coverage of all the important classes ofcatalysts, with an emphasis on their stability and reusability. Liquid Phase Oxidation via Heterogeneous Catalysisfeatures contributions from an international team of leadingchemists representing both industry and academia. The book beginswith a chapter on environmentally benign oxidants and thencovers: Selective oxidations catalyzed by TS-1 and othermetal-substituted zeolites Selective catalytic oxidation over ordered nanoporousmetallo-aluminophosphates Selective oxidations catalyzed by mesoporousmetal-silicates Liquid phase oxidation of organic compounds by supportedmetal-based catalysts Selective liquid phase oxidations in the presence of supportedpolyoxometalates Selective oxidations catalyzed by supported metalcomplexes Liquid phase oxidation of organic compounds by metal-organicframeworks Heterogeneous photocatalysis for selective oxidations withmolecular oxygen All the chapters dedicated to specific types of catalysts followa similar organization and structure, making it easy to compare theadvantages and disadvantages of different catalysts. The finalchapter examines the latest industrial applications, such as theproduction of catechol and hydroquinone, cyclohexanone oxime, andpropylene oxide. With its unique focus on liquid phase heterogeneous oxidationcatalysis, this book enables researchers in organic synthesis andoxidation catalysis to explore and develop promising new catalyticmaterials and synthetic routes for a broad range of industrialapplications.

Composites are made up of constituent materials with high engineering potential. This potential is wide as wide is the variation of materials and structure constructions when new updates are invented every day. Technological advances in composite field are included in the equipment surrounding us daily; our lives are becoming safer, hand in hand with economical and ecological advantages. This book collects original studies concerning composite materials, their properties and testing from various points of view. Chapters are divided into groups according to their main aim. Material properties are described in innovative way either for standard components as glass, epoxy, carbon, etc. or biomaterials and natural sources materials as ramie, bone, wood, etc. Manufacturing processes are represented by moulding methods; lamination process includes monitoring during process. Innovative testing procedures are described in electrochemistry, pulse velocity, fracture toughness in macro-micro mechanical behaviour and more.

Sol-gel processing is a soft-chemistry method to obtain functional materials at low temperatures. This route can be used to produce very sophisticated nanomaterials and to tailor the materials to very specific applications.

Adsorption and detection of pollutants, water purification and soil remediation represent challenging fields of application that can be exploited by sol-gel materials. In this volume several contributions from invited speakers and participants at the NATO advanced research workshop on "Sol-gel approaches to materials for pollution control, water purification and soil remediation", which has been held in Kiev, Ukraine on October 2007, are reported. The book offers a wide and updated overview of the most advanced sol-gel methods for materials processing and at the same time presents several case studies concerning possible solutions for environmental issues. General articles on sol-gel from the invited speakers and focused research articles allow getting inside sol-gel applications on this very important field.

Characterisation of Porous Solids V

Sol-Gel Methods for Materials Processing

An Introduction to Basic and Advanced Ridgeology

1968: July-December

Focusing on Materials for Pollution Control, Water Purification, and Soil Remediation

Proceedings of the 6th Asia Pacific Conference on Unsaturated Soils (Guilin, China, 23-26 October 2015)

In the past decades advances have been made in the research and practice on unsaturated soil mechanics. In 2000 the first Asia-Pacific Conferences on Unsaturated Soils was organized in Singapore. Since then, four conferences have been held under the continued support of the Technical Committee on Unsaturated Soils (TC106) of the International Socie Experimental Methods in Catalytic Research, Volume I provides a useful account of procedures in various areas of catalytic research. This book describes the method and its fundamental principles, the apparatus used, the data obtained and their interpretation, and the account of the special problems related to catalytic research. Organized into 11 chapters, this volume begins with an overview of the kinetic phenomena such as quantitative studies of reaction rate and factors influencing rate. This text then examines the general properties that are of major importance to catalysis since catalytic rates depend mainly on available active surface. Other chapters consider the detailed mechanism of any catalytic reaction, which include the electronic structure of the chemisorption bond. This book discusses as well several experimental methods developed to study surface reactions under highly idealized conditions. The final chapter deals with the phenomenon associated with the spin of an electron. This book is a valuable resource for chemical engineers.

This volume includes treatments of systematics and related topics for both fungi and fungus-like organisms in four eukaryotic supergroups, as well as specialized chapters on nomenclature, techniques and evolution. These organisms are of great interest to mycologists, plant pathologists and others, including those interested in the animal parasitic Microsporidia. Our knowledge of the systematics and evolution of fungi has made great strides since the first edition of this volume, largely driven by molecular phylogenetic analyses. Consensus among mycologists has led to a stable systematic treatment that has since become widely adopted and is incorporated into this second edition, along with a great deal of new information on evolution and ecology. The systematic chapters cover occurrence, distribution, economic importance, morphology and ultrastructure, development of taxonomic theory, classification, and maintenance and culture. Other chapters deal with nomenclatural changes necessitated by revisions of the International Code of Nomenclature for algae, fungi and plants, including the elimination of separate names for asexual states, as well as methods for preservation of cultures and specimens, character evolution and methods for ultrastructural study, the fungal fossil record, and the impact of whole genomes on fungal studies.

A Bibliography of Unclassified Report Literature

Liquid Phase Oxidation via Heterogeneous Catalysis

A Comparative Study of Storage at 32 Degrees and 36 Degrees F. of Apples Grown in the Potomac River Valley

Synthesis, Reactions and Applications

TID

Unsaturated Soil Mechanics - from Theory to Practice

The topic of thin films is an area of increasing importance in materials science, electrical engineering and applied solid state physics; with both research and industrial applications in microelectronics, computer manufacturing, and physical devices. Advanced, high-performance computers, high-definition TV, broadband imaging systems, flat-panel displays, robotic systems, and medical electronics and diagnostics are a few examples of the miniaturized device technologies that depend on the utilization of thin film materials. This book presents an in-depth overview of the novel developments made by the scientific leaders in the area of modern dielectric films for advanced microelectronic applications. It contains clear, concise explanations of material science of dielectric films and their problem for device operation, including high-k, low-k, medium-k dielectric films and also specific features and requirements for dielectric films used in the packaging technology. A broad range of related topics are covered, from physical principles to design, fabrication, characterization, and applications of novel dielectric films.

This book contains 16 chapters. In the first part, there are 8 chapters describing new materials and analytic methods. These materials include chapters on gold nanoparticles and Sol-Gel metal oxides, nanocomposites with carbon nanotubes, methods of evaluation by depth sensing, and other methods. The second part contains 3 chapters featuring new materials with unique properties including optical non-linearities, new materials based on pulp fibers, and the properties of nano-filled polymers. The last part contains 5 chapters with applications of new materials for medical devices, anodes for lithium batteries, electroceramics, phase change materials and matrix active nanoparticles.

A comprehensive overview of the key geologic, geomechanical and engineering principles that govern the development of unconventional oil and gas reservoirs. Covering hydrocarbon-bearing formations, horizontal drilling, reservoir seismology and environmental impacts, this is an invaluable resource for geologists, geophysicists and reservoir engineers.

Sediment classification methods compendium

Origins, Prediction, Detection, Evaluation

Industrial, Biological, and Waste Treatment Processes

Systematics and Evolution

Analysis of Natural and Man-Made Materials

Experimental Methods in Catalytic Research

This book presents some of the latest achievements in nanotechnology and nanomaterials from leading researchers in Ukraine, Europe, and beyond. It features selected peer-reviewed contributions from participants in the 4th International Science and Practice Conference Nanotechnology and Nanomaterials (NANO2016) held in Lviv, Ukraine on August 24-27, 2016. The International Conference was organized jointly by the Institute of Physics of the National Academy of Sciences of Ukraine, Ivan Franko National University of Lviv (Ukraine), University of Tartu (Estonia), University of Turin (Italy), and Pierre and Marie Curie University (France). Internationally recognized experts from a wide range of universities and research institutions share their knowledge and key results on topics ranging from nanooptics, nanoplasmonics, and interface studies to energy storage and biomedical applications.

Molten salts and fused media provide the key properties and the theory of molten salts, as well as aspects of fused salts chemistry, helping you generate new ideas and applications for fused salts.

Molten Salts Chemistry: From Lab to Applications examines how the electrical and thermal properties of molten salts, and generally low vapour pressure are well adapted to high temperature chemistry, enabling fast reaction rates. It also explains how their ability to dissolve many inorganic compounds such as oxides, nitrides, carbides and other salts make molten salts ideal as solvents in electrometallurgy, metal coating, treatment of by-products and energy conversion. This book also reviews newer applications of molten salts including materials for energy storage such as carbon nanoparticles for efficient super capacitors, high capacity molten salt batteries and for heat transport and storage in solar plants. In addition, owing to their high thermal stability, they are considered as ideal candidates for the development of safer nuclear reactors and for the treatment of nuclear waste, especially to separate actinides from lanthanides by electrorefining. Explains the theory and properties of molten salts to help scientists understand these unique liquids Provides an ideal introduction to this expanding field Illustrated text with key real-life applications of molten salts in synthesis, energy, nuclear, and metal extraction

This indispensable two-volume handbook covers everything on this hot research field. The first part deals with the synthesis, modification, characterization and application of catalytic active zeolites, while the second focuses on such reaction types as cracking, hydrocracking, isomerization, reforming and other industrially important topics. Edited by a highly experienced and internationally renowned team with chapters written by the "Who's Who" of zeolite research.

Abnormal Pressures While Drilling

Selected Proceedings of the 4th International Conference Nanotechnology and Nanomaterials (NANO2016), August 24-27, 2016, Lviv, Ukraine

From Lab to Applications

Zeolites and Catalysis

Proceedings - Arkansas Academy of Science

Advances in Nanotechnology Research and Application: 2012 Edition

This book is a collection of papers derived from a conference on membranes held at the Columbus Laboratories of Battelle Memorial Institute in Columbus, Ohio, on October 20 and 21, 1969.

When a decision is made to sponsor a membrane conference, the problem immediately arises as to what aspect of the technology needs to be emphasized. There were several alternatives from which to choose. The Office of Saline Water, for example, has been supporting for many years a tremendous volume of research on the desalination of sea and brackish water. In fact, were it not for this effort, the conference which resulted in this book could probably not have been held. Regardless, one could not easily choose to hold a conference on water desalting because the subject is adequately covered in the literature, and yearly conferences are sponsored by the funding agency. Other government agencies, specifically The National Heart and Lung Institutes and The National Institute of Arthritis and Metabolic Diseases, have supported a sizable number of research programs involving the use of membranes for biomedical devices useful in blood oxygenation and kidney augmentation or replacement. Again, these groups have their own outlets for disseminating research results. Still other choices existed among such areas as permeation processes for petroleum separations, advanced or novel membrane process concepts, or characterization of membranes - morphology, permeation properties, etc. , - or biological membranes. None of these areas seemed to provide just the right technological emphasis.

Atoms and molecules in all states of matter are subject to continuous irregular movement. This process, referred to as diffusion, is among the most general and basic phenomena in nature and determines the performance of many technological processes. This book provides an introduction to the fascinating world of diffusion in microporous solids. Jointly written by three well-known researchers in this field, it presents a coherent treatise, rather than a compilation of separate review articles, covering the theoretical fundamentals, molecular modeling, experimental observation and technical applications. Based on the book Diffusion in Zeolites and other Microporous Solids, originally published in 1992, it illustrates the remarkable speed with which this field has developed since that time. Specific topics include: new families of nanoporous materials, micro-imaging and single-particle tracking, direct monitoring of transient profiles by interference microscopy, single-file diffusion and new approaches to molecular modeling.

A realization of recent clean energy initiatives, fluidized bed combustion (FBC) has quickly won industry preference due to its ability to burn materials as diverse as low-grade coals, biomass, and industrial and municipal waste. Fluidized Bed Combustion catalogs the fundamental physical and chemical processes required of bubbling fluidized beds before launching into application-centered coverage of hot-gas generator, incinerator, and boiler concepts and design, calculations for regime parameters and dimensions, and all aspects of FBC operation. It enumerates the environmental consequences of fluidized bed processes and proposes measures to reduce the formation of harmful emissions.

Heat Transfer

Part B

Recent Developments in Geotextile Filters and Prefabricated Drainage Geocomposites

Characterization of Porous Solids VI

Mesoporous Molecular Sieves 1998

Unconventional Reservoir Geomechanics

The original properties of mesoporous molecular sieves are so unique that the design of most existing catalysts could be reconsidered. It might indeed be of interest to introduce MMS either as a support or as the active phase, merely on the basis of their high surface areas, narrow pore size distribution and flexibility in composition. The recent literature provides examples of MMS based catalysts of many types such as acid-base solids, supported metals and supported oxides, mixed oxides, anchored complexes and clusters, grafted organic functional groups and others. Examples of all these developments are documented in the present proceedings including some spectacular new proposals. The new metallic (Pt) mesophases are specially worth mentioning because they represent a new approach to producing non-supported highly dispersed metals. In these proceedings the reader will find feature articles and regular papers from many worldwide groups, covering all aspects of synthesis, physical characterization and catalytic reactivity of MMS and their chemically modified forms. It is actually remarkable that this recent development brought together an even broader spectrum of scientists from traditionally unrelated fields such as those of liquid crystals, surfactants, sol-gels, amorphous oxides and mixed oxides, solid state, adsorbents and heterogeneous catalysts. Obviously, this is a fast-growing research area which triggers the imagination and creativity at the cross-road between material design, molecular surface tailoring and catalytic applications.

A thumb print left at the scene of a grisly murder. Fingerprints taken from a getaway car used in a bank robbery. A palm print recovered from the shattered glass door of a burglarized home. Indeed, where crimes are committed, careless perpetrators will invariably leave behind the critical pieces of evidence—most likely in the form of fingerprints—needed to catch and convict them. But the science of fingerprint identification isn't always as cut and dry as detective novels and movies make it out to be. Quantitative-Qualitative Friction Ridge Analysis, a new book in the ongoing Practical Aspects of Criminal and Forensic Investigations series, examines the latest methods and techniques in the science of friction ridge identification, or ridgeology. David R. Ashbaugh examines every facet of the discipline, from the history of friction ridge identification and its earliest pioneers and researchers, to the scientific basis and the various steps of the identification process. The structure and growth of friction skin and how it can leave latent or visible prints are examined, as well as advanced identification methods in ridgeology, including Poroscopy, Edgeoscopy, Pressure Distortion and Complex or Problem Print Analysis. The book, which features several detailed illustrations and photographs, also includes a new method for Palmar Flexion Crease Identification (palm lines) designed by the author and which has helped solve several criminal cases where fingerprints were not available. For crime scene technicians, forensic identification specialists, or anyone else pursuing a career in forensic science, this book is arguably the definitive source in the science of friction ridge identification.

Provides information on woven and non-woven geotextiles used for filtering and drainage in geotechnical engineering. The design of such filters balances large pores for adequate permeability with smaller pores for proper soil retention. Of the 15 papers from a June 1995 symposium in Denver, Colorado
Membrane Science and Technology

Kinetics and Catalysis

Collected Reprints, Essa Institute for Oceanography

Collected Reprints

Dielectric Films for Advanced Microelectronics

The Fifth International Symposium on the Characterisation of Porous Solids (COPS-V) was held at Heidelberg, Germany, from May 30 to June 2, 1999. About 220 participants from 25 countries enjoyed a very successful meeting with 32 lectures and 155 poster presentations. The Symposium started with a highly stimulating lecture by Sir John Meurig Thomas, Cambridge, highlighting the recent developments in engineering of new catalysts. The following two full sessions were devoted to theory, modelling and simulation which provide the basis for the interpretation of pore structural data of adsorbents and finely dispersed solids. Sessions 2 and 3 focused on the advances in the synthesis and characterisation of highly ordered inorganic adsorbents and carbons. Sessions 4 and 5 addressed important questions with respect to the characterisation of porous solids by sorption measurement and other related techniques. The intensive three-day programme provided a stimulating forum for the exchange of novel research findings, concepts, techniques and materials which are collected in this volume.

This book contains 99 of the papers that were presented at the 6th in the series of Symposia on Characterization of Porous Solids held in Alicante, Spain, May 2002. Written by leading international specialists in the subject, the contributions represent an up-to-date and authoritative account of recent developments around the world in the major methods used to characterize porous solids. The book is a useful work of reference for anyone interested in characterizing porous solids, such as MCM-41 mesoporous materials, pillared clays, etc. Papers on pore structure determination using gas adsorption feature strongly, together with papers on small angle scattering methods, mercury porosimetry, microcalorimetry, scanning probe microscopies, and image analysis.

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Proceedings of the International Symposium RILEM/IUPAC. Structure Des Pores Et Propriétés Des Matériaux; Comptes Rendus Du Colloque International RILEM/IUPAC.

Sediment Classification Methods Compendium

Fluidized Bed Combustion

Nanoporous Materials II

Quantitative-Qualitative Friction Ridge Analysis

Pore Structure and Properties of Materials

Nanoporous Materials IIElsevier

Zeolites are hydrated aluminosilicate minerals of the family of microporous solids. According to the US Geological Survey, there are about 40 naturally occurring zeolites, forming in sedimentary and volcanic rocks. The most commonly mined forms include clinoptilolite, chabazite and mordenite. There are over 200 synthetic zeolites. For their abundance, natural and synthetic zeolites are widely used in the industry, agriculture, water treatment, wastewater treatment and as dietary supplements to treat diarrhea, autism, cancer and other. This book Zeolites and Their Applications deals with several aspects of zeolite morphology, synthesis and applications. The book is divided into three sections and structured into nine chapters. The first section includes the introductory chapter, the second section explains mineralogy, morphology and synthesis of zeolites and the third section focuses on the different applications of both natural and synthetic zeolites. So, in this book, the readers will obtain updated information on mineralogy, morphology, synthesis and application of zeolites. Scientists from different scientific fields reported in this book their findings.

The first symposium on Access in Nanoporous Materials was held in Lansing, Michigan on June 7-9, 1995. The five years that have passed since that initial meeting have brought remarkable advances in all aspects of this growing family of materials. In particular, impressive progress has been achieved in the area of novel self-assembled mesoporous materials, their synthesis, characterization and applications. The supramolecular self-assembly of various inorganic and organic species into ordered mesostructures became a powerful method for synthesis of mesoporous molecular sieves of tailored framework composition, pore structure, pore size and desired surface functionality for advanced applications in such areas as separation, adsorption, catalysis, environmental cleanup and nanotechnology. In addition to mesostructured metal oxide molecular sieves prepared through supramolecular assembly pathways, clays, carbon molecular sieves, porous polymers, sol-gel and imprinted materials, as well as self-assembled organic and other zeolite-like materials, have captured the attention of materials researchers around the globe. The contents of the current volume present a sampling of more than 150 oral and poster papers delivered at the Symposium on Access in Nanoporous Materials II held in Banff, Alberta on May 25-30, 2000. About 70% of the papers are devoted to the synthesis of siliceous mesoporous molecular sieves, their modification, characterization and applications, which represent the current research trend in nanoporous materials. The remaining contributions provide some indications on the future developments in the area of non-siliceous molecular sieves and related materials. This book reflects the current trends and advances in this area, which will certainly attract the attention of materials chemists in the 21st century.

Physical Chemistry: A Series of Monographs

Zeolites and Their Applications

A Comparative Study of Metrology Techniques for Porous Organic Thin Films

Organic Synthesis and Industrial Applications

Proceedings of the 6th International Symposium on the Characterization of Porous Solids (COPS-VI), Alicante, Spain, May 8 - 11 2002

Proceedings of the Arkansas Academy of Science