

Pore Classification In The Characterization Of Porous

Volcanic gas reservoirs are the new natural gas frontier. Once thought too complex, too harsh on the drilling bit, and too difficult to characterize, reservoir engineers and petroleum geologists alike now manage more advanced seismic and logging tools, making these “impossible” field developments possible. Bridging meaningful information about these complicated provinces and linking various unconventional methods and techniques, Volcanic Gas Reservoir Characterization: Describes a set of leading-edge integrated volcanic gas reservoir characterization techniques, helping to ensure the effective development of the field Reveals the grade and relationship of volcanic stratigraphic sequence Presents field identification and prediction methods, and interpretation technology of reservoir parameters, relating these to similar complex fields such as shale These innovative approaches and creative methods have been successfully applied to actual development of volcanic gas reservoirs. By sharing the methods and techniques used in this region with reservoir engineers and petroleum geologists all over the world, those with better understanding of these unconventional basins will begin to consider volcanic rock like any other reservoir. Summarizes the research and explains detailed case studies of volcanic gas technology developments, showing the latest achievements and lessons learned Supplies knowledge on volcanic gas reservoir basins to provide meaningful insight into similar complex reservoirs such as shale, coal bed methane, and heavy oil basins Contains extensive methodology, strong practicality and high

innovation, making this an ideal book for both the practicing and seasoned reservoir engineer and petroleum geologists working with complex reservoirs

This book is written in Portuguese by Roberto Reis, who has made significant contributions in the area of porous materials such as active carbons and graphenes. It details the preparation of porous materials, including carbonaceous, zeolitic, and siliceous materials, MOFs, aerogels, and xerogels, describing the characterization techniques and the interpretation of the results, and highlighting common errors that can occur during the process. This book subsequently presents the use of modeling based on thermodynamics to describe the materials. Lastly, it illustrates a number of current environmental protection applications in the context of both water and air.

The importance of porosity has long been recognized by scientists and engineers. Porous solids are widely encountered in industry and everyday life and their behaviour, e.g. chemical reactivity, adsorptive capacity, and catalytic activity is dependent on their pore structure. A considerable amount of work on porous solids has been undertaken both in academic and in industrial laboratories. However, all this activity is in urgent need of a critical appraisal. To undertake this task, a number of leading experts in the field of adsorption, porosimetry, X-ray and neutron scattering, optical and electron microscopy, calorimetry and fluid permeation, were brought together at the 1987 IUPAC (COPS I) Symposium. This proceedings volume provides an up-to-date overall review of the theoretical foundations for modelling and characterizing porous systems. It deals with most of the techniques in current use as applied to both model systems and porous solids of industrial importance. The reader will find the description and discussion of a number of novel techniques as well as a critical appraisal and comparison of the more established methods. All those concerned with the characterization of porous solids in academic and industrial laboratories will find much to interest them in this volume. It should be on the bookshelf of applied research centres involved in adsorption, catalysis, purification of gases and liquids, pigments, fillers, building materials, etc.

This Encyclopedia of Agrophysics will provide up-to-date information on the physical properties and processes affecting the quality of the environment and plant production. It will be a “first-up” volume which will nicely complement the recently published Encyclopedia of Soil Science, (November 2007) which was published in the same series. In a single authoritative volume a collection of about 250 informative articles and ca 400 glossary terms covering all aspects of agrophysics will be presented. The authors will be renowned specialists in various aspects in agrophysics from a wide variety of countries. Agrophysics is important both for research and practical use not only in agriculture, but also in areas like environmental science, land reclamation, food processing etc. Agrophysics is a relatively new interdisciplinary field closely related to Agrochemistry, Agrobiology, Agroclimatology and Agroecology. Nowadays it has been fully accepted as an agricultural and environmental discipline. As such this Encyclopedia volume will be an indispensable working tool for scientists and practitioners from different disciplines, like agriculture, soil science, geosciences, environmental science, geography, and engineering.

Fundamentals and Applications

Encyclopedia of Agrophysics

Green and Sustainable Processing

Coalbed Methane in China

Polymer Hybrid Materials and Nanocomposites

Formation and Properties

The first comprehensive textbook on the timely and rapidly developing topic of inorganic porous materials This is the first textbook to completely cover a broad range of inorganic porous materials. It introduces the reader to the development of functional porous inorganic materials, from the synthetic zeolites in the 50’s, to today’s hybrid materials such as metal-organic frameworks (MOFs), covalent organic frameworks (COFs) and related networks. It also provides the necessary background to understand how porous materials are organized, characterized, and applied in adsorption, catalysis, and many other domains. Additionally, the book explains characterization and application from the materials scientist viewpoint, giving the reader a practical approach on the characterization and application of the respective materials. Introduction to Inorganic Porous Materials begins by describing the basic concepts of porosity and the different types of pores, surfaces, and amorphous versus crystalline materials, before introducing readers to nature’s porous materials. It then goes on to cover everything from adsorption and catalysis to amorphous materials such as silica to inorganic carbons and Periodic Mesoporous Organosilicas (PMOs). It discusses the synthesis and applications of MOFs and the broad family of COFs. It concludes with a look at future prospects and emerging trends in the field. The only complete book of its kind to cover the wide variety of inorganic and hybrid porous materials A comprehensive reference and outstanding tool for any course on inorganic porous materials, heterogeneous catalysis, and adsorption Gives students and investigators the opportunity to learn about porous materials, how to characterize them, and understand how they can be applied in different fields Introduction to Inorganic Porous Materials is an excellent book for students and professionals of inorganic chemistry and materials science with an interest in porous materials, functional inorganic materials, heterogeneous catalysis and adsorption, and solid state characterization techniques.

This book offers a compact guide to geological core analysis, covering both theoretical and practical aspects of geological studies of reservoir cores. It equips the reader with the knowledge needed to precisely and accurately analyse cores. The book begins by providing a description of a coring plan, coring, and core sampling and continues with a sample preparation for geological analysis. It then goes on to explain how the samples are named, classified and integrated in order to understand the geological properties that dictate reservoir characteristics.

Subsequently, porosity and permeability data derived from routine experiments are combined to define geological rock types and reduce reservoir heterogeneity. Sequence stratigraphy is introduced for reservoir zonation. Core log preparation is also covered, allowing reservoirs to be analysed even more accurately. As the study of core samples is the only way to accurately gauge reservoir properties, this book provides a useful guide for all geologists and engineers working with subsurface samples.

Carbonate reservoirs are the most widely important type of the world’s hydrocarbon reserves. This volume presents key recent advances in carbonate exploration and reservoir analysis.

This second volume on carbonate reservoirs completes the two-volume treatise on this important topic for petroleum engineers and geologists. Together, the volumes form a complete, modern reference to the properties and production behaviour of carbonate petroleum reservoirs. The book contains valuable glossaries to geologic and petroleum engineering terms providing exact definitions for writers and speakers. Lecturers will find a useful appendix devoted to questions and problems that can be used for teaching assignments as well as a guide for lecture development. In addition, there is a chapter devoted to core analysis of carbonate rocks which is ideal for laboratory instruction. Managers and production engineers will find a review of the latest laboratory technology for carbonate formation evaluation in the chapter on core analysis. The modern classification of carbonate rocks is presented with petroleum production performance and overall characterization using seismic and well test analyses. Separate chapters are devoted to the important naturally fractured and chalk reservoirs. Throughout the book, the emphasis is on formation evaluation and performance. This two-volume work brings together the wide variety of approaches to the study of carbonate reservoirs and will therefore be of value to managers, engineers, geologists and lecturers.

Adsorption by Carbons

Fine Reservoir Description

Porous Materials

Synthesis and Application

Characterization of Porous Solids

Machine Learning for Subsurface Characterization

Polymer Hybrid Materials and Composites: Fundamentals and Applications presents an introduction to the principles behind polymeric hybrid materials, providing both theoretical and practical information on the synthesis and application of these materials. It documents the latest innovations, ranging from materials development and characterization of properties, to applications. Sections cover the route from laboratory to industry, providing practical, actionable guidance to assist the scaling up process for applications in areas including energy technology, solar cells, water purification, medical devices, optical and electrical devices, and more. It is an essential introduction to the emerging technologies that are made possible by these advanced materials. Documents the latest innovations in the technology, thus enabling new applications Provides significant and detailed information on the engineering of hybrid materials for a wide range of areas, including energy, medical, and electronics, among others

An accessible resource, covering the fundamentals of carbonateservoir engineering Includes discussions on how, where and why carbonate areformed, plus reviews of basic sedimentological and stratigraphicprinciples to explain carbonate platform characteristics andstratigraphic relationships Offers a new, genetic classification of carbonate porosity thatis especially useful in predicting spatial distribution of porenetworks

Research in polymeric membranes as well as R&D professionals will find this work an essential addition to the literature. It concentrates on the method recently developed to study the surfaces of synthetic polymeric membranes using an Atomic Force Microscope (AFM), which is fast becoming a very important tool. Each chapter includes information on basic principles, commercial applications, an overview of current research and guidelines for future research.

This volume of Advances in Intelligent Systems and Computing highlights key scientific achievements and innovations in all areas of automation, informatization, computer science, and artificial intelligence. It gathers papers presented at the IITI 2017, the Second International Conference on Intelligent Information Technologies for Industry, which was held in Varna, Bulgaria on September 14 – 16, 2017. The conference was jointly co-organized by Technical University of Varna (Bulgaria), Technical University of Sofia (Bulgaria), VSB Technical University of Ostrava (Czech Republic) and Rostov State Transport University (Russia). The IITI 2017 brought together international researchers and industrial practitioners interested in the development and implementation of modern technologies for automation, informatization, computer science, artificial intelligence, transport and power electrical engineering. In addition to advancing both fundamental research and innovative applications, the conference is intended to establish a new dissemination platform and an international network of researchers in these fields.

Powder Surface Area and Porosity

Carbonate Reservoir Characterization

Petrophysical Characterization and Fluids Transport in Unconventional Reservoirs

Unconventional Petroleum Geology

Advances in Carbonate Exploration and Reservoir Analysis

Exploration and Development

This book integrates those critical geologic aspects of reservoir formation and occurrence with engineering aspects of reservoirs, and presents a comprehensive treatment of the geometry, porosity and permeability evolution, and producing characteristics of carbonate reservoirs. The three major themes discussed are:

- the geometry of carbonate reservoirs and relationship to original depositional facies distributions
- the origin and types of porosity and permeability systems in carbonate reservoirs and their relationship to post-depositional diagenesis
- the relationship between depositional and diagenetic facies and producing characteristics of carbonate reservoirs, and the synergistic geologic-engineering approach to the exploitation of carbonate reservoirs. The intention of the volume is to fully acquaint professional petroleum geologists and engineers with an integrated geologic and engineering approach to the subject. As such, it presents a unique critical appraisal of the complex parameters that affect the recovery of hydrocarbon resources from carbonate rocks. The book may also be used as a text in petroleum geology and engineering courses at the advanced undergraduate and graduate levels.

Unconventional Petroleum Geology is the first book of its kind to collectively identify, catalog, and assess the exploration and recovery potential of the Earth’s unconventional hydrocarbons. Advances in hydrocarbon technology and petroleum development systems have recently made the exploration of unconventional hydrocarbons—such as shale gas, tight sandstone oil and gas, heavy oil, tar sand, and coalbed methane—the hottest trend in the petroleum industry. Detailed case studies act as real-world application templates, making the book’s concepts immediately practical and useful by exploration geologists. The logical and intuitive three-part approach of systematically identifying an unconventional hydrocarbon, cataloguing its accumulation features, and assessing its exploration and recovery potential can be immediately implemented in the field—anywhere in the world. Provides a detailed assessment of the exploration and recovery potential of the full range of unconventional hydrocarbons More than 300 illustrations—many in full color—capture the detailed intricacies and associated technological advances in unconventional hydrocarbon exploration More than 20 case studies and examples from around the world conclude each chapter and aid in the application of key exploration and recovery techniques

This four-volume handbook gives a state-of-the-art overview of porous materials, from synthesis and characterization and simulation all the way to manufacturing and industrial applications. The editors, coming from academia and industry, are known for their didactic skills as well as their technical expertise. Coordinating the efforts of 37 expert authors in 14 chapters, they construct the story of porous carbons, ceramics, zeolites and polymers from varied viewpoints: surface and colloidal science, materials science, chemical engineering, and energy engineering. Volumes 1 and 2 cover the fundamentals of preparation, characterisation, and simulation of porous materials. Working from the fundamentals all the way to the practicalities of industrial production processes, the subjects include hierarchic materials, in situ operando characterisation using NMR, X-Ray scattering and tomography, state-of-the-art molecular simulations of adsorption and diffusion in crystalline nanoporous materials, as well as the emerging areas of bio-artificial and drug delivery. Volume 3 focuses on porous materials in industrial separation applications, including adsorption separation, membrane separation, and osmotic distillation. Finally, and highly relevant to tomorrow’s energy challenges, Volume 4 explains the energy engineering aspects of applying porous materials in supercapacitors, fuel cells, batteries, electrolyzers and sub-surface energy applications.The text contains many high-quality colourful illustrations and examples, as well as thousands of up-to-date references to peer-reviewed articles, reports and websites for further reading. This comprehensive and well-written handbook is a must-have reference for universities, research groups and companies working with porous materials.Related Links)

Adsorption by Carbons covers the most significant aspects of adsorption by carbons, attempting to fill the existing gap between the fields of adsorption and carbonaceous materials. Both basic and applied aspects are presented. The first section of the book introduces physical adsorption and carbonaceous materials, and is followed by a section concerning the fundamentals of adsorption by carbons. This leads to development of a series of theoretical concepts that serve as an introduction to the following section in which adsorption is mainly envisaged as a tool to characterize the porous texture and surface chemistry of carbons. Particular attention is paid to some novel nanocarbons, and the electrochemistry of adsorption by carbons is also addressed. Finally, several important technological applications of gas and liquid adsorption by carbons in areas such as environmental protection and energy storage constitute the last section of the book. The first book to address the interplay between carbonaceous materials and adsorption Includes important environmental applications, such as the removal of volatile organic compounds from polluted atmospheres Covers both gas-solid and liquid-solid adsorption

A Color Guide to the Petrography of Carbonate Rocks

Characterization of Porous Solids II

Geological Core Analysis

The Identification, Description and Characterization of Hydrocarbon Reservoirs in Carbonate Rocks

Introduction to Porous Materials

Geology of Carbonate Reservoirs

This book discusses the decoding of the lytic mechanism of the 7-helical pore-forming toxin, YaxAB, composed of two different subunits. Pore-forming toxins (PFTs) are among the most common bacterial toxins. They are produced by a variety of pathogens, which infect a wide range of organisms including plants, insects and humans. Yet the maturation of these particles and the structural changes required for pore formation are still poorly understood for many PFT families. Using a diverse panel of biochemical and structural techniques, including X-ray crystallography and cryo-electron microscopy, Dr. Br uning and colleagues have succeeded in identifying the mechanistic contributions of the two toxin components and elucidating the lytic state of the pore complex. The results of this thesis on the YaxAB system are applicable to orthologues from agriculturally relevant insect pathogens, and offer valuable structural and mechanistic insights to inform future bioengineering efforts.

Provides comprehensive information about the key exploration, development and optimization concepts required for gas shale reservoirs Includes statistics about gas shale resources and countries that have shale gas potential Addresses the challenges that oil and gas industries may confront for gas shale reservoir exploration and development Introduces petrophysical analysis, rock physics, geomechanics and passive seismic methods for gas shale plays Details shale gas environmental issues and challenges, economic consideration for gas shale reservoirs Includes case studies of major producing gas shale formations

This book presents the proceedings of the 3rd International Conference on Integrated Petroleum Engineering and Geosciences 2014 (ICIPEGG2014). Topics covered on the petroleum engineering side include reservoir modeling and simulation, enhanced oil recovery, unconventional oil and gas reservoirs, production and operation. Similarly geoscience presentations cover diverse areas in geology, geophysics palaeontology and geochemistry. The selected papers focus on current interests in petroleum engineering and geoscience. This book will be a bridge between engineers, geoscientists, academicians and industry.

Based on "The Virtual Conference on Chemistry and its Applications (VCCA-2020) – Research and Innovations in the Chemical Sciences: Paving the Way Forward" held in August 2020 and organized by the Computational Chemistry Group of the University of Mauritius. The chapters reflect a wide range of fundamental and applied research in the chemical sciences and interdisciplinary subjects.

An Integrated Approach

Geotechnical and Geophysical Site Characterization 4

Volume 2

ICIPEG 2014

Synthetic Polymeric Membranes

Fundamentals of Gas Shale Reservoirs

Petrophysical Characterization and Fluids Transport in Unconventional Reservoirs presents a comprehensive look at these new methods and technologies for the petrophysical characterization of unconventional reservoirs, including recent theoretical advances and modeling on fluids transport in unconventional reservoirs. The book is a valuable tool for geoscientists and engineers working in academia and industry. Many novel technologies and approaches, including petrophysics, multi-scale modelling, rock reconstruction and upscaling approaches are discussed, along with the challenge of the development of unconventional reservoirs and the mechanism of multi-phase/multi-scale flow and transport in these structures. Includes both practical and theoretical research for the characterization of unconventional reservoirs Covers the basic approaches and mechanisms for enhanced recovery techniques in unconventional reservoirs Presents the latest research in the fluid transport processes in unconventional reservoirs

Microsized and Nanosized Carriers for Nonsteroidal Anti-Inflammatory Drugs: Formulation Challenges and Potential Benefits provides a unique and complete overview of novel formulation strategies for improvement of the delivery of NSAIDs via encapsulation in microsized and nanosized carriers composed of different materials of natural and synthetic origin. This book presents the latest research on advances and limitations of both microsized and nanosized drug carriers and NSAIDs before discussing the formulation aspects of these drug carriers that are intended for oral, dermal, and transdermal administration of NSAIDs. In addition, functionality of these materials as potential excipients for microsized and nanosized carriers is discussed and debated. Practical solutions for improving effectiveness of these drugs are included throughout the book, making this an important resource for graduate students, professors, and researchers in the pharmaceutical sciences. Covers a wide range of microsized and nanosized carriers in one resource, including particulate carriers (microparticles, nanoparticles, and zeolites) and the soft colloidal carriers, such as micro-emulsions and nano-emulsions Presents the reader with various formulation approaches dependent on the characteristics of the material, model drug, and desired route of administration Approaches are based on the latest research in the area and formulation strategies may have broader applications to the encapsulation of other active pharmaceutical ingredients

Metal–organic frameworks are among the most promising novel materials. The concept of MOFs was first introduced in 1990. They were actually initially used in catalysis, gas separation, membranes, electrochemical sensors. Later on, they were introduced as SPE sorbents for PAHs (Polycyclic Aromatic Hydrocarbons) in environmental water samples, then the range expanded to the field of analytical chemistry, both in chromatographic separation and sample preparation, with great success in, e.g., SPE and SPME (Solid Phase Mico-extraction). Since then, the number of analytical applications implementing MOFs as sorbents in sorptive sample preparation approaches is increasing. His is reinforced by the fact that, at least theoretically, an infinite number of structures can be designed and synthesized, thus making tunability one of the most unique characteristics of MOF materials. Moreover, they have been designed in various shapes, such as columns, fibers, and films, so that they can meet more analytical challenges with improved analytical features.Their exceptional properties attracted the interest of analytical chemists who have taken advantage of the unique structures and properties and have already introduced them in several sample pretreatment techniques, such as solid phase extraction, dispersive SPE, magnetic solid phase extraction, solid phase microextraction, stir bar sorptive extraction, etc.

Porous silicon is rapidly attracting increasing interest in various fields, including optoelectronics, microelectronics, photonics, medicine, chemistry, biosensing, and energy. Porous Silicon: Formation and Properties fills a gap in the literature of the field today, providing a thorough introduction to current knowledge of the formation, processing, and properties of porous silicon. It also analyzes present and potential applications of porous silicon in technology, including various devices. With contributions from an international team of well-known experts, this book presents the most recent progress in the field of porous silicon. Focused chapters cover the fundamentals of silicon porosification, the qualities of porous silicon, including its electrical, luminescent, optical, and thermal properties, and the processing of porous silicon for use in the technology of other fields. It also gives valuable insights on what can be expected from the field in the near future. The book includes extensive references to recently published literature on the subject, allowing for deeper exploration of information on the porosification process, designing porous silicon-based technology, and improving performance of devices fabricated using porous silicon. It is an indispensable addition to the library of any scientist or technician involved or interested in the research, development, and application of porous silicon.

Handbook Of Porous Materials: Synthesis, Properties, Modeling And Key Applications (In 4 Volumes)

Formulation Challenges and Potential Benefits

Grains, Textures, Porosity, Diagenesis, AAPG Memoir 77

Theory and Its Application for Environmental Remediation

Microsized and Nanosized Carriers for Nonsteroidal Anti-Inflammatory Drugs

Characterization of Porous Materials

Machine Learning for Subsurface Characterization develops and applies neural networks, random forests, deep learning, unsupervised learning, Bayesian frameworks, and clustering methods for subsurface characterization. Machine learning (ML) focusses on developing computational methods/algorithms that learn to recognize patterns and quantify functional relationships by processing large data sets, also referred to as the "big data." Deep learning (DL) is a subset of machine learning that processes "big data" to construct numerous layers of abstraction to accomplish the learning task. DL methods do not require the manual step of extracting/engineering features; however, it requires us to provide large amounts of data along with high-performance computing to obtain reliable results in a timely manner. This reference helps the engineers, geophysicists, and geoscientists get familiar with data science and analytics terminology relevant to subsurface characterization and demonstrates the use of data-driven methods for outlier detection, geomechanical/electromagnetic characterization, image analysis, fluid saturation estimation, and pore-scale characterization in the subsurface. Learn from 13 practical case studies using field, laboratory, and simulation data Become knowledgeable with data science and analytics terminology relevant to subsurface characterization Learn frameworks, concepts, and methods important for the engineer's and geoscientist's toolbox needed to support

Reservoir Characterization of Tight Gas Sandstones: Exploration and Development is essential reading for those working in oil and gas exploration (both in industry and academia) as it contains chapters that help them further understand all aspects of tight gas reservoirs. In this book, experts in industry and academia update readers on new methods of tight gas reservoir modeling and evaluation. As there are very limited published books in the field of tight sandstones, this book will benefit readers by making them familiar with state-of-art methods of tight gas sandstones characterization and evaluation. Features case studies from the United States, China, Canada, and Australia Includes recent developments in sedimentological, petrophysical, reservoir modeling and tracking technologies of tight gas sandstone reservoirs Covers applications for the characterization of tight sandstones for the methodologies presented

The growth of interest in newly developed porous materials has prompted the writing of this book for those who have the need to make meaningful measurements without the benefit of years of experience. One might consider this new book as the 4th edition of "Powder Surface Area and Porosity" (Lowell & Shields), but for this new edition we set out to incorporate recent developments in the understanding of fluids in many types of porous materials, not just powders. Based on this, we felt that it would be prudent to change the title to "Characterization of Porous Solids and Powders: Surface Area, Porosity and Density".

This book gives a unique overview of principles associated with the characterization of solids with regard to their surface area, pore size, pore volume and density. It covers methods based on gas adsorption (both physis and chemisorption), mercury porosimetry and pycnometry. Not only are the theoretical and experimental basics of these techniques presented in detail but also, in light of the tremendous progress made in recent years in materials science and nanotechnology, the most recent developments are described. In particular, the application of classical theories and methods for pore size analysis are contrasted with the most advanced microscopic theories based on statistical mechanics (e.g. Density Functional Theory and Molecular Simulation). The characterization of heterogeneous catalysts is more prominent than in earlier editions; the sections on mercury porosimetry and particularly chemisorption have been updated and greatly expanded.

This book presents a comprehensive overview of titanium dioxide, including recent advances and applications. It focuses on the compound's uses in environmental remediation, photocatalytic materials, rechargeable lithium-ion batteries, thin films, energy storage, semiconductors, and much more. This volume is a useful resource for researchers, scientists, engineers, and students.

Characterization by Atomic Force Microscopy

Advances and Applications

Characterization of Porous Solids and Powders: Surface Area, Pore Size and Density

Carbonate Reservoir Characterization: A Geologic-Engineering Analysis

Titanium Dioxide

Proceedings of the International Conference on Integrated Petroleum Engineering and Geosciences

Characterization of Porous MaterialsThe Electrochemical Society

Site characterization is a fundamental step towards the proper design, construction and long term performance of all types of geotechnical projects, ranging from foundation, excavation, earth dams, embankments, seismic hazards, environmental issues, tunnels, near and offshore structures. The Fourth International Conference on Site Characterization

In the automotive industry, the need to reduce vehicle weight has given rise to extensive research efforts to develop aluminum and magnesium alloys for structural car body parts. In aerospace, the move toward composite airframe structures urged an increased use of formable titanium alloys. In steel research, there are ongoing efforts to design novel damage-controlled forming processes for a new generation of efficient and reliable lightweight steel components. All these materials, and more, constitute today's research mission for lightweight structures. They provide a fertile materials science research field aiming to achieve a better understanding of the interplay between industrial processing, microstructure development, and the resulting material properties. The Handbook of Research on Advancements in the Processing, Characterization, and Application of Lightweight Materials provides the recent advancements in the lightweight mat materials processing, manufacturing, and characterization. This book identifies the need for modern tools and techniques for designing lightweight materials and addresses multidisciplinary approaches for applying their use. Covering topics such as numerical optimization, fatigue characterization, and process evaluation, this text is an essential resource for materials engineers, manufacturers, practitioners, engineers, academicians, chief research officers, researchers, students, and vice presidents of research in government, industry, and academia.

F. Jerry Lucia, working in America's main oil-rich state, has produced a work that goes after one of the holy grails of oil prospecting. One main target in petroleum recovery is the description of the three-dimensional distribution of petrophysical properties on the interwell scale in carbonate reservoirs. Doing so would improve performance predictions by means of fluid-flow computer simulations. Lucia's book focuses on the improvement of geological, petrophysical, and geostatistical methods, describes the basic petrophysical properties, important geology parameters, and rock fabrics from cores, and discusses their spatial distribution. A closing chapter deals with reservoir models as an input into flow simulators.

Techniques, Current Status, Challenges, and Solutions

Chemical and Geological Essays

Proceedings of the Second International Scientific Conference “Intelligent Information Technologies for Industry” (IITI’17)

Reservoir Characterization of Tight Gas Sandstones

Volcanic Gas Reservoir Characterization

The coalbed methane (CBM) reserve in China ranks third in the world with a total resource of 36.8x1012 m3. Exploitation of CBM has an important practical significance to ensure the long-term rapid development of China natural gas industry. Therefore, in 2002, the Ministry of Science and Technology of China set up a national 973 program to study CBM system and resolve problems of CBM exploration and exploitation in China. All the main research results and new insights from the program are presented in this book. The book is divided into 11 chapters. The first chapter mainly introduces the present situation of CBM exploration and development in China and abroad. Chapters 2 through 9 illustrate the geological theory and prospect evaluation methods. Then chapters 10 and 11 discuss CBM recovery mechanisms and technology. The book systematically describes the origin, storage, accumulation and emission of CBM in China, and also proposes new methods and technologies on resource evaluation, prospect prediction, seismic interpretation and enhanced recovery. The book will appeal to geologists, lecturers and students who are involved in the CBM industry and connected with coal and conventional hydrocarbon resources research.

Fine Reservoir Description: Techniques, Current Status, Challenges and Solutions presents studies on fine oil and gas reservoirs, covering aspects of current status and progress, content and methods/techniques, as well as challenges and solutions through literature review and case studies of reservoirs, including volcanic rocks in the Songliao Basin, gluteinite at the northwestern margin of the Junggar Basin, and sandstone in the Liaohe Basin, China. This book contains a large amount of data and illustrations. Provides a comprehensive overview of the latest advances in refined reservoir characterization for three types of reservoirs: high water cut, low permeability, and complex lithology Includes methods and techniques of fine reservoir description that are elaborated from nine aspects, such as fine stratigraphic division and correlation, fracture characterization and fine characterization of sand body Presents eight easy to use measures that are proposed to solve the problems of fine reservoir description

The papers included in this issue of ECS Transactions were originally presented in the symposium „Characterization of Porous Materials“, held during the 213th meeting of The Electrochemical Society, in Phoenix, Arizona from May 18 to 23, 2008.

The rapid growth of interest in powders and their surface properties in many diverse industries prompted the writing of this book for those who have the need to make meaningful measurements without the benefit of years of experience. It is intended as an introduction to some of the elementary theory and experimental methods used to study the surface area, porosity and density of powders. It may be found useful by those with little or no training in solid surface areas who have the need to quickly learn the rudiments of surface area, density and pore-size measurements. Svyoset, New York S. Lowell May, 1983 J. E. Shields XI List of symbols Use of symbols for purposes other than those indicated in the following list are so defined in the text. Some symbols not shown in this list are defined in the text. d adsorbate cross-sectional area A area; condensation coefficient; collision frequency; coefficient of thermal diffusion E adsorption potential / permeability aspect factor F flow rate; force; feed rate g gravitational constant G Gibbs free energy GS free surface energy h heat of immersion per unit area; height H enthalpy Hi heat of immersion Hsv heat of adsorption BET intercept; Filament current k thermal conductivity; specific reaction rate K Harkins-Jura constant l length L heat of liquefaction M mass M molecular weight n number of moles N number of molecules; number of particles N Avagadro's number .

Geological Theory and Development

Handbook of Research on Advancements in the Processing, Characterization, and Application of Lightweight Materials

Application to Reservoir Characterization

Metal Organic Frameworks

Structural and Biochemical Characterization of the YaxAB Pore-forming Toxin from *Yersinia Enterocolitica*

Report 28: Characterisation of Old Mortars with Respect to their Repair - State-of-the-Art Report of RILEM Technical Committee 167-COM

The Second IUPAC Symposium on the Characterization of Porous Solids (COPS-II) provided the opportunity for detailed discussion and appraisal of the most important techniques currently used for the characterization of porous materials, especially those of technological importance. The 82 selected papers and reviews contained in this volume are mainly concerned with the theoretical and experimental aspects of adsorption, fluid penetration, small-angle scattering and spectroscopic methods with their application in the study of

adsorbents, catalysts, constructional materials, etc. Particular attention is given to the characterization of carbons, oxides, zeolites, clays, cement and polymers. The wide range of materials and techniques described in this book provide a useful and comprehensive reference source for academic and industrial scientists and technologists.

Porous Silicon: From Formation to Application: Formation and Properties, Volume One