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Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling - Environmental Research Laboratory (Athens, Ga.) 1978

Monthly Catalogue, United States Public Documents - 1983

Carbonate Reservoir Characterization: A Geologic-Engineering Analysis - S.J. Mazzullo 1996-11-22

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.

Hydrodynamics and Transport Processes of Inverse Bubbly Flow - Subrata Kumar Majumder 2016-03-31

Hydrodynamics and Transport Processes of Inverse Bubbly Flow provides the science and fundamentals behind hydrodynamic characteristics, including flow regimes, gas entrainment, pressure drop, holdup and mixing characteristics, bubble size distribution, and the interfacial area of inverse bubble flow regimes. Special attention is given to mass and heat transfer. This book is an indispensable reference for researchers in academia and industry working in chemical and biochemical engineering. Hydrodynamics and Transport Processes of Inverse Bubbly Flow helps facilitate a better understanding of the phenomena of multiphase flow systems as used in chemical and biochemical industries. A first book in the market dedicated to the hydrodynamics of inverse bubbly flows Includes fundamentals of conventional and inverse bubble columns for different hydrodynamic parameters Includes recommendations for future applications of bubble flows

Arid Lands Water Evaluation and Management - Robert Maliva 2012-06-09

A large part of the global population lives in arid lands which have low rainfall and often lack the water required for sustainable population and economic growth. This book presents a comprehensive description of the hydrogeology and hydrologic processes at work in arid lands. It describes the techniques that can be used to assess and manage the water resources of these areas with an emphasis on groundwater resources, including recent advances in hydrologic evaluation and the differences between how aquifer systems behave in arid lands versus more humid areas. Water management techniques are described and summarized to show how a more comprehensive approach to water management is required in these areas, including the need to be aware of cultural sensitivities and conditions unique to many arid regions. The integration of existing resources with the addition of new water sources, such as desalination of brackish water and seawater, along with reusing treated wastewater, will be required to meet future water supply needs. Also, changing climatic conditions will force water management systems to be more robust so that future water supply demands can be met as droughts become more intense and rainfall events become more intense.

A range of water management techniques are described and discussed in order to illustrate the methods for integrating these measures within the context of arid lands conditions.

Methods of Soil Analysis, Part 4 - Jacob H. Dane 2020-05-27

The best single reference for both the theory and practice of soil physical measurements, Methods, Part 4 adopts a more hierarchical approach to allow readers to easily find their specific topic or measurement of interest. As such it is divided into eight main chapters on soil sampling and statistics, the solid, solution, and gas phases, soil heat, solute transport, multi-fluid flow, and erosion. More than 100 world experts contribute detailed sections.

Physicochemical Hydrodynamics - Manuel G. Verlarde 2012-12-06

This book contains lecture notes and invited contributions presented at the NATO Advanced Study Institute and EPS Liquid State Conference on PHYSICOCHEMICAL HYDRODYNAMICS-PCH: INTERFACIAL PHENOMENA that were held July 1-15, 1986, in LA RABIDA (Huelva) SPAIN. Although we are aware of the difficulty in organizing the contents due to the broad and multidisciplinary aspects of PCH-Interfacial Phenomena, we have tried to accommodate papers by topics and have not followed the order in the presentation at the meetings. There is also no distinction between the ASI notes and Conference papers. We have done our best to offer a coverage as complete as possible of the field.

However, we had difficulties coming from the fact that some authors were so busy that either did not find time to submit their contribution or did not have time to write a comprehensive paper. We also had to cope with very late arrivals, postdeadline valuable contributions that we felt had to be included here. Our gratitude goes to the NATO Scientific Affairs Division for its economic support and to the EPS Liquid State Committee for its sponsorship. Financial support also came from Asociacion Industrias Quimicas-Huelva (Spain), Caycit-Ministerio De Educacion Y Ciencia (Spain), Canon-Espana (Spain), Citibank-Espana (Spain), CNLS-Los Alamos Nat. Lab. (U. S. A.), CSIC (Spain), EPS, ERT (Spain), ESA, Fotonica (Spain), IBM-Espana (Spain), Junta De Andalucia (Spain), NATO, NSF (U. S. A.), ONR-London (U. S. A.

Catalyst Characterization - Boris Imelik 2013-06-29

to the Fundamental and Applied Catalysis Series Catalysis is important academically and industrially. It plays an essential role in the manufacture of a wide range of products, from gasoline and plastics to fertilizers and herbicides, which would otherwise be unobtainable or prohibitively expensive. There are few chemical-or oil-based material items in modern society that do not depend in some way on a catalytic stage in their manufacture. Apart from manufacturing processes, catalysis is finding other important and over-increasing uses; for example, successful applications of catalysis in the control of pollution and its use in environmental control are certain to increase in the future. The commercial importance of catalysis and the diverse intellectual challenges of catalytic phenomena have stimulated study by a broad spectrum of scientists including chemists, physicists, chemical engineers, and material scientists. Increasing research activity over the years has brought deeper levels of understanding, and these have been associated with a continually growing amount of published material. As recently as sixty years ago, Rideal and Taylor could still treat the subject comprehensively in a single volume, but by the 1950s Emmett required six volumes, and no conventional multivolume text could now cover the whole of catalysis in any depth.

Site Characterization Progress Report -

Groundwater-Surface Water Interactions - Habil. Jörg Lewandowski 2020-12-10

Recent years have seen a paradigm shift in our understanding of groundwater-surface water interactions: surface water and aquifers were long considered discrete, separate entities; they are now understood as integral components of a surface-subsurface continuum. This book provides an overview of current research advances and

innovative approaches in groundwater-surface water interactions. The 20 research articles and 1 communication cover a wide range of thematic scopes, scales, and experimental and modelling methods across different disciplines (hydrology, aquatic ecology, biogeochemistry, and environmental pollution). The book identifies current knowledge gaps and reveals the challenges in establishing standardized measurement, observation, and assessment approaches. It includes current hot topics with environmental and societal relevance such as eutrophication, retention of legacy, and emerging pollutants (e.g., pharmaceuticals and microplastics), urban water interfaces, and climate change impacts. The book demonstrates the relevance of processes at groundwater-surface water interfaces for (1) regional water balances and (2) quality and quantity of drinking water resources. As such, this book represents the long-awaited transfer of the above-mentioned paradigm shift in understanding of groundwater-surface water interactions from science to practice.

Scientific and Technical Aerospace Reports - 1995

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

Energy Research Abstracts - 1994

Semiannual, with semiannual and annual indexes. References to all scientific and technical literature coming from DOE, its laboratories, energy centers, and contractors. Includes all works deriving from DOE, other related government-sponsored information, and foreign nonnuclear information. Arranged under 39 categories, e.g., Biomedical sciences, basic studies; Biomedical sciences, applied studies; Health and safety; and Fusion energy. Entry gives bibliographical information and abstract. Corporate, author, subject, report number indexes.

Measuring Techniques in Gas-Liquid Two-Phase Flows - J.M. Delhaye 2012-12-06

A IUTAM symposium on "Measuring Techniques in Gas-Liquid Two Phase Flows" was held on July 5-8, 1983 in Nancy, France. This topic included instrumentation for steam-water and liquid-vapor flows but strictly excluded measuring techniques for gas or liquid flows with solid particles. The top priority in the paper selection was given to presentations of new methods which had been substantiated by theoretical modeling, calibration tests and comparison tests with other techniques. Examples of experimental results obtained with the proposed instrumentation had to be displayed. However the interpretation of these results in terms of two-phase flow or heat transfer modeling did not fall within the scope of the meeting. Thirty four papers were presented during the Symposium and 79 participants coming from Canada, European countries, Japan and the United States attended the sessions. They represented not only Universities but also state agencies and private companies. After the meeting each paper was peer-reviewed by at least three referees. The Editors of this Proceedings Volume are pleased to extend their deep gratitude to the following reviewers: J.L. Achard, R.J. Adrian, B. Azzopardi, J.A. Boure, G. Costigan, M. Courtaud, A.E. Dukler, F. Durst, J.R. Fincke, G. Gouesbet, P. Griffith, T.J. Hanratty, A. Hawighorst, T.R. Heidrick, G. Hetsroni, Y.Y. Hsu, M.

Hydraulic and Hydrochemical Characterisation of Argillaceous Rocks - OECD Nuclear Energy Agency 1995

Environmental isotope study of pore water and of fracture calcites in the Tournemire Toarcian claystones: sampling, analyses and preliminary interpretation / J.-L. Michelot, P. Ricard, A. Barbreau and J.-Y. Boisson -- Pore-water extraction from unsaturated tuff using triaxial and one-dimensional compression methods / I.C. Yang, J.D. Higgins and L.R. Hayes -- Hydraulic characterization of the boom clay formation from the HADES underground laboratory in Mol: evolution and assessment of the Piezometric techniques / P. De Cannière, M.J. Put and B. Neerdael -- Review of hydraulic field tests in the opalinus clay of Northern Switzerland / R.T. Johns, S.G. Vomvoris, and S. Löw -- Interaction between Wellbore fluids and shale during drilling / L. Bailey, P.I. Reid and J.D. Sherwood -- Determination of hydraulic and hydrochemical characteristics of argillaceous rocks / M. Audiguier, J. Billiotte, X. Daupley and J.Y. Boisson --

Standard Handbook of Petroleum and Natural Gas Engineering - William C. Lyons 2011-03-15

This new edition of the Standard Handbook of Petroleum and Natural Gas Engineering provides you with the best, state-of-the-art coverage for every aspect of petroleum and natural gas engineering. With thousands of illustrations and 1,600 information-packed pages, this text is a handy and valuable reference. Written by over a dozen leading industry experts and academics, the Standard Handbook of Petroleum and Natural Gas

Engineering provides the best, most comprehensive source of petroleum engineering information available. Now in an easy-to-use single volume format, this classic is one of the true "must haves" in any petroleum or natural gas engineer's library. * A classic for the oil and gas industry for over 65 years! * A comprehensive source for the newest developments, advances, and procedures in the petrochemical industry, covering everything from drilling and production to the economics of the oil patch. * Everything you need - all the facts, data, equipment, performance, and principles of petroleum engineering, information not found anywhere else. * A desktop reference for all kinds of calculations, tables, and equations that engineers need on the rig or in the office. * A time and money saver on procedural and equipment alternatives, application techniques, and new approaches to problems.

Methods for Wastewater Characterization in Activated Sludge Modelling - Henryk Melcer 2004-11-01

Mathematical modeling is a useful tool for the design, analysis and control of wastewater treatment systems. The activated sludge process is one of the most common processes used in wastewater treatment, and therefore is a particularly important candidate for the application of mathematical models. In the 1980s, a task group organized by the International Association on Water Quality (IAWQ) developed a conceptual model of the activated sludge process, which has become an industry-wide standard for the development of computer-based activated sludge models. A recent version of the IAWQ model incorporates 19 components, 17 processes, and numerous rate and stoichiometric coefficients. It is difficult and costly to quantify all of the necessary coefficients for any given application of the model; consequently, it is important to identify the most critical wastewater and biomass components and the relevant coefficients to be quantified for the most common uses of the model. It is also important to provide guidance to potential model users on the use of default and/or estimated values for the remaining parameters.

Free-Convective Heat Transfer - Oleg G. Martynenko 2005-12-06

Free Convective Heat Transfer is a thorough survey of various kinds of free-convective flows and heat transfer. Reference data are accompanied by a large number of photographs originating from different optical visualization methods illustrating the different types of flow. The formulas derived from numerical and analytical investigations are valuable tools for engineering calculations. They are written in their most compact and general form in order to allow for an extensive range of different variants of boundary and initial conditions, which, in turn, leads to a wide applicability to different flow types. Some specific engineering problems are solved in the book as exemplary applications of these formulas.

Characterization and Measurement of the Hydraulic Properties of Unsaturated Porous Media - M. Th Van Genuchten 1999

Handbook of Vadose Zone Characterization & Monitoring - L. Gray Wilson 2018-05-02

This book is written in a simple, straightforward manner without complicated mathematical derivatives. Compiled by experienced practitioners, this guide covers topics such as basic principles of vadose zone hydrology and prevalent monitoring techniques. Case studies present actual field experiences for the benefit of the reader. The Handbook provides practitioners with the information they need to fully understand the principles, advantages, and limitations of the monitoring techniques that are available. The Handbook of Vadose Zone Characterization & Monitoring expands and consolidates the useful and succinct information contained in various ASTM documents, EPA manuals, and other similar texts on the subject, making it an invaluable aid to new practitioners and a useful reference for seasoned veterans in the field.

Advanced Topics in Mass Transfer - Mohamed El-Amin 2011-02-21

This book introduces a number of selected advanced topics in mass transfer phenomenon and covers its theoretical, numerical, modeling and experimental aspects. The 26 chapters of this book are divided into five parts. The first is devoted to the study of some problems of mass transfer in microchannels, turbulence, waves and plasma, while chapters regarding mass transfer with hydro-, magnetohydro- and electro-dynamics are collected in the second part. The third part deals with mass transfer in food, such as rice, cheese, fruits and vegetables, and the fourth focuses on mass transfer in some large-scale applications such as geomorphologic studies. The last part introduces several issues of combined heat and mass transfer phenomena. The book can be considered as a rich reference for researchers and engineers working in the field of mass transfer and its related topics.

Modelling of Flow and Transport in Fractal Porous Media -

Jianchao Cai 2020-11-16

This important resource explores recent theoretical advances and modelling on fluids transport in fractal porous systems and presents a systematic understanding of the characterization of complex microstructure and transport mechanism in fractal porous media. Modelling of Flow and Transport in Fractal Porous Media shows how fractal theory and technology, combined with other modern experiments and numerical simulation methods, will assist researchers and practitioners in modelling of transport properties of fractal porous media, such as fluid flow, heat and mass transfer, mechanical characteristics, and electrical conductivity. Presents the main methods and technologies for transport characterization of fractal porous media, including soils, reservoirs and artificial materials Provides the most recent theoretical advances in modelling of fractal porous media, including gas and vapor transport in fibrous materials, nonlinear seepage flow in hydrocarbon reservoirs, mass transfer of porous nanofibers, and fractal mechanics of unsaturated soils Includes multidisciplinary examples of applications of fractal theory to aid researchers and practitioners in characterizing various porous media structures

Evaluating Factors Controlling Damage and Productivity in Tight Gas Reservoirs -

Nick Bahrami 2013-11-01

Tight gas reservoirs have very low permeability and porosity, which cannot be produced at economical flow rates unless the well is efficiently stimulated and completed using advanced and optimized technologies. Economical production on the basis of tight gas reservoirs is challenging in general, not only due to their very low permeability but also to several different forms of formation damage that can occur during drilling, completion, stimulation, and production operations. This study demonstrates in detail the effects of different well and reservoir static and dynamic parameters that influence damage mechanisms and well productivity in tight gas reservoirs. Geomechanics, petrophysics, production and reservoir engineering expertise for reservoir characterization is combined with a reservoir simulation approach and core analysis experiments to understand the optimum strategy for tight gas development, delivering improved well productivity and gas recovery.

Gas Well Testing Handbook -

Amanat Chaudhry 2003-09-24

This title deals exclusively with theory and practice of gas well testing, pressure transient analysis techniques, and analytical methods required to interpret well behavior in a given reservoir and evaluate reservoir quality, simulation efforts, and forecast producing capacity. A highly practical edition, this book is written for graduate students, reservoir/simulation engineers, technologists, geologists, geophysicists, and technical managers. The author draws from his extensive experience in reservoir/simulation, well testing, PVT analysis basics, and production operations from around the world and provides the reader with a thorough understanding of gas well test analysis basics. The main emphasis is on practical field application, where over 100 field examples are presented to illustrate basic methods for analysis. Simple solutions to the diffusivity equation are discussed and their physical meanings examined. Each chapter focuses in how to use the information gained in well testing to make engineering and economic decisions, and an overview of the current research models and their equations are discussed in relation to gas wells, homogenous, heterogeneous, naturally and hydraulically fractured reservoirs. Handy, portable reference with thousands of equations and procedures. There is currently no other reference or handbook on the market that focuses only on gas well testing. Offers "one stop shopping" for the drilling and reservoir engineer on gas well testing issues.

Tubular String Characterization in High Temperature High Pressure Oil and Gas Wells -

Jiuping Xu 2018-10-30

High temperature, high oil pressure, oil and gas well completion testing have always been a technical challenge and basic theoretical research is one of the key factors needed to ensure a successful completion test. The completion test basic theory includes: a stress analysis of the completion string, completion string buckling behavior, and temperature and pressure distribution prediction. The completion string is the main bearing and power transmission component for oil and gas well operations and production, and it is required to take on a combination of loads, which result in completion string deformation. Because of these complex relationships, completion string stress analysis has become increasingly more complicated. This book discusses the characters of tubular strings in HTHP (High Temperature - High Pressure) oil and gas wells. These characters include the mechanical behavior of tubular

strings and the temperature and pressure variation of tubular strings in different conditions. Mathematical models are established for different conditions and solution existence and uniqueness of some models is discussed, providing algorithms corresponding to the different models. Numerical experiments are presented to verify the validity of models and the feasibility of algorithms, and the impact of the parameters of models for oil and gas wells is also discussed. This book is written for production and testing engineers to provide them with the tools to deal more effectively with the numerical decisions they have to take and for researchers and technicians in petroleum and gas testing and production engineering. Finally, it is also intended to serve as a reference book for mathematicians, college teachers and students.

Characterization and Control of Odours and VOC in the Process Industries -

S. Vigneron 1994-09-01

The purpose of the symposium was to present recent advances in characterization and control of odour and volatile organic compound emissions in the atmosphere, and to contribute to the state-of-the-art of measurement and sampling tools, impact prediction methods and abatement techniques. Topics covered were: Legislative aspects Emission characterization Abatement technologies, both recuperative and destructive and Reduction methods. Apart from the global problems of climate, all aspects relating to the workplace environment and official regulations were discussed.

Rock Mechanics Tools and Techniques : -

Michel Aubertin 1996

Soil-Water-Solute Process Characterization -

Javier Alvarez-Benedi 2004-12-28

The practitioner or researcher often faces complex alternatives when selecting a method to characterize properties governing a soil process. After years of research and development, environmental and agricultural professionals now have an array of methods for characterizing soil processes. Well-established methods, however, may not be suitable for **Sustainable Natural Gas Reservoir and Production Engineering -** David A. Wood 2021-10-30 Sustainable Natural Gas Reservoir and Production Engineering, the latest release in The Fundamentals and Sustainable Advances in Natural Gas Science and Engineering series, delivers many of the scientific fundamentals needed in the natural gas industry, including improving gas recovery, simulation processes for fracturing methods, and methods for optimizing production strategies. Advanced research covered includes machine learning applications, gas fracturing mechanics aimed at reducing environmental impact, and enhanced oil recovery technologies aimed at capturing carbon dioxide. Supported by corporate and academic contributors along with two well-distinguished editors, this book provides today's natural gas engineers the fundamentals and advances in a convenient resource Helps readers advance from basic equations used in conventional gas reservoirs Presents structured case studies to illustrate how new principles can be applied in practical situations Covers advanced topics, including machine learning applications to optimize predictions, controls and improve knowledge-based applications Helps accelerate emission reductions by teaching gas fracturing mechanics with an aim of reducing environmental impacts and developing enhanced oil recovery technologies that capture carbon dioxide

Practical Reservoir Engineering and Characterization -

Richard O. Baker 2015-04-30

Practical Reservoir Characterization expertly explains key technologies, concepts, methods, and terminology in a way that allows readers in varying roles to appreciate the resulting interpretations and contribute to building reservoir characterization models that improve resource definition and recovery even in the most complex depositional environments. It is the perfect reference for senior reservoir engineers who want to increase their awareness of the latest in best practices, but is also ideal for team members who need to better understand their role in the characterization process. The text focuses on only the most critical areas, including modeling the reservoir unit, predicting well behavior, understanding past reservoir performance, and forecasting future reservoir performance. The text begins with an overview of the methods required for analyzing, characterizing, and developing real reservoirs, then explains the different methodologies and the types and sources of data required to characterize, forecast, and simulate a reservoir. Thoroughly explains the data gathering methods required to characterize, forecast, and simulate a reservoir Provides the fundamental background required to analyze, characterize, and develop real reservoirs in the most complex depositional environments Presents a

step-by-step approach for building a one, two, or three-dimensional representation of all reservoir types

Petrophysical Characterization and Fluids Transport in Unconventional Reservoirs - Jianchao Cai 2019-01-24

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

Deep Shale Oil and Gas - James G. Speight 2016-09-10

Natural gas and crude oil production from hydrocarbon rich deep shale formations is one of the most quickly expanding trends in domestic oil and gas exploration. Vast new natural gas and oil resources are being discovered every year across North America and one of those new resources comes from the development of deep shale formations, typically located many thousands of feet below the surface of the Earth in tight, low permeability formations. Deep Shale Oil and Gas provides an introduction to shale gas resources as well as offer a basic understanding of the geomechanical properties of shale, the need for hydraulic fracturing, and an indication of shale gas processing. The book also examines the issues regarding the nature of shale gas development, the potential environmental impacts, and the ability of the current regulatory structure to deal with these issues. Deep Shale Oil and Gas delivers a useful reference that today's petroleum and natural gas engineer can use to make informed decisions about meeting and managing the challenges they may face in the development of these resources. Clarifies all the basic information needed to quickly understand today's deeper shale oil and gas industry, horizontal drilling, fracture fluids chemicals needed, and completions Addresses critical coverage on water treatment in shale, and important and evolving technology Practical handbook with real-world case shale plays discussed, especially the up-and-coming deeper areas of shale development

Industrial Tomography - Mi Wang 2015-03-30

Industrial Tomography: Systems and Applications thoroughly explores the important tomographic techniques of industrial tomography, also discussing image reconstruction, systems, and applications. The text presents complex processes, including the way three-dimensional imaging is used to create multiple cross-sections, and how computer software helps monitor flows, filtering, mixing, drying processes, and chemical reactions inside vessels and pipelines. Readers will find a comprehensive discussion on the ways tomography systems can be used to optimize the performance of a wide variety of industrial processes. Provides a comprehensive discussion on the different formats of tomography Includes an excellent overview of image reconstruction using a wide range of applications Presents a comprehensive discussion of tomography systems and their application in a wide variety of industrial processes

Unconventional Reservoir Rate-Transient Analysis - Clarkson C.R. 2021-06-15

Unconventional Reservoir Rate-Transient Analysis provides petroleum engineers and geoscientists with the first comprehensive review of rate-transient analysis (RTA) methods as applied to unconventional reservoirs. Volume One—Fundamentals, Analysis Methods, and Workflow is comprised of five chapters which address key concepts and analysis methods used in RTA. This volume overviews the fundamentals of RTA, as applied to low-permeability oil and gas reservoirs exhibiting simple reservoir and fluid characteristics. Volume Two—Application to Complex Reservoirs, Exploration and Development is comprised of four chapters that demonstrate how RTA can be applied to coalbed methane reservoirs, shale gas reservoirs, and low-permeability/shale reservoirs exhibiting complex behavior such as multiphase flow. Use of RTA to assist exploration and development programs in unconventional reservoirs is also demonstrated. This book will serve as a critical guide for students, academics, and industry professionals interested in applying RTA methods to unconventional reservoirs. Gain a comprehensive review of

key concepts and analysis methods used in modern rate-transient analysis (RTA) as applied to low-permeability ("tight") oil and gas reservoirs Improve your RTA methods by providing reservoir/hydraulic fracture properties and hydrocarbon-in-place estimates for unconventional gas and light oil reservoirs exhibiting complex reservoir behaviors Understand the provision of a workflow for confident application of RTA to unconventional reservoirs

Computational Gas-Solids Flows and Reacting Systems: Theory, Methods and Practice - Pannala, Sreekanth 2010-09-30

"This book provides various approaches to computational gas-solids flow and will aid the researchers, graduate students and practicing engineers in this rapidly expanding area"--Provided by publisher.

Groundwater - Volume II - Luis Silveira 2009-02-20

Groundwater theme is a component of Encyclopedia of Water Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. Groundwater is water located beneath the ground surface in soil pore spaces and in the fractures of lithologic formations. This theme presents a perspective of the field of groundwater and an overview of the important aspects of the subject such as, natural origin and distribution, characteristics under diverse climates and surrounding rocky environments, exploration and management, natural quality and human related sources of contamination, sustainable exploitation of resources, protection and current research trends. The content of the theme on Groundwater is organized with state-of-the-art presentations covering several topics: Origin, Distribution, Formation, and Effects; Typical Hydrogeological Scenarios; Transport Processes in Groundwater; Transport Phenomena and Vulnerability of the Unsaturated Zone; Groundwater Development; Groundwater Use and Protection; Groundwater Management: An Overview of Hydro-geology, Economic Values and Principles of Management; Special Issues in Groundwater, which are then expanded into multiple subtopics, each as a chapter. These three volumes are aimed at the following five major target audiences: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, Managers, and Decision makers and NGOs

Analysis and Design Optimization of Micromixers - Arshad Afzal 2021-01-08

This book illustrates the computational framework based on knowledge of flow and mass transfer together with optimization techniques to solve problems relevant to micromixing technology. The authors provide a detailed analysis of the different numerical techniques applied to the design of micromixers. Flow and mixing analysis is based on both the Eulerian and Lagrangian approaches; relative advantages and disadvantages of the two methods and suitability to different types of mixing problems are analysed. The book also discusses the various facets of numerical schemes subjected to discretization errors and computational grid requirements. Since a large number of studies are based on commercial computational fluid dynamics (CFD) packages, relevant details of these packages to the mixing problem using them are presented. Numerical optimization techniques coupled with CFD analysis of flow and mixing have proved to be an important tool for micromixers design, and therefore, are an important part of the book. These techniques are presented briefly, and focus is on surrogate modeling and optimization applied to design of micromixers.

EPA-600/3 - 1978

Standard Handbook of Petroleum and Natural Gas Engineering - William C. Lyons 1996-10-16

Petroleum engineering now has its own true classic handbook that reflects the profession's status as a mature major engineering discipline. Formerly titled the Practical Petroleum Engineer's Handbook, by Joseph Zaba and W.T. Doherty (editors), this new, completely updated two-volume set is expanded and revised to give petroleum engineers a comprehensive source of industry standards and engineering practices. It is packed with the key, practical information and data that petroleum engineers rely upon daily. The result of a fifteen-year effort, this handbook covers the gamut of oil and gas engineering topics to provide a reliable source of engineering and reference information for analyzing and solving problems. It also reflects the growing role of natural gas in industrial development by integrating natural gas topics throughout both volumes. More than a dozen leading industry experts-academia and industry-contributed to this two-volume set to provide the best, most comprehensive source of petroleum engineering information available.

Thermal Hydraulics - Maurizio Cumo 2018-01-18

This text, including the description of the most relevant phenomenologies and of some advanced techniques in heat transfer with fluids, is mainly aimed at engineers using design or computer analysis programs and codes, in order to achieve a deeper understanding of the phenomenologies and of the applied analysis methods. This text will be helpful to people engaged in developing original computer programs or design methods, because they may find in it basic information on the computer program-oriented solutions of the conservation equations and

of the various flow and heat transfer mechanisms. The selection of up-to-date correlations in various heat and mass transfer branches represents, for the designers using traditional techniques, a helpful instrument to integrate the basic handbooks. The trial of representing phenomenologies and problems through elementary concepts makes this text useful to students at the graduate level involved in the study of fluid flow and heat transfer.

Official Gazette of the United States Patent and Trademark Office - 1996