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Analytical Methods in Petroleum Upstream Applications Advances in Computer Methods and Geomechanics Drilling and Completion in Petroleum Engineering Numerical Methods in Geotechnical Engineering IX, Volume 1 Numerical Methods in Geotechnical Engineering IX *Numerical Methods in Geotechnical Engineering* **Numerical Simulation in Hydraulic Fracturing: Multiphysics Theory and Applications Hydraulic Fracture Modeling** *Dynamic Web Programming and HTML5* Challenges and Innovations in Geomechanics Intelligent Robotics and Applications Finite Element Analysis of Solids and Structures **Frontiers in Offshore Geotechnics III Drilling and Completion in Petroleum Engineering** Mechanics of Hydraulic Fracturing **Proceedings of the 5th International Young Geotechnical Engineers' Conference Desiderata Geotechnica** *Rainfall-Induced Soil Slope Failure* **Expanding Underground - Knowledge and Passion to Make a Positive Impact on the World Multiscale Processes of Instability, Deformation and Fracturing in Geomaterials** Marine Design XIII, Volume 1 **Bridge Safety, Maintenance, Management, Life-Cycle, Resilience and Sustainability** Canadian Geotechnical Journal **Microscopic structure effect on the macroscopic property of geomaterials** *Reservoir Geomechanics* **Geomechanics in Reservoir Simulation** Marine Design XIII Frontiers in Offshore Geotechnics II *On the dissolution, precipitation and transport processes in sulphatic swelling rocks* **Bearing Capacity of Roads, Railways and Airfields** Rock Engineering and Rock Mechanics: Structures in and on Rock Masses *Petroleum Related Rock Mechanics* Presentation Zen Design *Hydraulic Fracture Mechanics* Proceedings of the 28th International Symposium on Mine Planning and Equipment Selection - MPES 2019 **Modeling in Geomechanics** *Applied Soil Mechanics with ABAQUS Applications* Mechanics and Physics of Porous Solids *Underground Excavations in Rock* **Encyclopedia of Computational Mechanics**

Challenges and Innovations in Geomechanics Jul 20 2022 This book gathers the latest advances, innovations, and applications in the field of computational geomechanics, as presented by international researchers and engineers at the 16th International Conference of the International Association for Computer Methods and Advances in Geomechanics (IACMAG), held in Turin, Italy on August 30 - September 2, 2022. Contributions include a wide range of topics in geomechanics such as: laboratory and field testing, constitutive modelling, monitoring and remote sensing, multiphase modelling, reliability and risk analysis, surface structures, deep structures, dams and earth structures, natural slopes, mining engineering, earthquake and dynamics, soil-atmosphere interaction, ice mechanics, landfills and waste disposal, gas and petroleum engineering, geothermal energy, offshore technology, energy geostructures and computational rail geotechnics. *Dynamic Web Programming and HTML5* Aug 21 2022 With organizations and individuals increasingly dependent on the Web, the need for competent, well-trained Web developers and maintainers is growing. Helping readers master Web development, Dynamic Web Programming and HTML5 covers specific Web programming languages, APIs, and coding techniques and provides an in-depth understanding of the underlying concepts, theory, and principles. The author leads readers through page structuring, page layout/styling, user input processing, dynamic user interfaces, database-driven websites, and mobile website development. After an overview of the Web and Internet, the book focuses on the new HTML5 and its associated open Web platform standards. It covers the HTML5 markup language and DOM, new elements for structuring Web documents and

forms, CSS3, and important JavaScript APIs associated with HTML5. Moving on to dynamic page generation and server-side programming with PHP, the text discusses page templates, form processing, session control, user login, database access, and server-side HTTP requests. It also explores more advanced topics such as XML and PHP/MySQL. Suitable for a one- or two-semester course at the advanced undergraduate or beginning graduate level, this comprehensive and up-to-date guide helps readers learn modern Web technologies and their practical applications. Numerous examples illustrate how the programming techniques and other elements work together to achieve practical goals. Online Resource Encouraging hands-on practice, the book's companion website at http://dwp.sofpower.com helps readers gain experience with the technologies and techniques involved in building good sites. Maintained by the author, the site offers: Live examples organized by chapter and cross-referenced in the text Programs from the text bundled in a downloadable code package Searchable index and appendices Ample resource listings and information updates
Marine Design XIII Feb 03 2021 Marine Design XIII collects the contributions to the 13th International Marine Design Conference (IMDC 2018, Espoo, Finland, 10-14 June 2018). The aim of this IMDC series of conferences is to promote all aspects of marine design as an engineering discipline. The focus is on key design challenges and opportunities in the area of current maritime technologies and markets, with special emphasis on: • Challenges in merging ship design and marine applications of experience-based industrial design • Digitalisation as technological enabler for stronger link between efficient design, operations and maintenance in future • Emerging technologies and their impact on future designs • Cruise ship and icebreaker designs including fleet compositions to meet new market demands To reflect on the conference focus, Marine Design XIII covers the following research topic series: •State of art ship design principles - education, design methodology, structural design, hydrodynamic design; •Cutting edge ship designs and operations - ship concept design, risk and safety, arctic design, autonomous ships; •Energy efficiency and propulsions - energy efficiency, hull form design, propulsion equipment design; •Wider marine designs and practices - navy ships, offshore and wind farms and production. Marine Design XIII contains 2 state-of-the-art reports on design methodologies and cruise ships design, and 4 keynote papers on new directions for vessel design practices and tools, digital maritime traffic, naval ship designs, and new tanker design for arctic. Marine Design XIII will be of interest to academics and professionals in maritime technologies and marine design.
Applied Soil Mechanics with ABAQUS Applications Mar 24 2020 A simplified approach to applying the Finite Element Method to geotechnical problems Predicting soil behavior by constitutive equations that are based on experimental findings and embodied in numerical methods, such as the finite element method, is a significant aspect of soil mechanics. Engineers are able to solve a wide range of geotechnical engineering problems, especially inherently complex ones that resist traditional analysis. Applied Soil Mechanics with ABAQUS® Applications provides civil engineering students and practitioners with a simple, basic introduction to applying the finite element method to soil mechanics problems. Accessible to someone with little background in soil mechanics and finite element analysis, Applied Soil Mechanics with ABAQUS® Applications explains the basic concepts of soil mechanics and then prepares the reader for solving geotechnical engineering problems using both traditional engineering solutions and the more versatile, finite element solutions. Topics covered include: Properties of Soil Elasticity and Plasticity Stresses in Soil Consolidation Shear Strength of Soil Shallow Foundations Lateral Earth Pressure and Retaining Walls Piles and Pile Groups Seepage Taking a unique approach, the author describes the general soil mechanics for each topic, shows traditional applications of these principles with longhand solutions, and then presents finite element solutions for the same applications, comparing both. The book is prepared with ABAQUS® software applications to enable a range of readers to experiment firsthand with the principles described in the book (the software application files are available under "student resources" at www.wiley.com/college/helwany). By presenting both the traditional solutions alongside the FEM solutions, Applied Soil Mechanics with ABAQUS® Applications is an ideal introduction to traditional soil mechanics and a guide to alternative solutions and emergent

methods. Dr. Helwany also has an online course based on the book available at www.geomilwaukee.com.

Geomechanics in Reservoir Simulation Mar 04 2021

Petroleum Related Rock Mechanics Aug 29 2020 Engineers and geologists in the petroleum industry will find Petroleum Related Rock Mechanics, 2e, a powerful resource in providing a basis of rock mechanical knowledge - a knowledge which can greatly assist in the understanding of field behavior, design of test programs and the design of field operations. Not only does this text give an introduction to applications of rock mechanics within the petroleum industry, it has a strong focus on basics, drilling, production and reservoir engineering. Assessment of rock mechanical parameters is covered in depth, as is acoustic wave propagation in rocks, with possible link to 4D seismics as well as log interpretation. Learn the basic principles behind rock mechanics from leading academic and industry experts Quick reference and guide for engineers and geologists working in the field Keep informed and up to date on all the latest methods and fundamental concepts

Multiscale Processes of Instability, Deformation and Fracturing in Geomaterials Sep 10 2021 · Proceedings of 12th International Workshop on Bifurcation and Degradation in Geomechanics (IWBDG2022) held on 28 November - 1 December 2022 at the University of Western Australia, in Perth, Australia. The book concentrates on deep understanding of the processes of bifurcation and instability in geoengineering systems. The book covers multiscale processes from the scale of crystals to rocks to rock masses. The book considers a wide range of accompanying phenomena from liquefaction to seismicity and landslides. · Topics covered are: I. Localisation and instability in geomaterials II. Fracturing, failure and seismicity III. Deformation processes Intended readership: Universities and Consulting and Research organisations, research students, academics and engineers working in the fields of geomechanics, rock mechanics and geotechnical engineering.

Frontiers in Offshore Geotechnics II Jan 02 2021 Frontiers in Offshore Geotechnics II comprises the Proceedings of the Second International Symposium on Frontiers in Offshore Geotechnics (ISFOG), organised by the Centre for Offshore Foundation Systems (COFS) and held at the University of Western Australia (UWA), Perth from 8 10 November 2010. The volume addresses current and emerging challenges

Microscopic structure effect on the macroscopic property of geomaterials May 06 2021

Frontiers in Offshore Geotechnics III Apr 17 2022 Frontiers in Offshore Geotechnics III comprises the contributions presented at the Third International Symposium on Frontiers in Offshore Geotechnics (ISFOG, Oslo, Norway, 10-12 June 2015), organised by the Norwegian Geotechnical Institute (NGI). The papers address current and emerging geotechnical engineering challenges facing those working in off

Rock Engineering and Rock Mechanics: Structures in and on Rock Masses Sep 29 2020 Rock Engineering and Rock Mechanics: Structures in and on Rock Masses covers the most important topics and state-of-the-art in the area of rock mechanics, with an emphasis on structures in and on rock masses. The 255 contributions (including 6 keynote lectures) from the 2014 ISRM European Rock Mechanics Symposium (EUROCK 2014, Vigo, Spain, 27-29 Ma

Mechanics of Hydraulic Fracturing Feb 15 2022 Mechanics of Hydraulic Fracturing Comprehensive single-volume reference work providing an overview of experimental results and predictive methods for hydraulic fracture growth in rocks Mechanics of Hydraulic Fracturing: Experiment, Model, and Monitoring provides a summary of the research in mechanics of hydraulic fractures during the past two decades, plus new research trends to look for in the future. The book covers the contributions from theory, modeling, and experimentation, including the application of models to reservoir stimulation, mining preconditioning, and the formation of geological structures. The four expert editors emphasize the variety of diverse methods and tools in hydraulic fracturing and help the reader understand hydraulic fracture mechanics in complex geological situations. To aid in reader comprehension, practical examples of new approaches and methods are presented throughout the book. Key topics covered in the book include: Prediction of fracture shapes, sizes, and distributions in sedimentary basins, plus their importance in petroleum industry Real-time monitoring methods,

such as micro-seismicity and trace tracking How to uncover geometries of fractures like dikes and veins Fracture growth of individual foundations and its applications Researchers and professionals working in the field of fluid-driven fracture growth will find immense value in this comprehensive reference on hydraulic fracturing mechanics.

Mechanics and Physics of Porous Solids Feb 21 2020 Mechanics and Physics of Porous Solids addresses the mechanics and physics of deformable porous materials whose porous space is filled by one or several fluid mixtures interacting with the solid matrix. Coussy uses the language of thermodynamics to frame the discussion of this topic and bridge the gap between physicists and engineers, and organises the material in such a way that individual phases are explored, followed by coupled problems of increasing complexity. This structure allows the reader to build a solid understanding of the physical processes occurring in the fluids and then porous solids. Mechanics and Physics of Porous Solids offers a critical reference on the physics of multiphase porous materials - key reading for engineers and researchers in structural and material engineering, concrete, wood and materials science, rock and soil mechanics, mining and oil prospecting, biomechanics.

Reservoir Geomechanics Apr 05 2021 This interdisciplinary book encompasses the fields of rock mechanics, structural geology and petroleum engineering to address a wide range of geomechanical problems that arise during the exploitation of oil and gas reservoirs. It considers key practical issues such as prediction of pore pressure, estimation of hydrocarbon column heights and fault seal potential, determination of optimally stable well trajectories, casing set points and mud weights, changes in reservoir performance during depletion, and production-induced faulting and subsidence. The book establishes the basic principles involved before introducing practical measurement and experimental techniques to improve recovery and reduce exploitation costs. It illustrates their successful application through case studies taken from oil and gas fields around the world. This book is a practical reference for geoscientists and engineers in the petroleum and geothermal industries, and for research scientists interested in stress measurements and their application to problems of faulting and fluid flow in the crust.

On the dissolution, precipitation and transport processes in sulphatic swelling rocks Dec 01 2020 Sulphatic claystones are among the most problematic rocks in tunnelling due to their distinctive swelling properties. They are known to have caused severe damage, for example, to numerous tunnels excavated in the Gypsum Keuper formation. The repairs were extremely costly and time-consuming, and often provided only a temporary solution. The setbacks experienced in tunnelling through Gypsum Keuper may be attributed, among other things, to our limited knowledge of the macroscopic principles governing the swelling process and the underlying microscopic mechanisms. The issues in question have formed the focal point of long-standing research in the Chair of Underground Construction at ETH Zurich. A series of theoretical and experimental research projects are being conducted to investigate the interactions between chemical reactions, transport processes and the observed macroscopic behaviour. The objective of the investigations is to improve our understanding of swelling processes in order to yield a scientifically established basis for design. This work has achieved important progress towards this objective. It has systematically and comprehensively analysed the thermodynamics and the kinetics of the chemical reactions involved in the swelling process, as well as their interplay with advective and diffusive ion transport. The topic is of great value in terms of further investigation in this area.

Drilling and Completion in Petroleum Engineering Feb 27 2023 Modern petroleum and petrotechnical engineering is increasingly challenging due to the inherently scarce and decreasing number of global petroleum resources. Exploiting these resources efficiently will require researchers, scientists, engineers and other practitioners to develop innovative mathematical solutions to serve as basis for new asset development designs. Deploying these systems in numerical models is essential to the future success and efficiency of the petroleum industry. Multiphysics modeling has been widely applied in the petroleum industry since the 1960s. The rapid development of computer technology has enabled the numerical applications of multiphysics modeling in the petroleum industry: its applications are particularly popular for the numerical simulation of drilling

and completion processes. This book covers theory and numerical applications of multiphysical modeling presenting various author-developed subroutines, used to address complex pore pressure input, complex initial geo-stress field input, etc. Some innovative methods in drilling and completion developed by the authors, such as trajectory optimization and a 3-dimensional workflow for calculation of mud weight window etc, are also presented. Detailed explanations are provided for the modeling process of each application example included in the book. In addition, details of the completed numerical models data are presented as supporting material which can be downloaded from the website of the publisher. Readers can easily understand key modeling techniques with the theory of multiphysics embedded in examples of applications,and can use the data to reproduce the results presented. While this book would be of interest to any student, academic or professional practitioner of engineering, mathematics and natural science, we believe those professionals and academics working in civil engineering, petroleum engineering and petroleum geomechanics would find the work especially relevant to their endeavors.

Encyclopedia of Computational Mechanics Dec 21 2019 The Encyclopedia of Computational Mechanics provides a comprehensive collection of knowledge about the theory and practice of computational mechanics.

Marine Design XIII, Volume 1 Aug 09 2021 This is volume 1 of a 2-volume set. Marine Design XIII collects the contributions to the 13th International Marine Design Conference (IMDC 2018, Espoo, Finland, 10-14 June 2018). The aim of this IMDC series of conferences is to promote all aspects of marine design as an engineering discipline. The focus is on key design challenges and opportunities in the area of current maritime technologies and markets, with special emphasis on: • Challenges in merging ship design and marine applications of experience-based industrial design • Digitalisation as technological enabler for stronger link between efficient design, operations and maintenance in future • Emerging technologies and their impact on future designs • Cruise ship and icebreaker designs including fleet compositions to meet new market demands To reflect on the conference focus, Marine Design XIII covers the following research topic series: •State of art ship design principles - education, design methodology, structural design, hydrodynamic design; •Cutting edge ship designs and operations - ship concept design, risk and safety, arctic design, autonomous ships; •Energy efficiency and propulsions - energy efficiency, hull form design, propulsion equipment design; •Wider marine designs and practices - navy ships, offshore and wind farms and production. Marine Design XIII contains 2 state-of-the-art reports on design methodologies and cruise ships design, and 4 keynote papers on new directions for vessel design practices and tools, digital maritime traffic, naval ship designs, and new tanker design for arctic. Marine Design XIII will be of interest to academics and professionals in maritime technologies and marine design.

Bridge Safety, Maintenance, Management, Life-Cycle, Resilience and Sustainability Jul 08 2021 Bridge Safety, Maintenance, Management, Life-Cycle, Resilience and Sustainability contains lectures and papers presented at the Eleventh International Conference on Bridge Maintenance, Safety and Management (IABMAS 2022, Barcelona, Spain, 11–15 July, 2022). This e-book contains the full papers of 322 contributions presented at IABMAS 2022, including the T.Y. Lin Lecture, 4 Keynote Lectures, and 317 technical papers from 36 countries all around the world. The contributions deal with the state-of-the-art as well as emerging concepts and innovative applications related to the main aspects of safety, maintenance, management, life-cycle, resilience, sustainability and technological innovations of bridges. Major topics include: advanced bridge design, construction and maintenance approaches, safety, reliability and risk evaluation, life-cycle management, life-cycle, resilience, sustainability, standardization, analytical models, bridge management systems, service life prediction, structural health monitoring, non-destructive testing and field testing, robustness and redundancy, durability enhancement, repair and rehabilitation, fatigue and corrosion, extreme loads, needs of bridge owners, whole life costing and investment for the future, financial planning and application of information and computer technology, big data analysis and artificial intelligence for bridges, among others. This volume provides both an up-to-date overview of the field of bridge engineering and significant contributions to the process of making more rational

decisions on bridge safety, maintenance, management, life-cycle, resilience and sustainability of bridges for the purpose of enhancing the welfare of society. The volume serves as a valuable reference to all concerned with and/or involved in bridge structure and infrastructure systems, including students, researchers and practitioners from all areas of bridge engineering.

Numerical Methods in Geotechnical Engineering IX, Volume 1 Jan 26 2023 NUMGE 2018 is the ninth in a series of conferences on Numerical Methods in Geotechnical Engineering organized by the ERTC7 under the auspices of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). The first conference was held in 1986 in Stuttgart, Germany and the series continued every four years (1990 Santander, Spain; 1994 Manchester, United Kingdom; 1998 Udine, Italy; 2002 Paris, France; 2006 Graz, Austria; 2010 Trondheim, Norway; 2014 Delft, The Netherlands). The conference provides a forum for exchange of ideas and discussion on topics related to numerical modelling in geotechnical engineering. Both senior and young researchers, as well as scientists and engineers from Europe and overseas, are invited to attend this conference to share and exchange their knowledge and experiences. This work is the first volume of NUMGE 2018.

Drilling and Completion in Petroleum Engineering Mar 16 2022 Modern petroleum and petrotechnical engineering is increasingly challenging due to the inherently scarce and decreasing number of global petroleum resources. Exploiting these resources efficiently will require researchers, scientists, engineers and other practitioners to develop innovative mathematical solutions to serve as basis for new asset development designs. Deploying these systems in numerical models is essential to the future success and efficiency of the petroleum industry. Multiphysics modeling has been widely applied in the petroleum industry since the 1960s. The rapid development of computer technology has enabled the numerical applications of multiphysics modeling in the petroleum industry: its applications are particularly popular for the numerical simulation of drilling and completion processes. This book covers theory and numerical applications of multiphysical modeling presenting various author-developed subroutines, used to address complex pore pressure input, complex initial geo-stress field input, etc. Some innovative methods in drilling and completion developed by the authors, such as trajectory optimization and a 3-dimensional workflow for calculation of mud weight window etc, are also presented. Detailed explanations are provided for the modeling process of each application example included in the book. In addition, details of the completed numerical models data are presented as supporting material which can be downloaded from the website of the publisher. Readers can easily understand key modeling techniques with the theory of multiphysics embedded in examples of applications,and can use the data to reproduce the results presented. While this book would be of interest to any student, academic or professional practitioner of engineering, mathematics and natural science, we believe those professionals and academics working in civil engineering, petroleum engineering and petroleum geomechanics would find the work especially relevant to their endeavors.

Hydraulic Fracture Mechanics Jun 26 2020 The book explores the theoretical background of one of the most widespread activities in hydrocarbon wells, that of hydraulic fracturing. A comprehensive treatment of the basic phenomena includes: linear elasticity, stresses, fracture geometry and rheology. The diverse concepts of mechanics are integrated into a coherent description of hydraulic fracture propagation. The chapters in the book are cross-referenced throughout and the connections between the various phenomena are emphasized. The book offers readers a unique approach to the subject with the use of many numerical examples.

Numerical Simulation in Hydraulic Fracturing: Multiphysics Theory and Applications Oct 23 2022 The expansion of unconventional petroleum resources in the recent decade and the rapid development of computational technology have provided the opportunity to develop and apply 3D numerical modeling technology to simulate the hydraulic fracturing of shale and tight sand formations. This book presents 3D numerical modeling technologies for hydraulic fracturing developed in recent years, and introduces solutions to various 3D geomechanical problems related to hydraulic fracturing. In the solution processes of the case studies included in the book, fully coupled multi-physics modeling has been adopted, along with innovative computational techniques,

such as submodeling. In practice, hydraulic fracturing is an essential project component in shale gas/oil development and tight sand oil, and provides an essential measure in the process of drilling cuttings reinjection (CRI). It is also an essential measure for widened mud weight window (MWW) when drilling through naturally fractured formations; the process of hydraulic plugging is a typical application of hydraulic fracturing. 3D modeling and numerical analysis of hydraulic fracturing is essential for the successful development of tight oil/gas formations: it provides accurate solutions for optimized stage intervals in a multistage fracking job. It also provides optimized well-spacing for the design of zipper-frac wells. Numerical estimation of casing integrity under stimulation injection in the hydraulic fracturing process is one of major concerns in the successful development of unconventional resources. This topic is also investigated numerically in this book. Numerical solutions to several other typical geomechanics problems related to hydraulic fracturing, such as fluid migration caused by fault reactivation and seismic activities, are also presented. This book can be used as a reference textbook to petroleum, geotechnical and geothermal engineers, to senior undergraduate, graduate and postgraduate students, and to geologists, hydrogeologists, geophysicists and applied mathematicians working in this field. This book is also a synthetic compendium of both the fundamentals and some of the most advanced aspects of hydraulic fracturing technology.

Desiderata Geotechnica Dec 13 2021 This book presents contributions to a workshop dedicated to Prof. Gerd Gudehus on the occasion of his 80th birthday and held in Vienna, Austria, on 14-16 August 2018. The articles gathered here, many of which were written by former students, friends and colleagues of Prof. Gudehus, cover diverse topics that reflect the breadth and depth of geomechanics research. Consequently, they offer a valuable source of ideas and inspiration on areas ranging from sophisticated constitutive models to advanced numerical methods, from particles to continua, and from fractals of geomaterials to the design of offshore wind turbine foundations.

Underground Excavations in Rock Jan 22 2020 Underground Excavations in Rock deals with the geotechnical aspects of the design of underground openings for mining and civil engineering processes.

Numerical Methods in Geotechnical Engineering Nov 24 2022 Numerical Methods in Geotechnical Engineering contains the proceedings of the 8th European Conference on Numerical Methods in Geotechnical Engineering (NUMGE 2014, Delft, The Netherlands, 18-20 June 2014). It is the eighth in a series of conferences organised by the European Regional Technical Committee ERTC7 under the auspices of the International

Expanding Underground - Knowledge and Passion to Make a Positive Impact on the World Oct 11 2021 Expanding Underground - Knowledge and Passion to Make a Positive Impact on the World contains the contributions presented at the ITA-AITES World Tunnel Congress 2023 (Athens, Greece, 12 – 18 May, 2023). Tunnels and underground space are a predominant engineering practice that can provide sustainable, cost-efficient and environmentally friendly solutions to the ever-growing needs of modern societies. This underground expansion in more diverse and challenging infrastructure types or to novel underground uses can foster the changes needed. At the same time, the tunneling and underground space community needs to be better prepared and equipped with knowledge, tools and experience, to deal with the prevailing conditions, to successfully challenge and overcome adversities on this path. The papers in this book aim at contributing to the analysis of challenging conditions, the presentation and dissemination good practices, the introduction of new concepts, new tools and innovative elements that can help engineers and all stakeholders to reach their end goals. Expanding Underground - Knowledge and Passion to Make a Positive Impact on the World covers a wide range of aspects and topics related to the whole chain of the construction and operation of underground structures: - Knowledge and Passion to Expand Underground for Sustainability and Resilience - Geological, Geotechnical Site Investigation and Ground Characterization - Planning and Designing of Tunnels and Underground Structures - Mechanised Tunnelling and Microtunnelling - Conventional Tunnelling, Drill-and-Blast Applications - Tunnelling in Challenging Conditions - Case Histories and Lessons Learned -

Innovation, Robotics and Automation - BIM, Big Data and Machine Learning Applications in Tunnelling - Safety, Risk and Operation of Underground Infrastructure, and - Contractual Practices, Insurance and Project Management The book is a must-have reference for all professionals and stakeholders involved in tunneling and underground space development projects.

Advances in Computer Methods and Geomechanics Mar 28 2023 This volume presents selected papers from IACMAG Symposium,The major themes covered in this conference are Earthquake Engineering, Ground Improvement and Constitutive Modelling. This volume will be of interest to researchers and practitioners in geotechnical and geomechanical engineering.

Numerical Methods in Geotechnical Engineering IX Dec 25 2022 Numerical Methods in Geotechnical Engineering IX contains 204 technical and scientific papers presented at the 9th European Conference on Numerical Methods in Geotechnical Engineering (NUMGE2018, Porto, Portugal, 25—27 June 2018). The papers cover a wide range of topics in the field of computational geotechnics, providing an overview of recent developments on scientific achievements, innovations and engineering applications related to or employing numerical methods. They deal with subjects from emerging research to engineering practice, and are grouped under the following themes: Constitutive modelling and numerical implementation Finite element, discrete element and other numerical methods. Coupling of diverse methods Reliability and probability analysis Large deformation – large strain analysis Artificial intelligence and neural networks Ground flow, thermal and coupled analysis Earthquake engineering, soil dynamics and soil-structure interactions Rock mechanics Application of numerical methods in the context of the Eurocodes Shallow and deep foundations Slopes and cuts Supported excavations and retaining walls Embankments and dams Tunnels and caverns (and pipelines) Ground improvement and reinforcement Offshore geotechnical engineering Propagation of vibrations Following the objectives of previous eight thematic conferences, (1986 Stuttgart, Germany; 1990 Santander, Spain; 1994 Manchester, United Kingdom; 1998 Udine, Italy; 2002 Paris, France; 2006 Graz, Austria; 2010 Trondheim, Norway; 2014 Delft, The Netherlands), Numerical Methods in Geotechnical Engineering IX updates the state-of-the-art regarding the application of numerical methods in geotechnics, both in a scientific perspective and in what concerns its application for solving practical boundary value problems. The book will be much of interest to engineers, academics and professionals involved or interested in Geotechnical Engineering.

Analytical Methods in Petroleum Upstream Applications Apr 29 2023 Effective measurement of the composition and properties of petroleum is essential for its exploration, production, and refining; however, new technologies and methodologies are not adequately documented in much of the current literature. Analytical Methods in Petroleum Upstream Applications explores advances in the analytical methods and instrumentation that allow more accurate determination of the components, classes of compounds, properties, and features of petroleum and its fractions. Recognized experts explore a host of topics, including: A petroleum molecular composition continuity model as a context for other analytical measurements A modern modular sampling system for use in the lab or the process area to collect and control samples for subsequent analysis The importance of oil-in-water measurements and monitoring The chemical and physical properties of heavy oils, their fractions, and products from their upgrading Analytical measurements using gas chromatography and nuclear magnetic resonance (NMR) applications Asphaltene and heavy ends analysis Chemometrics and modeling approaches for understanding petroleum composition and properties to improve upstream, midstream, and downstream operations Due to the renaissance of gas and oil production in North America, interest has grown in analytical methods for a wide range of applications. The understanding provided in this text is designed to help chemists, geologists, and chemical and petroleum engineers make more accurate estimates of the crude value to specific refinery configurations, providing insight into optimum development and extraction schemes.

Presentation Zen Design Jul 28 2020 In his internationally acclaimed, best-selling book Presentation Zen: Simple Ideas on Presentation Design and Delivery, presentation master Garr Reynolds gave readers the framework for planning, putting together, and delivering successful presentations. Now,

he takes us further into the design realm and shows how we can apply time-honored design principles to presentation layouts. Throughout Presentation Zen Design, Garr shares his lessons on designing effective presentations that contain text, graphs, color, images, and video. After establishing guidelines for each of the various elements, he explains how to achieve an overall harmony and balance using the tenets of Zen simplicity. Not only will you discover how to design your slides for more professional-looking presentations, you'll learn to communicate more clearly and will accomplish the goal of making a stronger, more lasting connection with your audience.

Proceedings of the 5th International Young Geotechnical Engineers' Conference Jan 14 2022 Geotechnical engineers are at work worldwide, contributing to sustainable living and to the creation of safe, economic and pleasant spaces to live, work and relax. With increased pressure on space and resources, particularly in cities, their expertise becomes ever more important. This book presents the proceedings of the 5th iYGEC, International Young Geotechnical Engineers' Conference, held at Marne-la-Vallée, France, from 31 August to 1 September 2013. It is also the second volume in the series Advances in Soil Mechanics and Geotechnical Engineering. The papers included here cover topics such as laboratory and field testing, geology and groundwater, earthworks, soil behavior, constitutive modeling, ground improvement, earthquake, retaining structures, foundations, slope stability, tunnels and observational methods. The iYGEC conference series brings together students and young people at the start of their career in the geotechnical professions to share their experience, and this book will be of interest to all those whose work involves soil mechanics and geotechnical engineering. The cover shows Dieppe harbour breakwater project, Louis-Alexandre de Cessart, 1776-1777. © École Nationale des Ponts et Chaussées.

Rainfall-Induced Soil Slope Failure Nov 12 2021 Rainfall-induced landslides are common around the world. With global climate change, their frequency is increasing and the consequences are becoming greater. Previous studies assess them mostly from the perspective of a single discipline—correlating landslides with rainstorms, geomorphology and hydrology in order to establish a threshold prediction value for rainfall-induced landslides; analyzing the slope's stability using a geomechanical approach; or assessing the risk from field records. Rainfall Induced Soil Slope Failure: Stability Analysis and Probabilistic Assessment integrates probabilistic approaches with the geotechnical modeling of slope failures under rainfall conditions with unsaturated soil. It covers theoretical models of rainfall infiltration and stability analysis, reliability analysis based on coupled hydro-mechanical modelling, stability of slopes with cracks, gravels and spatial heterogenous soils, and probabilistic model calibration based on measurement. It focuses on the uncertainties involved with rainfall-induced landslides and presents state-of-the art techniques and methods which characterize the uncertainties and quantify the probabilities and risk of rainfall-induced landslide hazards. Additionally, the authors cover: The failure mechanisms of rainfall-induced slope failure Commonly used infiltration and stability methods The infiltration and stability of natural soil slopes with cracks and colluvium materials Stability evaluation methods based on probabilistic approaches The effect of spatial variability on unsaturated soil slopes and more

Proceedings of the 28th International Symposium on Mine Planning and Equipment Selection - MPES 2019 May 26 2020 This conference proceedings presents the research papers in the field of mine planning and mining equipment including themes such as mine automation, rock mechanics, drilling, blasting, tunnelling and excavation engineering. The papers presents the recent advancement and the application of a range of technologies in the field of mining industry. It is of interest to the professionals who practice in mineral industry including but not limited to engineers, consultants, managers, academics, scientist, and government staff.

Canadian Geotechnical Journal Jun 07 2021

Finite Element Analysis of Solids and Structures May 18 2022 Finite Element Analysis of Solids and Structures combines the theory of elasticity (advanced analytical treatment of stress analysis problems) and finite element methods (numerical details of finite element formulations) into one academic course derived from the author's teaching, research, and applied work in automotive product development as well as in civil structural analysis. Features Gives equal weight to the

theoretical details and FEA software use for problem solution by using finite element software packages Emphasizes understanding the deformation behavior of finite elements that directly affect the quality of actual analysis results Reduces the focus on hand calculation of property matrices, thus freeing up time to do more software experimentation with different FEA formulations Includes chapters dedicated to showing the use of FEA models in engineering assessment for strength, fatigue, and structural vibration properties Features an easy to follow format for guided learning and practice problems to be solved by using FEA software package, and with hand calculations for model validation This textbook contains 12 discrete chapters that can be covered in a single semester university graduate course on finite element analysis methods. It also serves as a reference for practicing engineers working on design assessment and analysis of solids and structures. Teaching ancillaries include a solutions manual (with data files) and lecture slides for adopting professors.

Modeling in Geomechanics Apr 24 2020 Modeling in Geomechanics Edited by Musharraf Zaman The University of Oklahoma, USA Giancarlo Gioda Politecnico di Milano, Italy John Booker University of Sydney, Australia Geomechanics is an interdisciplinary field involving the study of natural and man-made systems with emphasis on the mechanics of various interacting phenomena. It comprises numerous aspects of engineering and scientific disciplines, which share common bases in mathematics, mechanics and physics. In recent years, with the extraordinary growth of computing power and resources, progress in the generation of new theories and techniques for the analysis of geomechanics problems has far surpassed their actual use by practitioners. This has led to a gap between our ability to deal with complex, inter-disciplinary problems in geomechanics and the actual impact of these advances on engineering practice. This book contains contributions from an international group of accomplished researchers and practitioners from various branches of soil and rock engineering, and presents the latest theoretical developments and practical applications of modeling in geomechanics. Chapters are grouped into four main sections: * Computational procedures * Constitutive modeling and testing * Modeling and simulation * Applications Efforts have been made to include recent developments and provide suggestions and examples as to how these can be applied in modeling actual engineering problems. Researchers, practitioners and students in geomechanics, mechanics of solids, soil and rock engineering will find this book an invaluable reference.

Hydraulic Fracture Modeling Sep 22 2022 Hydraulic Fracture Modeling delivers all the pertinent technology and solutions in one product to become the go-to source for petroleum and reservoir engineers. Providing tools and approaches, this multi-contributed reference presents current and upcoming developments for modeling rock fracturing including their limitations and problem-solving applications. Fractures are common in oil and gas reservoir formations, and with the ongoing increase in development of unconventional reservoirs, more petroleum engineers today need to know the latest technology surrounding hydraulic fracturing technology such as fracture rock modeling. There is tremendous research in the area but not all located in one place. Covering two types of modeling technologies, various effective fracturing approaches and model applications for fracturing, the book equips today’s petroleum engineer with an all-inclusive product to characterize and optimize today’s more complex reservoirs. Offers understanding of the details surrounding fracturing and fracture modeling technology, including theories and quantitative methods Provides academic and practical perspective from multiple contributors at the forefront of hydraulic fracturing and rock mechanics Provides today’s petroleum engineer with model validation tools backed by real-world case studies

Intelligent Robotics and Applications Jun 19 2022 The market demands for skills, knowledge and personalities have positioned robotics as an important field in both engineering and science. To meet these challenging - mands, robotics has already seen its success in automating many industrial tasks in factories. And, a new era will come for us to see a greater success of robotics in n- industrial environments. In anticipating a wider deployment of intelligent and auto- mous robots for tasks such as manufacturing, eldercare, homecare, edutainment, search and rescue, de-mining, surveillance,

exploration, and security missions, it is necessary for us to push the frontier of robotics into a new dimension, in which motion and intelligence play equally important roles. After the success of the inaugural conference, the purpose of the Second Inter- tional Conference on Intelligent Robotics and Applications was to provide a venue where researchers, scientists, engineers and practitioners throughout the world could come together to present and discuss the latest achievement, future challenges and exciting applications of intelligent and autonomous robots. In particular, the emphasis of this year's conference was on "robot intelligence for achieving digital manufact- ing and intelligent automations. " This volume of Springer's Lecture Notes in Artificial Intelligence and Lecture Notes in Computer Science contains accepted papers presented at ICIRA 2009, held in Singapore, December 16–18, 2009. On the basis of the reviews and recommendations by the international Program Committee members, we decided to accept 128 papers having technical novelty, out of 173 submissions received from different parts of the world.

Bearing Capacity of Roads, Railways and Airfields Oct 31 2020 Bearing Capacity of Roads, Railways and Airfields includes the contributions to the 10th International Conference on the Bearing Capacity of Roads, Railways and Airfields (BCRRA 2017, 28-30 June 2017, Athens, Greece). The papers cover aspects related to materials, laboratory testing, design, construction, maintenance and management systems of transport infrastructure, and focus on roads, railways and airfields. Additional aspects that concern new materials and characterization, alternative rehabilitation techniques, technological advances as well as pavement and railway track substructure sustainability are included. The contributions discuss new concepts and innovative solutions, and are concentrated but not limited on the following topics: · Unbound aggregate materials and soil properties · Bound materials characteritics, mechanical properties and testing · Effect of traffic loading · In-situ measurements techniques and monitoring · Structural evaluation · Pavement serviceability condition · Rehabilitation and maintenance issues · Geophysical assessment · Stabilization and reinforcement · Performance modeling · Environmental challenges · Life cycle assessment and sustainability Bearing Capacity of Roads, Railways and Airfields is essential reading for academics and professionals involved or interested in transport infrastructure systems, in particular roads, railways and airfields.

- Bridge Safety Maintenance Management Life Cycle Resilience And Sustainability
- Canadian Geotechnical Journal
- Microscopic Structure Effect On The Macroscopic Property Of Geomaterials
- Reservoir Geomechanics
- Geomechanics In Reservoir Simulation
- Marine Design XIII
- Frontiers In Offshore Geotechnics II
- On The Dissolution Precipitation And Transport Processes In Sulphatic Swelling Rocks
- Bearing Capacity Of Roads Railways And Airfields
- Rock Engineering And Rock Mechanics Structures In And On Rock Masses
- Petroleum Related Rock Mechanics
- Presentation Zen Design
- Hydraulic Fracture Mechanics
- Proceedings Of The 28th International Symposium On Mine Planning And Equipment Selection MPES 2019
- Modeling In Geomechanics
- Applied Soil Mechanics With ABAQUS Applications
- Mechanics And Physics Of Porous Solids
- Underground Excavations In Rock
- Encyclopedia Of Computational Mechanics