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Numerical Methods in Geotechnical Engineering Thomas Benz 2010-05-25 Numerical Methods in Geotechnical Engineering contains 153 scientific papers presented at the 7th European Conference on Numerical Methods in Geotechnical Engineering, NUMGE 2010, held at Norwegian University of Science and Technology (NTNU) in Trondheim, Norway, 2-4 June 2010. The contributions cover topics from emerging research to engineering pra

Numerical Methods in Geotechnical Engineering Michael A. Hicks 2014-05-29 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 NUMGE 2002 Philippe Mestat 2002

Computer Methods and Recent Advances in Geomechanics Fusao Oka 2014-09-04 Computer Methods and Recent Advances in Geomechanics contains the proceedings (abstracts book 472 pages + full paper USB-drive 2052 pages) of the 14th International Conference of the International Association for Computer Methods and Advances in Geomechanics (Kyoto, Japan, 22-25 September, 2014). The contributions cover computer methods, material m

Physics and Seismicity of Rocks Longjun Dong 2021-11-30

Rainfall Thresholds and Other Approaches for Landslide Prediction and Early Warning Samuele Segoni 2021-06-22 Landslides are destructive processes causing casualties and damage worldwide. The majority of the landslides are triggered by intense and/or prolonged rainfall. Therefore, the prediction of the occurrence of rainfall-induced landslides is an important scientific and social issue. To mitigate the risk posed by rainfall-induced landslides, landslide early warning systems (LEWS) can be built and applied at different scales as effective non-structural mitigation measures. Usually, the core of a LEWS is constituted of a mathematical model that predicts landslide occurrence in the monitored areas. In recent decades, rainfall thresholds have become a widespread and well established technique for the prediction of rainfall-induced landslides, and for the setting up of prototype or operational LEWS. A rainfall threshold expresses, with a mathematic law, the rainfall amount that, when reached or exceeded, is likely to trigger one or more landslides. Rainfall thresholds can be defined with relatively few parameters and are very straightforward to operate, because their application within LEWS is usually based only on the comparison of monitored and/or forecasted rainfall. This Special Issue collects contributions on the recent research advances or well-documented applications of rainfall thresholds, as well as other innovative methods for landslide prediction and early warning. Contributions regarding the description of a LEWS or single components of LEWS (e.g., monitoring approaches, forecasting models, communication strategies, and emergency management) are also welcome. We encourage, in particular, the submission of contributions concerning the definition and validation of rainfall thresholds, and their operative implementation in LEWS. Other approaches for the forecasting of landslides are also of interest, such as physically based modelling, hazard mapping, and the monitoring of hydrologic and geotechnical indicators, especially when described in the framework of an operational or prototype early warning system.

2019 Rock Dynamics Summit Omer Aydan 2019-07-04 Rock dynamics has become one of the most important topics in the field of rock mechanics and rock engineering, and involves a wide variety of topics, from earthquake engineering, blasting, impacts, failure of rock engineering structures as well as the occurrence and prediction of earthquakes, induced seismicity, rock bursts to non-destructive testing and explorations. Rock dynamics has wide applications in civil and infrastructural, resources and energy, geological and environmental engineering, geothermal energy, and earthquake hazard management, and has become one of the most topical areas. 2019 Rock Dynamics Summit contains 8 keynote addresses and 128 regular full papers that were presented at the 2019 Rock Dynamics Summit (2019 RDS, Okinawa, Japan, 7-11 May 2019), a specialized conference jointly organized by the Rock Dynamics Committee of the Japanese Society of Civil Engineers (JSCE-RDC), the Japanese Society for Rock Mechanics (JSRM), and which was supported by the International Society for Rock Mechanics and Rock Engineering (ISRM) and the Turkish National Society for Rock Mechanics (TNSRM). The contributions cover a wide range of topics on the dynamic behavior of rock and rock masses and scientific and engineering applications, and include: - Laboratory tests on Dynamic Responses of Rocks and Rock Masses / Fracturing of Rocks and Associated Strong Motions - Estimation Procedures and Numerical Techniques of Strong Motions Associated with the Rupture of Earth's Crust and Some Strong Motion - Dynamic Response and Stability of Rock Foundations, Underground Excavations in Rock, Rock Slopes Dynamic Responses and Stability of Stone Masonry Historical Structures and Monuments - Induced Seismicity - Dynamic Simulation of Loading and Excavation - Blasting and machinery induced vibrations - Rockburst, Outburst, Impacts - Nondestructive Testing Using Shock Waves - Case Histories of Failure Phenomenon in Rock Engineering 2019 Rock Dynamics Summit contains the state-of-the-art in rock dynamics, and will be invaluable to professionals and academics interested in the latest advances in new techniques for experiments, analytical and numerical modelling as well as monitoring in dynamics of rocks and rock engineering structures.

Geomechanics and Geotechnics of Particulate Media Masayuki Hyodo 2017-12-14 Microscopic re-examination of geomaterials consisting of aggregates can shed light on macroscopic behaviour, including compressibility, anisotropy, yielding, creep, cyclic liquefaction and shear rupture. As a result of this process of examination, new methods of material characterization emerge, leading to a greater degree of accuracy in the specification of new constitutive models with physically-meaningful parameters. The impetus behind this development is an increasing awareness on sustainability, leading to the more efficient use of recycled materials for geotechnical applications. The characteristics of recycled materials, such as compressibility and self-hardening, may differ significantly from those of natural materials, and it is crucial that evaluation is made from a specifically articulate perspective.

Geomechanics from Micro to Macro Kenichi Soga 2014-08-26 Geomechanics from Micro to Macro contains 268 papers presented at the International Symposium on Geomechanics from Micro and Macro (IS-Cambridge, UK, 1-3 September 2014). The symposium created a forum for the dissemination of new advances in the micro-macro relations of geomaterial behaviour and its modelling. The papers on experimental investigati

Impact of Human Activity on the Geological Environment **EUROCK 2005** Pavel Konecny 2005-05-12 This work focuses on the impact of human activity on the geological environment and contains over 100 papers dealing with laboratory and field research investigations in geomechanics, geoen지니어ing and mathematical modelling. Topics covered are grouped into eight main themes: response of the rock mass to human impact; slope stability; field research; laboratory research; stability of underground openings; mathematical modelling; stress measurements, and mineral and rock disintegration.

Dynamical Systems Mahmut Reyhanoglu 2017-03-15 There has been a considerable progress made during the recent past on mathematical techniques for studying dynamical systems that arise in science and engineering. This progress has been, to a large extent, due to our increasing ability to mathematically model physical processes and to analyze and solve them, both analytically and numerically. With its eleven chapters, this book brings together important contributions from renowned international researchers to provide an excellent survey of recent advances in dynamical systems theory and applications. The first section consists of seven chapters that focus on analytical techniques, while the next section is composed of four chapters that center on computational techniques.

Geotechnical Engineering in the XXI Century: Lessons learned and future challenges N.P. López-Acosta 2019-11-26 The first Pan-American Conference on Soil Mechanics and Geotechnical Engineering (PCSMGE) was held in Mexico in 1959. Every 4 years since then, PCSMGE has brought together the geotechnical engineering community from all over the world to discuss the problems, solutions and future challenges facing this engineering sector. Sixty years after the first conference, the 2019 edition returns to Mexico. This book, Geotechnical Engineering in the XXI Century: Lessons learned and future challenges, presents the proceedings of the XVI Pan-American Conference on Soil Mechanics and Geotechnical Engineering (XVI PCSMGE), held in Cancun, Mexico, from 17 – 20 November 2019. Of the 393 full papers submitted, 335 were accepted for publication after peer review. They are included here organized into 19 technical sessions, and cover a wide range of themes related to geotechnical engineering in the 21st century. Topics covered include: laboratory and in-situ testing; analytical and physical modeling in geotechnics; numerical modeling in geotechnics; unsaturated soils; soft soils; foundations and retaining structures; excavations and tunnels; offshore geotechnics; transportation in geotechnics; natural hazards; embankments and tailings dams; soils dynamics and earthquake engineering; ground improvement; sustainability and geo-environment; preservation of historic sites; forensics engineering; rock mechanics; education; and energy geotechnics. Providing a state-of-the-art overview of research into innovative and challenging applications in the field, the book will be of interest to all those working in soil mechanics and geotechnical engineering. In this proceedings, 58% of the contributions are in English, and 42% of the contributions are in Spanish or Portuguese.

Rock Mechanics and Rock Engineering: From the Past to the Future Reşat Ulusay 2016-11-18 Rock Mechanics and Rock Engineering: From the Past to the Future contains the contributions presented at EUROCK2016, the 2016 International Symposium of the International Society for Rock Mechanics (ISRM 2016, Ürgüp, Cappadocia Region, Turkey, 29-31 August 2016). The contributions cover almost all aspects of rock mechanics and rock engineering from theories to engineering practices, emphasizing the future direction of rock engineering technologies. The 204 accepted papers and eight keynote papers, are grouped into several main sections: - Fundamental rock mechanics - Rock properties and experimental rock mechanics - Analytical and numerical methods in rock engineering - Stability of slopes in civil and mining engineering - Design methodologies and analysis - Rock dynamics, rock mechanics and rock engineering at historical sites and monuments - Underground excavations in civil and mining engineering - Coupled processes in rock mass for underground storage and waste disposal - Rock mass characterization - Petroleum geomechanics - Carbon dioxide sequestration - Instrumentation-monitoring in rock engineering and back analysis - Risk management, and - the 2016 Rocha Medal Lecture and the 2016 Franklin Lecture Rock Mechanics and Rock Engineering: From the Past to the Future will be of interest to researchers and professionals involved in the various branches of rock mechanics and rock engineering. EUROCK 2016, organized by the Turkish National Society for Rock Mechanics, is a continuation of the successful series of ISRM symposia in Europe, which began in 1992 in Chester, UK.

Computational Geomechanics and Hydraulic Structures Sheng-Hong Chen 2018-06-21 This book presents recent research into developing and applying computational tools to estimate the performance and safety of hydraulic structures from the planning and construction stage to the service period. Based on the results of a close collaboration between the author and his colleagues, friends, students and field engineers, it shows how to achieve a good correlation between numerical computation and the actual in situ behavior of hydraulic structures. The book's heuristic and visualized style disseminates the philosophy and road map as well as the findings of the research. The chapters reflect the various aspects of the three typical and practical methods (the finite element method, the block element method, the composite element method) that the author has been working on and made essential contributions to since the 1980s. This book is an advanced continuation of Hydraulic Structures by the same author, published by Springer in 2015.

Numerical Modeling in Micromechanics via Particle Methods - 2004 Y. Shimizu 2004-09-15 The variety of applications of PFC has continued to increase in the ten years since the first release of these programs. This volume contains a collection of fifty-two papers selected for presentation at the 2nd PFC Symposium, held 27-29 October 2004, in Kyoto, Japan. These contributions cover a wide range of engineering applications and theoretical developments using PFC, and discrete methods in general. Topics include applications in civil engineering, slope and wall stability, rock fracture, shear flows, geology and industrial engineering. New developments are also described for contact bond models, fluid coupling and model calibration. This proceedings volume illustrates the great variety of PFC applications in different engineering fields, and includes case-studies and general applications as well as research presentations.

Deformation Characteristics of Geomaterials C.-K. Chung 2011 This book is the international edition of the proceedings of IS-Seoul 2011, the Fifth International Symposium on Deformation Characteristics of Geomaterials, held in Seoul, South Korea, in September 2011. The book includes 7 invited lectures, as well as 158 technical papers selected from the 182 submitted. The symposium explored ideas about the complex load-deformation response in geomaterials, including laboratory methods for small and large strains; anisotropy and localization; time-dependent responses in soils; characteristics of treated, unsaturated, and natural geomaterials; applications in field methods; evaluation of field performance in geotechnical structures; and physical and numerical modeling in geomechanics. These topics were grouped under a number of main themes, including experimental investigations from very small strains to beyond failure; behavior, characterization and modeling of various geomaterials; and practical prediction and interpretation of ground response: field observation and case histories. Both the symposium and this book represent an important contribution to the exchange of advanced

knowledge and ideas in geotechnical engineering and promote partnership among participants worldwide.

Rock Mechanics: Achievements and Ambitions Meifeng Cai 2011-09-22 Rock Mechanics: Achievements and Ambitions contains the papers accepted for the 2nd ISRM International Young Scholars' Symposium on Rock Mechanics, which was sponsored by the ISRM and held on 14–16 October 2011 in Beijing, China, immediately preceding the 12th ISRM Congress on Rock Mechanics. Highlighting the work of young teachers, researchers and practitioners, the present work provides an important stimulus for the next generation of rock engineers, because in the future there will be more emphasis on the use of the Earth's resources and their sustainability, and more accountability of engineers' decisions. In this context, it is entirely appropriate that the Symposium venue for the young scholars was in China – because of the rock mechanics related work that is anticipated in the future. For example, in the Chinese Academy of Sciences report, “Energy Science and Technology in China: A Roadmap to 2050”, it is predicted that China's total energy demand will reach 31, 45, 61 and 66 x 108 tce (tonnes of coal equivalent) in 2010, 2020, 2035, 2050. The associated per capita energy consumption for the same years is estimated at 2.3, 3.1, 4.1 and 4.6 tce. This increasing demand will be met, inter alia, by the continued operation and development of new coal mines, hydroelectric plants and nuclear power stations with one or more underground nuclear waste repositories, all of which will be improved by more modern methods of rock engineering design developed by young scholars. In particular, enhanced methods of site investigation, rock characterisation, rock failure understanding, computer modelling, and rock excavation and support are needed. The topics in the book include contributions on: - Field investigation and observation - Rock constitutive relations and property testing - Numerical and physical modeling for rock engineering - Information technology, artificial intelligence and other advanced techniques - Underground and surface excavation and reinforcement techniques - Dynamic rock mechanics and blasting - Predication and prevention of geo-environmental hazard - Case studies of typical rock engineering Many of the 200 papers address these topics and demonstrate the skills of the young scholars, indicating that we can be confident in the continuing development of rock mechanics and rock engineering, leading to more efficient, safer and economical structures built on and in rock masses. Rock Mechanics: Achievements and Ambitions will appeal to professionals, engineers and academics in rock mechanics, rock engineering, tunnelling, mining, earthquake engineering, rock dynamics and geotechnical engineering. **Rock Mechanics for Resources, Energy and Environment** Marek Kwasniewski 2013-09-11 This book contains the Proceedings of EUROCK 2013 - The 2013 ISRM International Symposium, which was held on 23-26 September 2013 in Wroclaw, Poland. The Symposium was organized by the ISRM National Group POLAND and the Institute of Geotechnics and Hydrotechnics of the Wroclaw Institute of Technology. The focus of the Symposium was on recent develo

Scour and Erosion John Harris 2016-10-14 Scour and Erosion includes four keynote lectures from world leading researchers cutting across the themes of scour and erosion, together with 132 peer-reviewed papers from 34 countries, covering the principal themes of: - internal erosion - sediment transport - grain scale to continuum scale - advanced numerical modelling of scour and erosion - terrestrial scour and erosion- river and estuarine erosion including scour around structures, and - management of scour/erosion and sediment, including hazard management and sedimentation in dams and reservoirs. Scour and Erosion is ideal for researchers and industry working at the forefront of scour and erosion, and has applications in both the freshwater and marine environments. The 8th International Conference on Scour and Erosion (ICSE 2016, Oxford, UK, 12-15 September 2016) was organized by HR Wallingford under the guidance of the Technical Committee 213 for Scour and Erosion of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE). This biennial conference draws together leading academics, scientists and engineers engaged in scour and erosion research to present and exchange their latest scientific findings. Scour and Erosion, together with the eight previous proceedings dating from 2002, present a solid collection of technical and scientific developments in scour and erosion research which have been established over the last 14 years.

Advances in Building Materials, ICSBM 2011 Lijuan Li 2010-12-06 This collection of 501 peer-reviewed papers, presented as a three-volume set, covers the latest advances in micromechanical characterization, micromechanical properties, durability analysis, failure mechanisms and non-destructive evaluation of building materials. **Numerical Modeling in Micromechanics via Particle Methods** H. Konietzky 2017-11-01 Particle methods have seen increasing use in several engineering and scientific fields, both because of their unique modelling capabilities and the availability of the necessary computational power. This title focuses on their theory and application.

Proceedings of the 7th International Conference on Discrete Element Methods Xikui Li 2016-12-01 This book presents the latest advances in Discrete Element Methods (DEM) and technology. It is the proceeding of 7th International Conference on DEM which was held at Dalian University of Technology on August 1 - 4, 2016. The subject of this book are the DEM and related computational techniques such as DDA, FEM/DEM, molecular dynamics, SPH, Meshless methods, etc., which are the main computational methods for modeling discontinua. In comparison to continua which have been already studied for a long time, the research of discontinua is relatively new, but increases dramatically in recent years and has already become an important field. This book will benefit researchers and scientists from the academic fields of physics, engineering and applied mathematics, as well as from industry and national laboratories who are interested in the DEM.

Proceedings of GeoShanghai 2018 International Conference: Fundamentals of Soil Behaviours Annan Zhou 2018-05-10 This book is the second volume of the proceedings of the 4th GeoShanghai International Conference that was held on May 27 - 30, 2018. The book, entitled “Fundamentals of Soil Behaviours”, presents the recent advances and technology in the understanding and modelling of fundamentals of soil's behaviours. The subject of this book covers a wide range of topics related to soil behaviours in geotechnical engineering, geoenvironmental engineering and transportation engineering. The state-of-the-art theories, methodologies and findings in the related topics are included. This book may benefit researchers and scientists from the academic fields of soil and rock mechanics, geotechnical engineering, geoenvironmental engineering, transportation engineering, geology, mining and energy, as well as practical engineers from industry. Each of the papers included in this book received at least two positive peer reviews. The editors would like to express their sincerest appreciation to all of the anonymous reviewers all over the world, for their diligent work.

Rock Fragmentation by Blasting B. Mohanty 2020-12-17 This collection of symposium papers covers a wide range of topics on rock fragmentation, from carefully documented case studies to attempts, for example, at fractal representation of the fracture process itself.

Identification and Mitigation of Large Landslide Risks in Europe C. Bonnard 2014-04-21 Large landslides affect many mountain valleys in Europe. They are characterised by a low probability of evolution into a catastrophic event but can have very large impacts on population, infrastructures and the environment. This impact is becoming more and more pronounced due to increasing tourism and the construction of new roads and railways in mountainous areas. Methodologies for the assessment and mitigation of risks are therefore a major issue. Since very large slope movements are quite often directly or indirectly implicated in disasters, like landslides, secondary slides or debris flow, their early identification is essential to an adequate risk assessment of the zones involved. The assessment of risks due to large landslides in the alpine environment is the first activity carried out within the IMIRILAND Project. This project involves seven partners representing five European countries and is funded by the European Commission within the Fifth Framework Program (Research and Technological Development, Activities of a Generic Nature: the Fight against Major Natural and Technological Hazards). The objective of this cooperation is to develop risk management methodologies and mitigation strategies that can be applied at a European level as useful tools for administrators and land users. To this end, by means of a multidisciplinary approach the hazard analysis of some selected large landslides was examined with a particular focus on geological, geomorphological and geo-mechanical methods. In addition, vulnerability and risk analyses were carried out to enable the consideration of direct and indirect consequences, as well as technical and social impacts. The developed risk assessment procedure was critically examined through application to some selected landslides. Identification and Mitigation of Large Landslide Risks in Europe – Advances in Risk Assessment presents the risk assessment procedure developed and the case studies that were performed within the framework of the IMIRILAND Project. It is edited by Arpa Piemonte, Ecole Polytechnique Fédérale de Lausanne and Politecnico di Torino This book is intended for geotechnical engineers, engineering geologists, geomorphologists and planners who are involved in landslides and in assessing the stability of natural slopes.

Construction Materials and Structures S.O. Ekolu 2014-12-05 The two volumes of these Proceedings contain about 200 conference papers and 10 keynote papers presented at the First International Conference on Construction Materials and Structures, held in Johannesburg, South Africa from 24 to 26 November 2014. It includes sections on Materials and characterization; Durability of construction materials; Structural implications, performance, service life; Sustainability, waste utilization, the environment; and Building science and construction.

Innovative Numerical Modelling in Geomechanics Luis Ribeiro e Sousa 2012-05-03 Since the 1990s five books on ‘Applications of Computational Mechanics in Geotechnical Engineering’ have been published. Innovative Numerical Modelling in Geomechanics is the 6th and final book in this series, and contains papers written by leading experts on computational mechanics. The book treats highly relevant topics in the field of geotechnics, such as environmental geotechnics, open and underground excavations, foundations, embankments and rockfill dams, computational systems and oil geomechanics. Special attention is paid to risk in geotechnical engineering, and to recent developments in applying Bayesian networks and Data Mining techniques. Innovative Numerical Modelling in Geomechanics will be of interest to civil, mining and environmental engineers, as well as to engineering geologists. The book will also be useful for academics and researchers involved in geotechnics.

Powders and Grains 2005, Two Volume Set R. Garcia-Rojo 2005-07-01 This volume contains the proceedings of the Fifth International Conference on the Micromechanics of Granular Media, Powders and Grains 2005. Powders and Grains is an international scientific conference held every 4 years that brings together engineers and physicists interested in the micromechanics of granular media. The book is a guide to the hotte

Compaction of Soils, Granulates and Powders W. Fellin 2000-03-02 This interdisciplinary volume comprises papers from several fields related to compaction. Topics include: soil compaction for pavements and roads; deep soil compaction by vibration, impact and underground explosion; compaction control; and compaction processes in engineering.

Advances in Civil Engineering II Xiang Dong Zhang 2012-12-13 The collection includes selected, peer reviewed papers from the 2nd International Conference on Civil Engineering and Transportation (ICCE 2012) held October 27-28, 2012 in Guilin, China. Volume is indexed by Thomson Reuters CPCI-S (WoS). The 597 papers are grouped into the following chapters: Chapter 1: Geological, Geotechnical and Building Engineering, Chapter 2: Structural Engineering, Chapter 3: Reliability, Durability and Rehabilitation of Structures, Chapter 4: Tunnel, Subway and Underground Facilities, Chapter 5: Bridge and Road Engineering, Chapter 6: Coastal Engineering and Ocean Engineering, Chapter 7: Seismic Engineering, Chapter 8: Surveying and Detection Engineering, Cartography, Measurement and Geographic Information System, Chapter 9: Hydraulic and Fluid Engineering, Chapter 10: Heating, Gas Supply, Ventilation and Air Conditioning Works, Chapter 11: Natural and Technogenic Disasters Prevention and Mitigation, Chapter 12: Computer-Aided Design and Applications in Industry and Civil Engineering, Chapter 13: Engineering Management and Engineering Education.

Discrete Element Methods Benjamin K. Cook 2002 Proceedings of the Third International Conference on Discrete Element Methods, held in Santa Fe, New Mexico on September 23-25, 2002. This Geotechnical Special Publication contains 72 technical papers on discrete element methods (DEM), a suite of numerical techniques developed to model granular materials, rock, and other discontinua at the grain scale. Topics include: DEM formulation and implementation approaches, coupled methods, experimental validation, and techniques, including three-dimensional particle representations, efficient contact detection algorithms, particle packing schemes, and code design. Coupled methods include approaches to linking solid continuum and fluid models with DEM to simulate multiscale and multiphase phenomena. Applications include fundamental investigations of granular mechanics; micromechanical studies of powder, soil, and rock behavior; and large-scale modeling of geotechnical, material processing, mining, and petroleum engineering problems.

Engineering Solutions for Manufacturing Processes IV Zheng Yi Jiang 2014-02-06 Collection of selected, peer reviewed papers from the 2013 4th International Conference on Advances in Materials and Manufacturing (ICAMMP 2013), 18-19 December, 2013, Kunming, China. The 342 papers are grouped as follows: Chapter 1: Computer-Aided Design and Research in Mechanical Engineering, Chapter 2: Research and Design Solutions in Machinery Industry, Chapter 3: Mathematical Modeling and Optimization in Engineering Sciences, Chapter 4: Technology of Measurement and Signal Processing, Chapter 5: Sensor Technology, Chapter 6: Microelectronics, Circuit Technology and Embedded Systems, Chapter 7: Mechatronics and Control, Chapter 8: Technologies of Machine Vision and Identification, Chapter 9: Industrial Robotics and Automated Manufacturing, Chapter 10: Applied Information Technologies, Chapter 11: Construction Technologies, Structural Strength and Reliability, Chapter 12: Product Design, Chapter 13: Operations and Production Management, Chapter 14: Environmental Engineering, Chapter 15: Multidisciplinary Engineering Education

Environmental Vibrations and Transportation Geodynamics Xuecheng Bian 2017-06-27 This book includes keynote presentations, invited speeches, and general session papers presented at the 7th International Symposium on Environmental Vibration and Transportation Geodynamics (formerly the International Symposium on Environmental Vibration), held from October 28 to 30, 2016 at Zhejiang University, Hangzhou, China. It discusses topics such as the dynamic and cyclic behaviors of soils, dynamic interaction of vehicle and transportation infrastructure; traffic-induced structure and soil vibrations and wave propagation; soil-structure dynamic interaction problems in transportation; environmental vibration analysis and testing; vehicle, machine and human-induced vibrations; monitoring, evaluation and control of traffic induced vibrations; transportation foundation deformation and deterioration induced by vibration; structural safety and serviceability of railways, metros, roadways and bridges; and application of geosynthetics in transportation infrastructure. It is a valuable resource for government managers, scientific researchers, and engineering professionals engaged in the field of geotechnical and transportation engineering.

Slope Stability 2007 Yves Potvin 2007

Advances in Deep Foundations Yoshiaki Kikuchi 2007-06-21 Civil Engineering has recently seen enormous progress in the core field of the construction of deep foundations. This book is the result of the International Workshop on Recent Advances in Deep Foundations (IWDPF07), which was held in Yokosuka, Japan from the 1st to the 2nd of February, 2007. Topics under discussion in this book include recent rese

Bifurcations, Instabilities, Degradation in Geomechanics George Exadaktylos 2007-04-27 This is an up-to-date review of developments in the field of bifurcations and instabilities in geomechanics from some of the world's leading experts. Leading international researchers and practitioners of the topics debate the developments and applications which have occurred over the last few decades. Beside fundamental research findings, applications in geotechnical, petroleum, mining, and bulk materials engineering are emphasised.

Analytical Methods in Petroleum Upstream Applications Cesar Ovalles 2015-04-02 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.

Rock Mechanics and Engineering Volume 2 Xia-Ting Feng 2017-07-12 Laboratory and Field Testing is the second volume of the five-volume set Rock Mechanics and Engineering and contains nineteen chapters from key experts in the following fields: - Triaxial or True-triaxial Tests under Condition of Loading and Unloading; - Joint Tests; - Dynamic and Creep Tests; - Physical Modeling Tests; - Field Testing and URLs. The five-volume set "Comprehensive Rock Engineering", which was published in 1993, has had an important influence on the development of rock mechanics and rock engineering. Significant and extensive advances and achievements in these fields over the last 20 years now justify the publishing of a comparable, new compilation. Rock Mechanics and Engineering represents a highly prestigious, multi-volume work edited by Professor Xia-Ting Feng, with the editorial advice of Professor John A. Hudson. This new compilation offers an extremely wideranging and comprehensive overview of the state-of-the-art in rock mechanics and rock engineering and is composed of peer-reviewed, dedicated contributions by all the key experts worldwide. Key features of this set are that it provides a systematic, global summary of new developments in rock mechanics and rock engineering practices as well as looking ahead to future developments in the fields. Contributors are worldrenowned experts in the fields of rock mechanics and rock engineering, though younger, talented researchers have also been included. The individual volumes cover an extremely wide array of topics grouped under five overarching themes: Principles (Vol. 1), Laboratory and Field Testing (Vol. 2), Analysis, Modelling and Design (Vol. 3), Excavation, Support and Monitoring (Vol. 4) and Surface and Underground Projects (Vol. 5). This multi-volume work sets a new standard for rock mechanics and engineering compendia and will be the go-to resource for all engineering professionals and academics involved in rock mechanics and engineering for years to come.

Landslides: Evaluation and Stabilization/Glisement de Terrain: Evaluation et Stabilisation, Set of 2 Volumes W. Lacerda 2004-06-15 These volumes comprise the Proceedings of the Ninth International Symposium on Landslides, held in Rio de Janeiro, Brazil, from June 28 to July 2, 2004. Information on the latest developments in Landslide Studies is presented by invited lecture reports, specialized panel contributions and over two hundred and forty technical papers, grouped in the

Rock Mechanics and Engineering Volume 3 Xia-Ting Feng 2017-04-21 Analysis, Modeling & Design is the third volume of the five-volume set Rock Mechanics and Engineering and contains twenty-eight chapters from key experts in the following fields: - Numerical Modeling Methods; - Back Analysis; - Risk Analysis; - Design and Stability Analysis: Overviews; - Design and Stability Analysis: Coupling Process Analysis; - Design and Stability Analysis: Blast Analysis and Design; - Rock Slope Stability Analysis and Design; - Analysis and Design of Tunnels, Caverns and Stopes. The five-volume set "Comprehensive Rock Engineering", which was published in 1993, has had an important influence on the development of rock mechanics and rock engineering. Significant and extensive advances and achievements in these fields over the last 20 years now justify the publishing of a comparable, new compilation. Rock Mechanics and Engineering represents a highly prestigious, multi-volume work edited by Professor Xia-Ting Feng, with the editorial advice of Professor John A. Hudson. This new compilation offers an extremely wideranging and comprehensive overview of the state-of-the-art in rock mechanics and rock engineering and is composed of peer-reviewed, dedicated contributions by all the key experts worldwide. Key features of this set are that it provides a systematic, global summary of new developments in rock mechanics and rock engineering practices as well as looking ahead to future developments in the fields. Contributors are worldrenowned experts in the fields of rock mechanics and rock engineering, though younger, talented researchers have also been included. The individual volumes cover an extremely wide array of topics grouped under five overarching themes: Principles (Vol. 1), Laboratory and Field Testing (Vol. 2), Analysis, Modelling and Design (Vol. 3), Excavation, Support and Monitoring (Vol. 4) and Surface and Underground Projects (Vol. 5). This multi-volume work sets a new standard for rock mechanics and engineering compendia and will be the go-to resource for all engineering professionals and academics involved in rock mechanics and engineering for years to come.