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Geotechnics for Sustainable Infrastructure Development

This book addresses applications of earthquake engineering for both offshore and land-based structures. It is self-contained as a reference work and covers a wide range of topics, including topics related to engineering seismology, geotechnical earthquake engineering, structural engineering, as well as special contents dedicated to design philosophy, determination of ground motions, shock waves, tsunamis, earthquake damage, seismic response of offshore and arctic structures, spatial varied ground motions, simplified and advanced seismic analysis methods, sudden subsidence of offshore platforms, tank liquid impacts during earthquakes, seismic resistance of non-structural elements, and various types of mitigation measures, etc. The target readership includes professionals in offshore and civil engineering, officials and regulators, as well as researchers and students in this field.

Experimental and Theoretical Study of Strength and Stability of Soil

The Encyclopedia of Earthquake Engineering is designed to be the authoritative and comprehensive reference covering all major aspects of the science of earthquake engineering, specifically focusing on the interaction between earthquakes and infrastructure. The encyclopedia comprises approximately 300 contributions. Since earthquake engineering deals with the interaction between earthquake disturbances and the built infrastructure, the emphasis is on basic design processes important to both non-specialists and engineers so that readers become suitably well informed without needing to deal with the details of specialist understanding. The encyclopedia's content provides technically-inclined and informed readers about the ways in which earthquakes can affect our infrastructure and how engineers would go about designing against, mitigating and remediating these effects. The coverage ranges from buildings, foundations, underground construction, lifelines and bridges, roads, embankments and slopes. The encyclopedia also aims to provide cross-disciplinary and cross-domain information to domain-experts. This is the first single reference encyclopedia of this breadth and scope that brings together the science, engineering and technological aspects of earthquakes and structures.

Earthquake Geotechnical Engineering

Pseudo-static analysis is still the most-used method to assess the stability of geotechnical systems that are exposed to earthquake forces. However, this method does not provide any information about the deformations and permanent displacements induced by seismic activity. Moreover, it is questionable to use this approach when geotechnical systems are affected by frequent and rare seismic events. Incidentally, the peak ground acceleration has increased from 0.2-0.3 g in the seventies to the current value of 0.6-0.8 g. Therefore, a shift from the pseudo-static approach to performance-based analysis is needed. Over the past five years considerable progress has been made in Earthquake Geotechnical Engineering Design (EGED). The most recent advances are presented in this book in 6 parts. The evaluation of the site amplification is covered in Part I of the book. In Part II the evaluation of the soil foundation stability against natural slope failure and liquefaction is treated. In the following 3 Parts of the book the EGED for different geotechnical systems is presented as follows: the design of levees and dams including natural slopes in Part III; the design of foundations and soil structure interaction analysis in Part IV; underground structures in Part V. Finally in Part VI, new topics like the design of reinforced earth retaining walls and landfills are covered.

Special Topics in Earthquake Geotechnical Engineering

This book presents the proceedings of the International Conference on Health, Safety, Fire, Environment, and Allied Sciences (HSFEA 2018), highlighting the latest developments in the field of science and technology aimed at improving health and safety in the workplace. The volume comprises content from leading scientists, engineers, and policy makers, discussing water pollution and advanced remedial measures, and the impact on health and the environment. Topics of discussion include research on emerging water pollutants, their sources, monitoring and control. The contents of this volume will be of interest to researchers, practitioners, and policy makers alike.

Geotechnical Earthquake Engineering

This work presents the experimental results of the strength of sands and clay soils in the following conditions: plane shear, triaxial stress state, with passive and active loading. The obtained experimental results are compared with existing theories of strength and the reasons for their non-conformity are identified. Experimental data on the determination of the position of shear surfaces with active and passive resistance of soils is analysed. A new concept of the theory of soil strength is considered, which allows to take into account the fundamental

parameters of the strength of soils: the angle of internal friction, specific adhesion, and lateral pressure ratio. Given analytical expressions allow one to determine the stress state at the sites rejected with respect to the main stresses. The definition of the physical essence of the concept of lateral pressure coefficient for soils is given. Also described are the results of experiments to determine the critical load on soil having the shape of a truncated cone, where the angles of deflection of the shear surfaces have been experimentally determined, on the basis of which analytical expressions have been obtained that allow prediction of the critical load. The book provides methods for solving various geotechnical problems using the theory of soil strength proposed by the authors. The book is intended for professionals working in the fields of soil mechanics and geotechnics, as well as for students and academics in engineering, earth and soil sciences and construction.

Earthquake Geotechnical Engineering

Despite significant development in earthquake analysis and design in the last 50 years or more, different structures related to industry, infra structure and human habitats get destroyed with monotonic regularity under strong motion earthquake. Even the recent earthquake in Mexico in September 2017 killed a number of people and destroyed national assets amounting to hundreds of millions of dollars. Careful evaluation of the technology reveals that, despite significant development in earthquake engineering, most of the books that are available on the market for

reference are primarily focused towards buildings and framed type structures. It is accepted that during an earthquake it is buildings that get destroyed most and has been the biggest killers of human life. Yet, there are a number of structures like retaining walls, water tanks, Bunkers, silos, tall chimneys, bridge piers etc that are equally susceptible to earthquake, and if damaged can cause serious trouble and great economic distress. Unfortunately, many of these systems are analyzed by techniques that are too simplified, unrealistic/obsolete or nothing is done about them, ignoring completely the seismic effects, as no guidelines exist for their analysis/design (like seismic analysis of counterfort retaining walls or dynamic pressures on bunker walls etc.). This highly informative book addresses many of these items for which there exists a significant gap in technology and yet remain an important life line of considerable commercial significance. The book is an outcome of authors' academic research and practice across the four continents (USA, Europe, Africa and Asia) in the last thirty two years, where many of these technologies have been put in practice, that got tested against real time earthquakes. All methods presented herein have been published previously in peer reviewed research journals and international conferences of repute before being put to practice. Professionals working in international EPC and consulting engineering firms, graduates taking advanced courses in earthquake engineering, doctoral scholars pursuing research in earthquake engineering in the area of dynamic soil structure interaction (DSSI) and advanced under graduates wanting to self-learn and update themselves on earthquake analysis and design are greatly

benefited from this book.

Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions

Appropriate for courses in Structural Dynamics, Earthquake Engineering or Seismology. This is the first book on the market focusing specifically on the topic of geotechnical earthquake engineering. Also covers fundamental concepts in seismology, geotechnical engineering, and structural engineering.

Third International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics [proceedings]

This book presents current developments in performance-based design (PBD) in earthquake geotechnical engineering, including various case histories, numerical methods, soil investigations and engineering practice. Special attention is paid to the 2008 Wenchuan Sichuan earthquake in China, performance evaluations, the role of soil investigations, criteria/design codes, and the performance and future perspectives of PBD. The information in this book will be of particular interest to researchers in earthquake geotechnical engineering, and practicing geotechnical

and structural engineers.

Geotechnical Hazards from Large Earthquakes and Heavy Rainfalls

The Second International Symposium on Constitutive Modeling of Geomaterials: Advances and New Applications (IS-Model 2012), is to be held in Beijing, China, during October 15-16, 2012. The symposium is organized by Tsinghua University, the International Association for Computer Methods and Advances in Geomechanics (IACMAG), the Committee of Numerical and Physical Modeling of Rock Mass, Chinese Society for Rock Mechanics and Engineering, and the Committee of Constitutive Relations and Strength Theory, China Institution of Soil Mechanics and Geotechnical Engineering, China Civil Engineering Society. This Symposium follows the first successful International Workshop on Constitutive Modeling held in Hong Kong, which was organized by Prof. JH Yin in 2007. Constitutive modeling of geomaterials has been an active research area for a long period of time. Different approaches have been used in the development of various constitutive models. A number of models have been implemented in the numerical analyses of geotechnical structures. The objective of the symposium is to provide a forum for researchers and engineers working or interested in the area of constitutive modeling to meet together and share new ideas, achievements and

experiences through presentations and discussions. Emphasis is placed on recent advances of constitutive modeling and its applications in both theoretic and experimental aspects. Six famous scholars have been invited for the plenary speeches of the symposiums. Some prominent scholars have been invited to organize four specialized workshops on hot topics, including “Time-dependent stress-strain behavior of geomaterials”, “Constitutive modeling within critical state soil mechanics”, “Multiscale and multiphysics in geomaterials”, and “Damage to failure in rock structures”. A total of 49 papers are included in the above topics. In addition, 51 papers are grouped under three topics covering “Behaviour of geomaterials”, “Constitutive model”, and “Applications”. The editors expect that the book can be helpful as a reference to all those in the field of constitutive modeling of geomaterials.

Geotechnical Engineering

Soil Liquefaction during Recent Large-Scale Earthquakes

Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions contains invited, keynote and theme lectures and regular papers presented at the 7th International Conference on Earthquake

Geotechnical Engineering (Rome, Italy, 17-20 June 2019). The contributions deal with recent developments and advancements as well as case histories, field monitoring, experimental characterization, physical and analytical modelling, and applications related to the variety of environmental phenomena induced by earthquakes in soils and their effects on engineered systems interacting with them. The book is divided in the sections below: Invited papers Keynote papers Theme lectures Special Session on Large Scale Testing Special Session on Liquefact Projects Special Session on Lessons learned from recent earthquakes Special Session on the Central Italy earthquake Regular papers Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions provides a significant up-to-date collection of recent experiences and developments, and aims at engineers, geologists and seismologists, consultants, public and private contractors, local national and international authorities, and to all those involved in research and practice related to Earthquake Geotechnical Engineering.

Constitutive Modelling of Granular Materials

Geotechnical Earthquake Engineering and Soil Dynamics, as well as their interface with Engineering Seismology, Geophysics and Seismology, have all made remarkable progress over the past 15 years, mainly due to the development of instrumented large scale experimental facilities, to the increase in the quantity and

quality of recorded earthquake data, to the numerous well-documented case studies from recent strong earthquakes as well as enhanced computer capabilities. One of the major factors contributing to the aforementioned progress is the increasing social need for a safe urban environment, large infrastructures and essential facilities. The main scope of our book is to provide the geotechnical engineers, geologists and seismologists, with the most recent advances and developments in the area of earthquake geotechnical engineering, seismology and soil dynamics.

Geotechnical and Structural Engineering Congress 2016

Preface. Dedication. List of Figures. List of Tables. List of Contributors. Basic Behavior and Site Characterization. 1. Introduction; R.K. Rowe. 2. Basic Soil Mechanics; P.V. Lade. 3. Engineering Properties of Soils and Typical Correlations; P.V. Lade. 4. Site Characterization; D.E. Becker. 5. Unsaturated Soil Mechanics and Property Assessment; D.G. Fredlund, et al. 6. Basic Rocks Mechanics and Testing; K.Y. Lo, A.M. Hefny. 7. Geosynthetics: Characteristics and Testing; R.M. Koerner, Y.G. Hsuan. 8. Seepage, Drainage and Dewatering; R.W. Loughney. Foundations and Pavements. 9. Shallo.

Earthquake Analysis and Design of Industrial Structures and

Infra-structures

This book reports on the latest technological and clinical advances in the field of neurorehabilitation. It is, however, much more than a conventional survey of the state-of-the-art in neurorehabilitation technologies and therapies. It was formed on the basis of a week of lively discussions between curious PhD students and leading research experts during the summer school on neurorehabilitation (SSNR2012), September 16-21 in Nuévalos, Zaragoza (Spain). Its unconventional format makes it a perfect guide for all PhD students, researchers and professionals interested in gaining a multidisciplinary perspective on current and future neurorehabilitation scenarios. The book covers various aspects of neurorehabilitation research and practice, organized into different parts. The first part discusses a selection of common impairments affecting brain function, such as stroke, cerebral palsy and Parkinson's disease; the second deals with both spinal cord and brain plasticity. The third part covers the most recent rehabilitation and diagnostics technologies, including robotics, neuroprostheses, brain-machine interfaces and electromyography systems. Practical examples and case studies related to the application of some of the latest techniques in realistic clinical scenarios are covered in the fourth part.

Advanced Structural Wind Engineering

This book offers a broad perspective on important topics in earthquake geotechnical engineering and gives specialists and those that are involved with research and application a more comprehensive understanding about the various topics. Consisting of eighteen chapters written by authors from the most seismic active regions of the world, such as USA, Japan, Canada, Chile, Italy, Greece, Portugal, Taiwan, and Turkey, the book reflects different views concerning how to assess and minimize earthquake damage. The authors, a prominent group of specialists in the field of earthquake geotechnical engineering, are the invited lecturers of the International Conference on Earthquake Geotechnical Engineering from Case History to Practice in the honour of Professor Kenji Ishihara held in Istanbul, Turkey during 17-19 June 2013.

Constitutive Modeling of Geomaterials

This book contains the full papers on which the invited lectures of the 4th International Conference on Geotechnical Earthquake Engineering (4ICEGE) were based. The conference was held in Thessaloniki, Greece, from 25 to 28 June, 2007. The papers offer a comprehensive overview of the progress achieved in soil dynamics and geotechnical earthquake engineering, examine ongoing and unresolved issues, and discuss ideas for the future.

Soil Dynamics

This book presents a comprehensive topical overview on soil dynamics and foundation modeling in offshore and earthquake engineering. The spectrum of topics include, but is not limited to, soil behavior, soil dynamics, earthquake site response analysis, soil liquefactions, as well as the modeling and assessment of shallow and deep foundations. The author provides the reader with both theory and practical applications, and thoroughly links the methodological approaches with engineering applications. The book also contains cutting-edge developments in offshore foundation engineering such as anchor piles, suction piles, pile torsion modeling, soil ageing effects and scour estimation. The target audience primarily comprises research experts and practitioners in the field of offshore engineering, but the book may also be beneficial for graduate students.

Practical Soil Dynamics

This book presents 09 keynote and invited lectures and 177 technical papers from the 4th International Conference on Geotechnics for Sustainable Infrastructure Development, held on 28-29 Nov 2019 in Hanoi, Vietnam. The papers come from 35 countries of the five different continents, and are grouped in six conference themes: 1) Deep Foundations; 2) Tunnelling and Underground Spaces; 3) Ground

Improvement; 4) Landslide and Erosion; 5) Geotechnical Modelling and Monitoring; and 6) Coastal Foundation Engineering. The keynote lectures are devoted by Prof. Harry Poulos (Australia), Prof. Adam Bezuijen (Belgium), Prof. Delwyn Fredlund (Canada), Prof. Lidija Zdravkovic (UK), Prof. Masaki Kitazume (Japan), and Prof. Mark Randolph (Australia). Four invited lectures are given by Prof. Charles Ng, ISSMGE President, Prof. Eun Chul Shin, ISSMGE Vice-President for Asia, Prof. Norikazu Shimizu (Japan), and Dr. Kenji Mori (Japan).

Design of Pile Foundations in Liquefiable Soils

Significant advancements in the experimental analysis of soils and shales have been achieved during the last few decades. Outstanding progress in the field has led to the theoretical development of geomechanical theories and important engineering applications. This book provides the reader with an overview of recent advances in a variety of advanced experimental techniques and results for the analysis of the behaviour of geomaterials under multiphysical testing conditions. Modern trends in experimental geomechanics for soils and shales are discussed, including testing materials in variably saturated conditions, non-isothermal experiments, micro-scale investigations and image analysis techniques. Six theme papers from leading researchers in experimental geomechanics are also included. This book is intended for postgraduate students, researchers and practitioners in fields where multiphysical testing of soils and shales plays a fundamental role,

such as unsaturated soil and rock mechanics, petroleum engineering, nuclear waste storage engineering, unconventional energy resources and CO2 geological sequestration.

Multiphysical Testing of Soils and Shales

Pile foundations are the most common form of deep foundations that are used both onshore and offshore to transfer large superstructural loads into competent soil strata. This book provides many case histories of failure of pile foundations due to earthquake loading and soil liquefaction. Based on the observed case histories, the possible mechanisms of failure of the pile foundations are postulated. The book also deals with the additional loading attracted by piles in liquefiable soils due to lateral spreading of sloping ground. Recent research at Cambridge forms the backbone of this book with the design methodologies being developed directly based on quantified centrifuge test results and numerical analysis. The book provides designers and practicing civil engineers with a sound knowledge of pile behaviour in liquefiable soils and easy-to-use methods to design pile foundations in seismic regions. For graduate students and researchers, it brings together the latest research findings on pile foundations in a way that is relevant to geotechnical practice.

Advances in Water Pollution Monitoring and Control

Geotechnical Engineering: A Practical Problem Solving Approach covers all of the major geotechnical topics in the simplest possible way adopting a hands-on approach with a very strong practical bias. You will learn the material through worked examples that are representative of realistic field situations whereby geotechnical engineering principles are applied to solve real-life problems.

Perspectives on Earthquake Geotechnical Engineering

This book is devoted to diverse aspects of earthquake researches, especially to new achievements in seismicity that involves geosciences, assessment, and mitigation. Chapters contain advanced materials of detailed engineering investigations, which can help more clearly appreciate, predict, and manage different earthquake processes. Different research themes for diverse areas in the world are developed here, highlighting new methods of studies that lead to new results and models, which could be helpful for the earthquake risk. The presented and developed themes mainly concern wave's characterization and decomposition, recent seismic activity, assessment-mitigation, and engineering techniques. The book provides the state of the art on recent progress in earthquake engineering and management. The obtained results show a scientific progress that has an

international scope and, consequently, should open perspectives to other still unresolved interesting aspects.

Perspectives on Earthquake Geotechnical Engineering

Special Topics in Earthquake Geotechnical Engineering

The objective of this book is to fill some of the gaps in the existing engineering codes and standards related to soil dynamics, concerning issues in earthquake engineering and ground vibrations, by using formulas and hand calculators. The usefulness and accuracy of the simple analyses are demonstrated by their implementation to the case histories available in the literature. Ideally, the users of the volume will be able to comment on the analyses as well as provide more case histories of simple considerations by publishing their results in a number of international journals and conferences. The ultimate aim is to extend the existing codes and standards by adding new widely accepted analyses in engineering practice. The following topics have been considered in this volume: • main ground motion sources and properties • typical ground motions, recording, ground investigations and testing • soil properties used in simple analyses • fast sliding in non-liquefied soil • flow of liquefied sandy soil • massive retaining walls • slender

retaining walls • shallow foundations • piled foundations • tunnels, vertical shafts and pipelines • ground vibration caused by industry. Audience: This book is of interest to geotechnical engineers, engineering geologists, earthquake engineers and students

Modern Earthquake Engineering

The 8th International Conference on Physical Modelling in Geotechnics (ICPMG2014) was organised by the Centre for Offshore Foundation Systems at the University of Western Australia under the auspices of the Technical Committee 104 for Physical Modelling in Geotechnics of the International Society of Soil Mechanics and Geotechnical Engineering. This quadrennial conference is the traditional focal point for the physical modelling community of academics, scientists and engineers to present and exchange the latest developments on a wide range of physical modelling aspects associated with geotechnical engineering. These proceedings, together with the seven previous proceedings dating from 1988, present an inestimable collection of the technical and scientific developments and breakthroughs established over the last 25 years. These proceedings include 10 keynote lectures from scientific leaders within the physical modelling community and 160 peer-reviewed papers from 26 countries. They are organised in 14 themes, presenting the latest developments in physical modelling technology, modelling techniques and sensors, through a wide range of soil-structure

interaction problems, including shallow and deep foundations, offshore geotechnics, dams and embankments, excavations and retaining structures and slope stability. Fundamental aspects of earthquake engineering, geohazards, ground reinforcements and improvements, and soil properties and behaviour are also covered, demonstrating the increasing complexity of modelling arising from state-of-the-art technological developments and increased understanding of similitude principles. A special theme on education presents the latest developments in the use of physical modelling techniques for instructing undergraduate and postgraduate students in geotechnical engineering.

Earthquakes

Geotechnical and Geoenvironmental Engineering Handbook

Designed for senior electrical engineering students, this textbook explores the theoretical concepts of digital signal processing and communication systems by presenting laboratory experiments using real-time DSP hardware. Each experiment begins with a presentation of the required theory and concludes with instructions for performing them. Engineering students gain experience in working with equipment commonly used in industry. This text features DSP-based algorithms for

transmitter and receiver functions.

Communication System Design Using DSP Algorithms

Moving inertial loads are applied to structures in civil engineering, robotics, and mechanical engineering. Some fundamental books exist, as well as thousands of research papers. Well known is the book by L. Frýba, *Vibrations of Solids and Structures Under Moving Loads*, which describes almost all problems concerning non-inertial loads. This book presents broad description of numerical tools successfully applied to structural dynamic analysis. Physically we deal with non-conservative systems. The discrete approach formulated with the use of the classical finite element method results in elemental matrices, which can be directly added to global structure matrices. A more general approach is carried out with the space-time finite element method. In such a case, a trajectory of the moving concentrated parameter in space and time can be simply defined. We consider structures described by pure hyperbolic differential equations such as strings and structures described by hyperbolic-parabolic differential equations such as beams and plates. More complex structures such as frames, grids, shells, and three-dimensional objects, can be treated with the use of the solutions given in this book.

Encyclopedia of Earthquake Engineering

This fascinating new book examines the issues of earthquake geotechnical engineering in a comprehensive way. It summarizes the present knowledge on earthquake hazards and their causative mechanisms as well as a number of other relevant topics. Information obtained from earthquake damage investigation (such as ground motion, landslides, earth pressure, fault action, or liquefaction) as well as data from laboratory tests and field investigation is supplied, together with exercises/questions.

Geotechnical Earthquake Engineering

This book serves as a textbook for advanced courses as it introduces state-of-the-art information and the latest research results on diverse problems in the structural wind engineering field. The topics include wind climates, design wind speed estimation, bluff body aerodynamics and applications, wind-induced building responses, wind, gust factor approach, wind loads on components and cladding, debris impacts, wind loading codes and standards, computational tools and computational fluid dynamics techniques, habitability to building vibrations, damping in buildings, and suppression of wind-induced vibrations. Graduate students and expert engineers will find the book especially interesting and relevant to their research and work.

Soil Dynamics and Earthquake Geotechnical Engineering

This book gathers selected proceedings of the annual conference of the Indian Geotechnical Society, and covers various aspects of soil dynamics and earthquake geotechnical engineering. The book includes a wide range of studies on seismic response of dams, foundation-soil systems, natural and man-made slopes, reinforced-earth walls, base isolation systems and so on, especially focusing on the soil dynamics and case studies from the Indian subcontinent. The book also includes chapters addressing related issues such as landslide risk assessments, liquefaction mitigation, dynamic analysis of mechanized tunneling, and advanced seismic soil-structure-interaction analysis. Given its breadth of coverage, the book offers a useful guide for researchers and practicing civil engineers alike.

Centrifuges in Soil Mechanics

This book is a collection of papers presented at the International Workshop on Geotechnical Natural Hazards held July 12–15, 2014, in Kitakyushu, Japan. The workshop was the sixth in the series of Japan–Taiwan Joint Workshops on Geotechnical Hazards from Large Earthquakes and Heavy Rainfalls, held under the auspices of the Asian Technical Committee No. 3 on Geotechnology for Natural Hazards of the International Society for Soil Mechanics and Geotechnical

Engineering. It was co-organized by the Japanese Geotechnical Society and the Taiwanese Geotechnical Society. The contents of this book focus on geotechnical and natural hazard-related issues in Asia such as earthquakes, tsunami, rainfall-induced debris flows, slope failures, and landslides. The book contains the latest information and mitigation technology on earthquake- and rainfall-induced geotechnical natural hazards. By dissemination of the latest state-of-the-art research in the area, the information contained in this book will help researchers, designers, consultants, government officials, and academicians involved in the mitigation of natural hazards. The findings and other information provided here is expected to contribute toward the development of a new chapter in disaster prevention and mitigation of geotechnical structures.

Developments in Earthquake Geotechnics

This book provides a timely review and summary of the recent advances in state-of-the-art earthquake geotechnics. The earthquake disasters in Japan and New Zealand in 2011 prompted the urgent need for the state-of-the-art earthquake geotechnics to be put into practice for disaster mitigation. By reviewing the developments in earthquake geotechnics over more than half a century, this unique book enables readers to obtain solid grasp of this discipline. It is based on contributions from 18 leading international experts, who met in Kyoto in June 2016 to discuss a range of issues related to the developments of earthquake

geotechnics. It comprehensively discusses various areas of earthquake geotechnics, including performance-based seismic design; the evolution of geotechnical seismic response analysis from 1964-2015; countermeasures against liquefaction; solutions for nuclear power plant disasters; the tsunami-caused inundation of the Tokyo metropolitan area; and a series of state-of-the-art effective stress analyses of case histories from the 2011 East Japan Earthquake. The book is of interest to advanced level researchers and practicing engineers in the field of earthquake geotechnics.

Earthquake Geotechnical Engineering Design

Seismic Design of Foundations

This book offers a broad perspective on important topics in earthquake geotechnical engineering and gives specialists and those that are involved with research and application a more comprehensive understanding about the various topics. Consisting of eighteen chapters written by authors from the most seismic active regions of the world, such as USA, Japan, Canada, Chile, Italy, Greece, Portugal, Taiwan, and Turkey, the book reflects different views concerning how to assess and minimize earthquake damage. The authors, a prominent group of

specialists in the field of earthquake geotechnical engineering, are the invited lecturers of the International Conference on Earthquake Geotechnical Engineering from Case History to Practice in the honour of Professor Kenji Ishihara held in Istanbul, Turkey during 17-19 June 2013.

ICPMG2014 - Physical Modelling in Geotechnics

Soil Liquefaction during Recent Large-Scale Earthquakes contains selected papers presented at the New Zealand – Japan Workshop on Soil Liquefaction during Recent Large-Scale Earthquakes (Auckland, New Zealand, 2-3 December 2013). The 2010-2011 Canterbury earthquakes in New Zealand and the 2011 off the Pacific Coast of Tohoku Earthquake in Japan have caused significant damage to many residential houses due to varying degrees of soil liquefaction over a very wide extent of urban areas unseen in past destructive earthquakes. While soil liquefaction occurred in naturally-sedimented soil formations in Christchurch, most of the areas which liquefied in Tokyo Bay area were reclaimed soil and artificial fill deposits, thus providing researchers with a wide range of soil deposits to characterize soil and site response to large-scale earthquake shaking. Although these earthquakes in New Zealand and Japan caused extensive damage to life and property, they also serve as an opportunity to understand better the response of soil and building foundations to such large-scale earthquake shaking. With the wealth of information obtained in the aftermath of both earthquakes, information-

sharing and knowledge-exchange are vital in arriving at liquefaction-proof urban areas in both countries. Data regarding the observed damage to residential houses as well as the lessons learnt are essential for the rebuilding efforts in the coming years and in mitigating buildings located in regions with high liquefaction potential. As part of the MBIE-JSPS collaborative research programme, the Geomechanics Group of the University of Auckland and the Geotechnical Engineering Laboratory of the University of Tokyo co-hosted the workshop to bring together researchers to review the findings and observations from recent large-scale earthquakes related to soil liquefaction and discuss possible measures to mitigate future damage. Soil Liquefaction during Recent Large-Scale Earthquakes will be of great interest to researchers, academics, industry practitioners and other professionals involved in Earthquake Geotechnical Engineering, Foundation Engineering, Earthquake Engineering and Structural Dynamics.

Performance-Based Design in Earthquake Geotechnical Engineering

This book contains technical papers, presented in a discussion session at the XI International Conference on Soil Mechanics and Foundation Engineering held in San Francisco in 1985, on the role of centrifuge in geotechnical testing, with descriptions of test facilities.

Soil Dynamics and Foundation Modeling

Numerical Analysis of Vibrations of Structures under Moving Inertial Load

Geotechnical Earthquake Engineering and Soil Dynamics, as well as their interface with Engineering Seismology, Geophysics and Seismology, have all made remarkable progress over the past 15 years, mainly due to the development of instrumented large scale experimental facilities, to the increase in the quantity and quality of recorded earthquake data, to the numerous well-documented case studies from recent strong earthquakes as well as enhanced computer capabilities. One of the major factors contributing to the aforementioned progress is the increasing social need for a safe urban environment, large infrastructures and essential facilities. The main scope of our book is to provide the geotechnical engineers, geologists and seismologists, with the most recent advances and developments in the area of earthquake geotechnical engineering, seismology and soil dynamics.

Emerging Therapies in Neurorehabilitation

In view of its extreme complexity the mathematical description of the mechanical behaviour of granular materials is an extremely difficult task. Today many different models compete with each other. However, the complexity of the models hinders their comparison, and the potential users are confused and, often, discouraged. This book is expected to serve as a milestone in the present situation, to evaluate the present methods, to clear up the situation, to focus and encourage for further research activities.

[ROMANCE](#) [ACTION & ADVENTURE](#) [MYSTERY & THRILLER](#) [BIOGRAPHIES & HISTORY](#) [CHILDREN'S](#) [YOUNG ADULT](#) [FANTASY](#) [HISTORICAL FICTION](#) [HORROR](#) [LITERARY FICTION](#) [NON-FICTION](#) [SCIENCE FICTION](#)