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MODEL FITTING IN FREQUENCY DOMAIN IMPOSING STABILITY OF THE MODEL: TO 25; PAGES:26 TO 50; PAGES:51 TO 75; PAGES:76 TO 100; PAGES:101 TO 125; PAGES:126 TO 150; PAGES:151 TO 175; PAGES:176 TO 200; PAGES:201 TO 202

MODEL FITTING IN FREQUENCY DOMAIN IMPOSING STABILITY OF THE MODEL

ASP / VUBPRESS / UPA *After presenting a new mathematical proof, this study describes how system identification—a powerful technique for constructing accurate models of complex systems—can be used to evaluate noisy measurements. The discussion goes on to show how noisy data can be manipulated by researchers working on projects in physical interpretation, simulation, prediction, estimation, and control.*

SYSTEM IDENTIFICATION

A FREQUENCY DOMAIN APPROACH

John Wiley & Sons *System identification is a general term used to describe mathematical tools and algorithms that build dynamical models from measured data. Used for prediction, control, physical interpretation, and the designing of any electrical systems, they are vital in the fields of electrical, mechanical, civil, and chemical engineering. Focusing mainly on frequency domain techniques, System Identification: A Frequency Domain Approach, Second Edition also studies in detail the similarities and differences with the classical time domain approach. It high??lights many of the important steps in the identification process, points out the possible pitfalls to the reader, and illustrates the powerful tools that are available. Readers of this Second Editon will benefit from: MATLAB software support for identifying multivariable systems that is freely available at the website http://booksupport.wiley.com State-of-the-art system identification methods for both time and frequency domain data New chapters on non-parametric and parametric transfer function modeling using (non-)period excitations Numerous examples and figures that facilitate the learning process A simple writing style that allows the reader to learn more about the theo??retical aspects of the proofs and algorithms Unlike other books in this field, System Identification, Second Edition is ideal for practicing engineers, scientists, researchers, and both master's and PhD students in electrical, mechanical, civil, and chemical engineering.*

MATHEMATICAL MODELLING AND COMPUTERS IN ENDOCRINOLOGY

Springer Science & Business Media *The building of conceptual models is an inherent part of our interaction with the world, and the foundation of scientific investigation. Scientists often perform the processes of modelling subconsciously, unaware of the scope and significance of this activity, and the techniques available to assist in the description and testing of their ideas. Mathematics has three important contributions to make in biological modelling: (1) it provides unambiguous languages for expressing relationships at both qualitative and quantitative levels of observation; (2) it allows effective analysis and prediction of model behaviour, and can thereby organize experimental effort productively; (3) it offers rigorous methods of testing hypotheses by comparing models with experimental data; by providing a means of objectively excluding unsuitable concepts, the development of ideas is given a sound experimental basis. Many modern mathematical techniques can be exploited only with the aid of computers. These machines not only provide increased speed and accuracy in determining the consequences of model assumptions, but also greatly extend the range of problems which can be explored. The impact of computers in the biological sciences has been widespread and revolutionary, and will continue to be so.*

SYSTEM- AND DATA-DRIVEN METHODS AND ALGORITHMS

Walter de Gruyter GmbH & Co KG *An increasing complexity of models used to predict real-world systems leads to the need for algorithms to replace complex models with far simpler ones, while preserving the accuracy of the predictions. This two-volume handbook covers methods as well as applications. This first volume focuses on real-time control theory, data assimilation, real-time visualization, high-dimensional state spaces and interaction of different reduction techniques.*

TIME AND FREQUENCY: THEORY AND FUNDAMENTALS

STATISTICAL METHODS IN THE ATMOSPHERIC SCIENCES

Academic Press *Praise for the First Edition: "I recommend this book, without hesitation, as either a reference or course text...Wilks' excellent book provides a thorough base in applied statistical methods for atmospheric sciences."--BAMS (Bulletin of the American Meteorological Society) Fundamentally, statistics is concerned with managing data and making inferences and forecasts in the face of uncertainty. It should not be surprising, therefore, that statistical methods have a key role to play in the atmospheric sciences. It is the uncertainty in atmospheric behavior that continues to move research forward and drive innovations in atmospheric modeling and prediction. This revised and expanded text explains the latest statistical methods that are being used to describe, analyze, test and forecast atmospheric data. It features numerous worked examples, illustrations, equations, and exercises with separate solutions. Statistical Methods in the Atmospheric Sciences, Second Edition will help advanced students and professionals understand and communicate what their data sets have to say, and make sense of the scientific literature in meteorology, climatology, and related disciplines. Accessible presentation and explanation of techniques for atmospheric data summarization, analysis, testing and forecasting Many worked examples End-of-chapter exercises, with answers provided*

DYNAMIC SOIL-STRUCTURE INTERACTION

CURRENT RESEARCH IN CHINA AND SWITZERLAND

Elsevier *Dynamic Soil-structure interaction is one of the major topics in earthquake engineering and soil dynamics since it is closely related to the safety evaluation of many important engineering projects, such as nuclear power plants, to resist earthquakes. In dealing with the analysis of dynamic soil-structure interactions, one of the most difficult tasks is the modeling of unbounded media. To solve this problem, many numerical methods and techniques have been developed. This book summarizes the most recent developments and applications in the field of dynamic soil-structure interaction, both in China and Switzerland. An excellent book for scientists and engineers in civil engineering, structural engineering, geotechnical engineering and earthquake engineering.*

ANALYSIS, MODELING AND STABILITY OF FRACTIONAL ORDER DIFFERENTIAL SYSTEMS 1

THE INFINITE STATE APPROACH

John Wiley & Sons *This book introduces an original fractional calculus methodology ('the infinite state approach') which is applied to the modeling of fractional order differential equations (FDEs) and systems (FDSs). Its modeling is based on the frequency distributed fractional integrator, while the resulting model corresponds to an integer order and infinite dimension state space representation. This original modeling allows the theoretical concepts of integer order systems to be generalized to fractional systems, with a particular emphasis on a convolution formulation.*

NBS MONOGRAPH

SYSTEM IDENTIFICATION (SYSID '03)

A PROCEEDINGS VOLUME FROM THE 13TH IFAC SYMPOSIUM ON SYSTEM IDENTIFICATION, ROTTERDAM, THE NETHERLANDS, 27-29 AUGUST 2003

Elsevier *The scope of the symposium covers all major aspects of system identification, experimental modelling, signal processing and adaptive control, ranging from theoretical, methodological and scientific developments to a large variety of (engineering) application areas. It is the intention of the organizers to promote SYSID 2003 as a meeting place where scientists and engineers from several research communities can meet to discuss issues related to these areas. Relevant topics for the symposium program include: Identification of linear and multivariable systems, identification of nonlinear systems, including neural networks, identification of hybrid and distributed systems, Identification for control, experimental modelling in process control, vibration and modal analysis, model validation, monitoring and fault detection, signal processing and communication, parameter estimation and inverse modelling, statistical analysis and uncertainty bounding, adaptive control and data-based controller tuning, learning, data mining and Bayesian approaches, sequential Monte Carlo methods, including particle filtering, applications in process control systems, motion control systems, robotics, aerospace systems, bioengineering and medical systems, physical measurement systems, automotive systems, econometrics, transportation and communication systems *Provides the latest research on System Identification *Contains contributions written by experts in the field *Part of the IFAC Proceedings Series which provides a comprehensive overview of the major topics in control engineering.*

COMPUTATIONAL AEROACOUSTICS

A WAVE NUMBER APPROACH

Cambridge University Press *Both a textbook for graduate students with exercises and a reference with code for researchers in computational aeroacoustics (CAA).*

INFORMATICS IN CONTROL, AUTOMATION AND ROBOTICS

15TH INTERNATIONAL CONFERENCE, ICINCO 2018, PORTO, PORTUGAL, JULY 29-31, 2018, REVISED SELECTED PAPERS

Springer Nature *The goal of this book is to familiarize readers with the latest research on, and recent advances in, the field of Informatics in Control, Automation and Robotics. It gathers a selection of papers highlighting the state-of-the-art in Intelligent Control Systems, Optimization, Robotics and Automation, Signal Processing, Sensors, Systems Modelling and Control. Combining theoretical aspects with practical applications, the book offers a well-balanced overview of the latest achievements, and will provide researchers, engineers and PhD students with both a vital update and new inspirations for their own research.*

MULTIVARIABLE FEEDBACK CONTROL

ANALYSIS AND DESIGN

John Wiley & Sons *Multivariable Feedback Control: Analysis and Design, Second Edition presents a rigorous, yet easily readable, introduction to the analysis and design of robust multivariable control systems. Focusing on practical feedback control and not on system theory in general, this book provides the reader with insights into the opportunities and limitations of feedback control. Taking into account the latest developments in the field, this fully revised and updated second edition: * features a new chapter devoted to the use of linear matrix inequalities (LMIs); * presents current results on fundamental performance limitations introduced by RHP-poles and RHP-zeros; * introduces updated material on the selection of controlled variables and self-optimizing control; * provides simple IMC tuning rules for PID control; * covers additional material including unstable plants, the feedback amplifier, the lower gain margin and a clear strategy for incorporating integral action into LQG control; * includes numerous worked examples, exercises and case studies, which make frequent use of Matlab and the new Robust Control toolbox. Multivariable Feedback Control: Analysis and Design, Second Edition is an excellent resource for advanced undergraduate and graduate courses studying multivariable control. It is also an invaluable tool for engineers who want to understand multivariable control, its limitations, and how it can be applied in practice. The analysis techniques and the material on control structure design should prove very useful in the new emerging area of systems biology. Reviews of the first edition: "Being rich in insights and practical tips on controller design, the book should also prove to be very beneficial to industrial control engineers, both as a reference book and as an educational tool." Applied Mechanics Reviews "In summary, this book can be strongly recommended not only as a basic text in multivariable control techniques for graduate and undergraduate students, but also as a valuable source of information for control engineers." International Journal of Adaptive Control and Signal Processing*

HANDBOOK OF MATERIALS FOR PERCUSSION MUSICAL INSTRUMENTS

Springer Nature *This book describes the properties of materials used for making percussion instruments for classical music played by a symphony orchestra in which the instruments could be played as a soloist instrument or as a group or several groups of instruments, as they are included into a musical work. A chapter is devoted to the bells. The scope of this book is primarily confined to percussion instruments of symphony orchestras taking into account the centuries of musical art and tradition. This book bridges the gap in the technical literature on describing the properties of materials for percussion instruments—timpani, other drums, marimba, xylophone, vibraphone, gong, cymbal, triangle, celesta, castanets.*

FRACTIONAL-ORDER MODELING AND CONTROL OF DYNAMIC SYSTEMS

Springer *This book reports on an outstanding research devoted to modeling and control of dynamic systems using fractional-order calculus. It describes the development of model-based control design methods for systems described by fractional dynamic models. More than 300 years had passed since Newton and Leibniz developed a set of mathematical tools we now know as calculus. Ever since then the idea of non-integer derivatives and integrals, universally referred to as fractional calculus, has been of interest to many researchers. However, due to various issues, the usage of fractional-order models in real-life applications was limited. Advances in modern computer science made it possible to apply efficient numerical methods to the computation of fractional derivatives and integrals. This book describes novel methods developed by the author for fractional modeling and control, together with their successful application in real-world process control scenarios.*

DYNAMIC MODELLING AND CONTROL OF NATIONAL ECONOMIES 1983

PROCEEDINGS OF THE 4TH IFAC/IFORS/IIASA CONFERENCE AND THE 1983 SEDC CONFERENCE ON ECONOMIC DYNAMICS AND CONTROL, WASHINGTON D.C., USA, 17-19 JUNE 1983

Elsevier *Dynamic Modelling and Control of National Economies 1983 contains the proceedings of the Fourth IFAC/IFORS/IIASA Conference and the 1983 SEDC Conference on Economic Dynamics and Control held at Washington D.C., USA on June17-19, 1983. Separating the 65 papers presented in the conference as chapters, this book covers a broad class of problems or notions arising both in economic theory, control applications to planning, and implementation issues. Some chapters discuss multi-level interactions of government and private sectors in economic development; inflation and economic policy in an open economy; foreign debt and exchange rate stability in a developing country; and expectations in numerical general equilibrium models. This book also explains a rational decision-making process for resource policymaking; inference of the structure of economic reasoning from natural language analysis; modeling and analysis of a national economy; and methodological issues in global modeling. Econometric analysis of the economic effects of population change, aspects of optimal estimation control strategies in econometrics, and optimal policies for interdependent economies are also discussed. This book will be useful to those engaged in economic and control theory research.*

NIST TECHNICAL NOTE

OCEANS 2002 MTS/IEEE

MARINE FRONTIERS, REFLECTIONS OF THE PAST, VISIONS OF THE FUTURE: CONFERENCE PROCEEDINGS : CONFERENCE & EXPOSITION, OCTOBER 29-31, 2002, MISSISSIPPI COAST COLISEUM AND CONVENTION CENTER, BILOXI, MISSISSIPPI

IEEE

MICROWAVE CIRCUIT MODELING USING ELECTROMAGNETIC FIELD SIMULATION

Artech House *Annotation This practical "how to" book is an ideal introduction to electromagnetic field-solvers. Where most books in this area are strictly theoretical, this unique resource provides engineers with helpful advice on selecting the right tools for their RF (radio frequency) and high-speed digital circuit design work*

SCIENTIFIC AND TECHNICAL AEROSPACE REPORTS

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

HANDBOOK OF RESEARCH ON ADVANCEMENTS IN SUPERCRITICAL FLUIDS APPLICATIONS FOR SUSTAINABLE ENERGY SYSTEMS

IGI Global *Supercritical fluids are increasingly being used in energy conversion and fluid dynamics studies for energy-related systems and applications. These new applications are contributing to both the increase of energy efficiency as well as greenhouse gas reduction. Such research is critical for scientific advancement and industrial innovations that can support environmentally friendly strategies for sustainable energy systems. The Handbook of Research on Advancements in Supercritical Fluids Applications for Sustainable Energy Systems is a comprehensive two-volume reference that covers the most recent and challenging issues and outlooks for the applications and innovations of supercritical fluids. The book first converts basic thermo-dynamic behaviors and "abnormal" properties from a thermophysical aspect, then basic heat transfer and flow properties, recent new findings of its physical aspect and indications, chemical engineering properties, micro-nano-scale phenomena, and transient behaviors in fast and critical environments. It is ideal for engineers, energy companies, environmentalists, researchers, academicians, and students studying supercritical fluids and their applications for creating sustainable energy systems.*

NBS SPECIAL PUBLICATION

APPLIED CONTROL

CURRENT TRENDS AND MODERN METHODOLOGIES

CRC Press *This book provides a representative set of modern methodologies and applications, including new topics in the field, discussing a wide range of issues and treating them in depth. The book describes analytical processes for fault diagnosis of automatic control systems, examines modern sensors and actuators as well as measurement techniques, considers multidimensional feedback control and image restoration procedures, among other topics.*

CONTINUOUS SYSTEM SIMULATION

Springer Science & Business Media *obtained by simulation more quickly, effec Computer simulation of dynamic systems is a topic which is growing steadily in importance tively and cheaply than by experimentation and testing of the real system. System perfor in the physical sciences, engineering, biology and medicine. The reasons for this trend mance can also be investigated using simula relate not only to the steadily increasing tion for a much wider range of conditions than can be contemplated for the real system power of computers and the rapidly falling costs of hardware, but also to the availability because of operating constraints or safety of appropriate software tools in the form of requirements. Similar factors can apply in simulation languages. Problem-oriented lan other fields, such as biomedical systems guages of this kind assist those who are not engineering. specialists in computational methods to trans System simulation, using digital computers, can relate either to models based on continu late a mathematical description into a simula tion program in a simple and straightforward ous variables or to discrete-event descriptions. fashion. They can also provide useful diag Continuous system simulation techniques are applied to systems described by sets of differ nostic information when difficulties are encountered. Therefore, a simulation lan ential equations and algebraic equations.*

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON LASERS

CONTROL SYSTEM DESIGN GUIDE

USING YOUR COMPUTER TO UNDERSTAND AND DIAGNOSE FEEDBACK CONTROLLERS

Elsevier *Control System Design Guide, 3E will help engineers to apply control theory to practical systems using their PC. This book provides an intuitive approach to controls, avoiding unnecessary mathematics and emphasizing key concepts with more than a dozen control system models. Whether readers are just starting to use controllers or have years of experience, this book will help them improve their machines and processes. * Teaches controls with an intuitive approach, avoiding unnecessary mathematics. * Key topics are demonstrated with realistic models of control systems. * All models written in Visual ModelQ, a full graphical simulation environment available freely via the internet. * New material on OBSERVERS explained using practical applications. * Explains how to model machines and processes, including how to measure working equipment; describes many nonlinear behaviours seen in industrial control systems. * Electronic motion control, including details of how motors and motor feedback devices work, causes and cures of mechanical resonance, and how position loops work.*

SIGNAL PROCESSING FOR ACTIVE CONTROL

Elsevier *Signal Processing for Active Control sets out the signal processing and automatic control techniques that are used in the analysis and implementation of active systems for the control of sound and vibration. After reviewing the performance limitations introduced by physical aspects of active control, Stephen Elliott presents the calculation of the optimal performance and the implementation of adaptive real time controllers for a wide variety of active control systems. Active sound and vibration control are technologically important problems with many applications. 'Active control' means controlling disturbance by superimposing a second disturbance on the original source of disturbance. Put simply, initial noise + other specially-generated noise or vibration = silence [or controlled noise]. This book presents a unified approach to techniques that are used in the analysis and implementation of different control systems. It includes practical examples at the end of each chapter to illustrate the use of various approaches. This book is intended for researchers, engineers, and students in the field of acoustics, active control, signal processing, and electrical engineering.*

THE SHOCK AND VIBRATION DIGEST

A PUBLICATION OF THE SHOCK AND VIBRATION INFORMATION CENTER, NAVAL RESEARCH LABORATORY

MATHEMATICAL MODELLING AND COMPUTERS IN ENDOCRINOLOGY

FREQUENCY-DOMAIN EQUIVALENTS FOR PASSIVE NETWORKS

This thesis presents efficient methods for constructing an equivalent of an immittance matrix of a passive electric network based on either infinite-dimensional theory or fitting of measured (calculated) frequency responses. The immittance matrix can be used: (1) To represent a frequency-dependent equivalent of a large electric network, e.g. an interconnected power system, with respect to prespecified terminal(s), in a wide frequency range for (a) analyses of electromagnetic transients, and (b) analyses and synthesis of controllers, or (2) To represent a frequency dependent equivalent of electric apparatus, e.g. a power transformer, in a wide frequency range, to investigate its terminal behaviour with respect to an external phenomenon (black-box representation). Requirements for the equivalent immittance matrix to provide stable results are that (1) all its poles must lie in the left-half plane and, (2) it must represent a passive network. Immittance matrix of a passive network represents a positive real system. Necessary and sufficient conditions for an immittance matrix to represent a passive network, for both rational transfer matrices and state-space matrices, are presented. Based on developed transforms of these conditions, direct methods, for testing positive realness are deduced. The methods and the corresponding algorithms require only evaluation of a set of simple algebraic conditions. These provide alternative procedures to the application of positive real lemma. Based on these algorithms, positive realness of an equivalent is guaranteed. Based on the following two approaches, a finite-dimensional, linear, and passive model of a network, represented by an immittance matrix, is deduced. (1) The first approach is based on solution of a special class of linear hyperbolic partial differential equations using infinite-dimensional theory. Passivity and stability conditions are ensured. (2) The second approach is based on approximation (fitting) of measured (calculated) frequency responses using either a rational immittance matrix or a state-space representation. Stability and passivity conditions for the model are imposed during optimization fitting process. Applications of the developed approaches and corresponding algorithms are demonstrated based on obtaining frequency-dependent equivalents of (1) a large 500kV transmission system, and (2) a three-phase distribution class transformer.

EUROPEAN CONTROL CONFERENCE 1995

VOLUME 4B

European Control Association *Proceedings of the European Control Conference 1995, Rome, Italy 5-8 September 1995*

EARTHQUAKES AND HEALTH MONITORING OF CIVIL STRUCTURES

Springer Science & Business Media *Health monitoring of civil structures (HMS) is a new discipline, which contributes to successful and on time detection of damages to structures. This book is a collection of chapters on different topics written by leading scientists in the field. It is primarily focused on the latest achievements in monitoring the earthquake effect upon the health of civil structures. The first chapter of the book deals with the geotechnical and structural aspects of the 2010-2011 Christchurch earthquakes. Further chapters are dedicated to the latest HMS techniques of identification of damage to structures caused by earthquakes. Real time damage detection as well as sensors and acquisition systems used for that purpose are presented. The attention is focused on automated modal analysis, dynamic artificial neural networks and wavelet techniques used in HMS. Particular emphasis is put on wireless sensors and piezo-impendance transducers used for evaluation of seismically induced structural damage. The discussion is followed by presentation of case studies of application of health monitoring for buildings and other civil structures, including a super tall structure. The book ends with a presentation of shaking table tests on physical models for the purpose of monitoring their behaviour under earthquake excitation. Audience The book is primarily intended for engineers and scientists working in the field of application of the HMS technique in earthquake engineering. Considering that real time health monitoring of structures represents a sophisticated approach applying the latest techniques of monitoring of structures, many experts from other industries will also find this book useful.*

OPTIMAL CONTROL OF WIND ENERGY SYSTEMS

TOWARDS A GLOBAL APPROACH

Springer Science & Business Media *Covering all aspects of this important topic, this work presents a review of the main control issues in wind power generation, offering a unified picture of the issues surrounding its optimal control. Discussion is focused on a global dynamic optimization approach to wind power systems using a set of optimization criteria which comply with a comprehensive group of requirements including: energy conversion efficiency; mechanical reliability; and quality of the energy provided.*

ECONOMICS OF EMERGING MARKETS

Nova Publishers *This book presents recent significant research dealing the economics of emerging markets. The term emerging markets is commonly used to describe business and market activity in industrialising or emerging regions of the world. The term is sometimes loosely used as a replacement for emerging economies, but really signifies a business phenomenon that is not fully described by or constrained to geography or economic strength; such countries are considered to be in a transitional phase between developing and developed status. Examples of emerging markets include China, India, Mexico, Brazil, much of Southeast Asia, countries in Eastern Europe, parts of Africa and Latin America. An emerging market is sometimes defined as "a country where politics matters at least as much as economics to the markets."*

SPACE STATION SYSTEMS

SUPPLEMENT

MULTIVARIABLE TECHNOLOGICAL SYSTEMS

PROCEEDINGS OF THE FOURTH IFAC INTERNATIONAL SYMPOSIUM, FREDERICTON, CANADA, 4-8 JULY 1977

Elsevier *Recent results in the development and application of analysis and design techniques for the control of multivariable systems are discussed in this volume.*

PROGRESS IN HYBRID RANS-LES MODELLING

PAPERS CONTRIBUTED TO THE 4TH SYMPOSIUM ON HYBRID RANS-LES METHODS, BEIJING, CHINA, SEPTEMBER 2011

Springer Science & Business Media *The present book contains contributions presented at the Fourth Symposium on Hybrid RANS-LES Methods, held in Beijing, China, 28-30 September 2011, being a continuation of symposia taking place in Stockholm (Sweden, 2005), in Corfu (Greece, 2007), and Gdansk (Poland, 2009). The contributions to the last two symposia were published as NNFM, Vol. 97 and Vol. 111. At the Beijing symposium, along with seven invited keynotes, another 46 papers (plus 5 posters) were presented addressing topics on Novel turbulence-resolving simulation and modelling, Improved hybrid RANS-LES methods, Comparative studies of difference modelling methods, Modelling-related numerical issues and Industrial applications.. The present book reflects recent activities and new progress made in the development and applications of hybrid RANS-LES methods in general.*

ICPMG2014 - PHYSICAL MODELLING IN GEOTECHNICS

PROCEEDINGS OF THE 8TH INTERNATIONAL CONFERENCE ON PHYSICAL MODELLING IN GEOTECHNICS 2014 (ICPMG2014), PERTH, AUSTRALIA, 14-17 JANUARY 2014

CRC Press *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.*

APPLIED MECHANICS REVIEWS