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KEY=THEORY - JAYLEEN KIERA

PARTIAL DIFFERENTIAL EQUATIONS IN ACTION

FROM MODELLING TO THEORY

Springer Science & Business Media *This book is designed as an advanced undergraduate or a first-year graduate course for students from various disciplines. The main purpose is on the one hand to train students to appreciate the interplay between theory and modeling in problems arising in the applied sciences, and on the other hand to give them a solid theoretical background for numerical methods. At the end of each chapter, a number of exercises at different level of complexity is included*

THEORY OF MODELING AND SIMULATION

DISCRETE EVENT & ITERATIVE SYSTEM COMPUTATIONAL FOUNDATIONS

Academic Press *Theory of Modeling and Simulation: Discrete Event & Iterative System Computational Foundations, Third Edition, continues the legacy of this authoritative and complete theoretical work. It is ideal for graduate and PhD students and working engineers interested in posing and solving problems using the tools of logico-mathematical modeling and computer simulation. Continuing its emphasis on the integration of discrete event and continuous modeling approaches, the work focuses light on DEVS and its potential to support the co-existence and interoperation of multiple formalisms in model components. New sections in this updated edition include discussions on important new extensions to theory, including chapter-length coverage of iterative system specification and DEVS and their fundamental importance, closure under coupling for iteratively specified systems, existence, uniqueness, non-deterministic conditions, and temporal progressiveness (legitimacy). Presents a 40% revised and expanded new edition of this classic book with many important post-2000 extensions to core theory Provides a streamlined introduction to Discrete Event System Specification (DEVS) formalism for modeling and simulation Packages all the "need-to-know" information on DEVS formalism in one place Expanded to include an online ancillary package, including numerous examples of theory and implementation in DEVS-based software, student solutions and instructors manual*

PARTIAL DIFFERENTIAL EQUATIONS IN ACTION

FROM MODELLING TO THEORY

Springer *The book is intended as an advanced undergraduate or first-year graduate course for students from various disciplines, including applied mathematics, physics and engineering. It has evolved from courses offered on partial differential equations (PDEs) over the last several years at the Politecnico di Milano. These courses had a twofold purpose: on the one hand, to teach students to appreciate the interplay between theory and modeling in problems arising in the applied sciences, and on the other to provide them with a solid theoretical background in numerical methods, such as finite elements. Accordingly, this textbook is divided into two parts. The first part, chapters 2 to 5, is more elementary in nature and focuses on developing and studying basic problems from the macro-areas of diffusion, propagation and transport, waves and vibrations. In turn the second part, chapters 6 to 11, concentrates on the development of Hilbert spaces methods for the variational formulation and the analysis of (mainly) linear boundary and initial-boundary value problems.*

A COURSE IN MODEL THEORY

AN INTRODUCTION TO CONTEMPORARY MATHEMATICAL LOGIC

Springer Science & Business Media *Translated from the French, this book is an introduction to first-order model theory. Starting from scratch, it quickly reaches the essentials, namely, the back-and-forth method and compactness, which are illustrated with examples taken from algebra. It also introduces logic via the study of the models of arithmetic, and it gives complete but accessible exposition of stability theory.*

LINEAR MODEL THEORY

WITH EXAMPLES AND EXERCISES

Springer Nature *This textbook presents a unified and rigorous approach to best linear unbiased estimation and prediction of parameters and random quantities in linear models, as well as other theory upon which much of the statistical methodology associated with linear models is based. The single most unique feature of the book is that each major concept or result is illustrated with one or more concrete examples or special cases. Commonly used methodologies based on the theory are presented in methodological interludes scattered throughout the book, along with a wealth of exercises that will benefit students and instructors*

alike. Generalized inverses are used throughout, so that the model matrix and various other matrices are not required to have full rank. Considerably more emphasis is given to estimability, partitioned analyses of variance, constrained least squares, effects of model misspecification, and most especially prediction than in many other textbooks on linear models. This book is intended for master and PhD students with a basic grasp of statistical theory, matrix algebra and applied regression analysis, and for instructors of linear models courses. Solutions to the book's exercises are available in the companion volume *Linear Model Theory - Exercises and Solutions* by the same author.

MODEL THEORY : AN INTRODUCTION

Springer Science & Business Media Assumes only a familiarity with algebra at the beginning graduate level; Stresses applications to algebra; Illustrates several of the ways Model Theory can be a useful tool in analyzing classical mathematical structures

A SHORTER MODEL THEORY

Cambridge University Press This is an up-to-date textbook of model theory taking the reader from first definitions to Morley's theorem and the elementary parts of stability theory. Besides standard results such as the compactness and omitting types theorems, it also describes various links with algebra, including the Skolem-Tarski method of quantifier elimination, model completeness, automorphism groups and omega-categoricity, ultraproducts, O-minimality and structures of finite Morley rank. The material on back-and-forth equivalences, interpretations and zero-one laws can serve as an introduction to applications of model theory in computer science. Each chapter finishes with a brief commentary on the literature and suggestions for further reading. This book will benefit graduate students with an interest in model theory.

THE BIRTH OF MODEL THEORY

LÖWENHEIM'S THEOREM IN THE FRAME OF THE THEORY OF RELATIVES

Princeton University Press Löwenheim's theorem reflects a critical point in the history of mathematical logic, for it marks the birth of model theory--that is, the part of logic that concerns the relationship between formal theories and their models. However, while the original proofs of other, comparably significant theorems are well understood, this is not the case with Löwenheim's theorem. For example, the very result that scholars attribute to Löwenheim today is not the one that Skolem--a logician raised in the algebraic tradition, like Löwenheim--appears to have attributed to him. In *The Birth of Model Theory*, Calixto Badesa provides both the first sustained, book-length analysis of Löwenheim's proof and a detailed description of the theoretical framework--and, in particular, of the algebraic tradition--that made the theorem possible. Badesa's three main conclusions amount to a completely new interpretation of the proof, one that sharply contradicts the core of modern scholarship on the topic. First, Löwenheim did not use an infinitary language to prove his theorem; second, the functional interpretation of Löwenheim's normal form is anachronistic, and inappropriate for reconstructing the proof; and third, Löwenheim did not aim to prove the theorem's weakest version but the stronger version Skolem attributed to him. This book will be of considerable interest to historians of logic, logicians, philosophers of logic, and philosophers of mathematics.

MODELING THEORY IN SCIENCE EDUCATION

Springer Science & Business Media This book is the culmination of over twenty years of work toward a pedagogical theory that promotes experiential learning of model-laden theory and inquiry in science. The book focuses as much on course content as on instruction and learning methodology, presenting practical aspects that have repeatedly demonstrated their value in fostering meaningful and equitable learning of physics and other science courses at the secondary school and college levels.

THEORY OF MODELLING AND SIMULATION

Krieger Publishing Company

AN INVITATION TO MODEL THEORY

Cambridge University Press An innovative and largely self-contained textbook bringing model theory to an undergraduate audience.

THEORY AND APPLICATION OF MULTI-FORMALISM MODELING

IGI Global With complex systems and complex requirements being a challenge that designers must face to reach quality results, multi-formalism modeling offers tools and methods that allow modelers to exploit the benefits of different techniques in a general framework intended to address these challenges. *Theory and Application of Multi-Formalism Modeling* boldly explores the importance of this topic by gathering experiences, theories, applications, and solutions from diverse perspectives of those involved with multi-formalism modeling. Professionals, researchers, academics, and students in this field will be able to critically evaluate the latest developments and future directions of multi-formalism research.

INTRODUCTION TO MODEL THEORY

CRC Press Model theory investigates mathematical structures by means of formal languages. So-called first-order languages have proved particularly useful in this respect. This text introduces the model theory of first-order logic, avoiding syntactical issues not too relevant to model theory. In this spirit, the compactness theorem is proved via the algebraically useful ultraproduct technique (rather than via the completeness theorem of first-order logic). This leads fairly quickly to algebraic applications, like Malcev's local theorems of group theory and, after a little more preparation, to Hilbert's Nullstellensatz of field theory. Steinitz dimension theory for field

extensions is obtained as a special case of a much more general model-theoretic treatment of strongly minimal theories. There is a final chapter on the models of the first-order theory of the integers as an abelian group. Both these topics appear here for the first time in a textbook at the introductory level, and are used to give hints to further reading and to recent developments in the field, such as stability (or classification) theory.

MODELING AND OPTIMIZATION: THEORY AND APPLICATIONS

MOPTA, BETHLEHEM, PA, USA, AUGUST 2017, SELECTED CONTRIBUTIONS

Springer This book features a selection of contributions that were presented at the Modeling and Optimization: Theory and Applications Conference (MOPTA) held at Lehigh University in Bethlehem, Pennsylvania, USA between August 16-18, 2017. The conference brought together a diverse group of researchers and practitioners working on both theoretical and practical aspects of continuous and discrete optimization. Topics covered include algorithms for solving convex, network, mixed-integer, nonlinear, and global optimization problems, and address the application of deterministic and stochastic optimization techniques in energy, finance, logistics, analytics, health, and other important fields. The selected contributions in this book illustrate the broad diversity of ideas discussed at the meeting.

ADVANCES IN ALGEBRA AND MODEL THEORY

CRC Press Contains 25 surveys in algebra and model theory, all written by leading experts in the field. The surveys are based around talks given at conferences held in Essen, 1994, and Dresden, 1995. Each contribution is written in such a way as to highlight the ideas that were discussed at the conferences, and also to stimulate open research problems in a form accessible to the whole mathematical community. The topics include field and ring theory as well as groups, ordered algebraic structure and their relationship to model theory. Several papers deal with infinite permutation groups, abelian groups, modules and their relatives and representations. Model theoretic aspects include quantifier elimination in skew fields, Hilbert's 17th problem, (aleph-0)-categorical structures and Boolean algebras. Moreover symmetry questions and automorphism groups of orders are covered. This work contains 25 surveys in algebra and model theory, each is written in such a way as to highlight the ideas that were discussed at Conferences, and also to stimulate open research problems in a form accessible to the whole mathematical community.

A GUIDE TO CLASSICAL AND MODERN MODEL THEORY

Springer Science & Business Media This volume is easily accessible to young people and mathematicians unfamiliar with logic. It gives a terse historical picture of Model Theory and introduces the latest developments in the area. It further provides 'hands-on' proofs of elimination of quantifiers, elimination of imaginaries and other relevant matters. The book is for trainees and professional model theorists, and mathematicians working in Algebra and Geometry.

PHILOSOPHY AND MODEL THEORY

Oxford University Press Model theory is an important area of mathematical logic which has deep philosophical roots, many philosophical applications, and great philosophical interest in itself. The aim of this book is to introduce, organise, survey, and develop these connections between philosophy and model theory, for the benefit of philosophers and logicians alike.

FINANCIAL MODELLING

THEORY, IMPLEMENTATION AND PRACTICE WITH MATLAB SOURCE

John Wiley & Sons Financial modelling Theory, Implementation and Practice with Matlab Source Jörg Kienitz and Daniel Wetterau Financial Modelling - Theory, Implementation and Practice with MATLAB Source is a unique combination of quantitative techniques, the application to financial problems and programming using Matlab. The book enables the reader to model, design and implement a wide range of financial models for derivatives pricing and asset allocation, providing practitioners with complete financial modelling workflow, from model choice, deriving prices and Greeks using (semi-) analytic and simulation techniques, and calibration even for exotic options. The book is split into three parts. The first part considers financial markets in general and looks at the complex models needed to handle observed structures, reviewing models based on diffusions including stochastic-local volatility models and (pure) jump processes. It shows the possible risk-neutral densities, implied volatility surfaces, option pricing and typical paths for a variety of models including SABR, Heston, Bates, Bates-Hull-White, Displaced-Heston, or stochastic volatility versions of Variance Gamma, respectively Normal Inverse Gaussian models and finally, multi-dimensional models. The stochastic-local-volatility Libor market model with time-dependent parameters is considered and as an application how to price and risk-manage CMS spread products is demonstrated. The second part of the book deals with numerical methods which enables the reader to use the models of the first part for pricing and risk management, covering methods based on direct integration and Fourier transforms, and detailing the implementation of the COS, CONV, Carr-Madan method or Fourier-Space-Time Stepping. This is applied to pricing of European, Bermudan and exotic options as well as the calculation of the Greeks. The Monte Carlo simulation technique is outlined and bridge sampling is discussed in a Gaussian setting and for Lévy processes. Computation of Greeks is covered using likelihood ratio methods and adjoint techniques. A chapter on state-of-the-art optimization algorithms rounds up the toolkit for applying advanced mathematical models to financial problems and the last chapter in this section of the book also serves as an introduction to model risk. The third part is devoted to the usage of Matlab, introducing the software package by describing the basic functions applied for financial engineering. The programming is approached from an object-oriented perspective with examples to propose a framework for calibration, hedging and the adjoint method for calculating Greeks in a Libor market model. Source code used for producing the results and analysing the models is provided on the author's dedicated website, <http://www.mathworks.de/matlabcentral/fileexchange/authors/246981>.

MODEL THEORY

Cambridge University Press *Model theory is concerned with the notions of definition, interpretation and structure in a very general setting, and is applied to a wide range of other areas such as set theory, geometry, algebra and computer science. This book provides an integrated introduction to model theory for graduate students.*

MODEL THEORY

Courier Corporation *This bestselling textbook for higher-level courses was extensively revised in 1990 to accommodate developments in model theoretic methods. Topics include models constructed from constants, ultraproducts, and saturated and special models. 1990 edition.*

MATHEMATICAL LOGIC AND MODEL THEORY

A BRIEF INTRODUCTION

Springer Science & Business Media *Mathematical Logic and Model Theory: A Brief Introduction offers a streamlined yet easy-to-read introduction to mathematical logic and basic model theory. It presents, in a self-contained manner, the essential aspects of model theory needed to understand model theoretic algebra. As a profound application of model theory in algebra, the last part of this book develops a complete proof of Ax and Kochen's work on Artin's conjecture about Diophantine properties of p -adic number fields. The character of model theoretic constructions and results differ quite significantly from that commonly found in algebra, by the treatment of formulae as mathematical objects. It is therefore indispensable to first become familiar with the problems and methods of mathematical logic. Therefore, the text is divided into three parts: an introduction into mathematical logic (Chapter 1), model theory (Chapters 2 and 3), and the model theoretic treatment of several algebraic theories (Chapter 4). This book will be of interest to both advanced undergraduate and graduate students studying model theory and its applications to algebra. It may also be used for self-study.*

A COURSE IN MODEL THEORY

Cambridge University Press *This concise introduction to model theory begins with standard notions and takes the reader through to more advanced topics such as stability, simplicity and Hrushovski constructions. The authors introduce the classic results, as well as more recent developments in this vibrant area of mathematical logic. Concrete mathematical examples are included throughout to make the concepts easier to follow. The book also contains over 200 exercises, many with solutions, making the book a useful resource for graduate students as well as researchers.*

THE THEORY OF MODELS

PROCEEDINGS OF THE 1963 INTERNATIONAL SYMPOSIUM AT BERKELEY

Elsevier *Studies in Logic and the Foundations of Mathematics: The Theory of Models covers the proceedings of the International Symposium on the Theory of Models, held at the University of California, Berkeley on June 25 to July 11, 1963. The book focuses on works devoted to the foundations of mathematics, generally known as "the theory of models." The selection first discusses the method of alternating chains, semantic construction of Lewis's systems S_4 and S_5 , and continuous model theory. Concerns include ordered model theory, 2-valued model theory, semantics, sequents, axiomatization, formulas, axiomatic approach to hierarchies, alternating chains, and difference hierarchies. The text also ponders on Boolean notions extended to higher dimensions, elementary theories with models without automorphisms, and applications of the notions of forcing and generic sets. The manuscript takes a look at a hypothesis concerning the extension of finite relations and its verification for certain special cases, theories of functors and models, model-theoretic methods in the study of elementary logic, and extensions of relational structures. The text also reviews relatively categorical and normal theories, algebraic theories, categories, and functors, denumerable models of theories with extra predicates, and non-standard models for fragments of number theory. The selection is highly recommended for mathematicians and researchers interested in the theory of models.*

GAME THEORY

A MODELING APPROACH

CRC Press *Game Theory: A Modeling Approach quickly moves readers through the fundamental ideas of the subject to enable them to engage in creative modeling projects based on game theoretic concepts. The authors match conclusions to real-world scenarios and applications. The text engages students in active learning, group work, in-class discussions and interactive simulations. Each chapter provides foundation pieces or adds more features to help readers build game theoretic models. The chapters include definitions, concepts and illustrative examples. The text will engage and challenge both undergraduate and graduate students. Features: Enables readers to apply game theory to real-world scenarios Chapters can be used for core course materials or independent studies Exercises, included at the end of the chapters, follow the order of the sections in the text Select answers and solutions are found at the end of the book Solutions manual for instructors is available from the authors*

AGENT-BASED MODELLING FOR CRIMINOLOGICAL THEORY TESTING AND DEVELOPMENT

Routledge *Agent-Based Modelling for Criminological Theory Testing and Development addresses the question whether and how we can use simulation methods in order to test criminological theories, and if they fail to be corroborated, how we can use simulation to mend and further develop theories. It is by no means immediately obvious how results being observed in an artificial environment have any relevance for what is going on in the real world. By using the concept of a "stylized fact," the contributors bridge the gap*

between artificial and real world. With backgrounds in criminology or artificial intelligence (AI), these contributors present agent-based model studies that test aspects of various theories, including crime pattern theory, guardianship in action theory, near repeat theory, routine activity theory, and general deterrence theory. All six simulation models presented have been specially developed for the book. Contributors have specified the theory, identified stylized facts, developed an agent-based simulation model, let it run, and interpreted whether the chosen stylized fact is occurring in their model, and what we should conclude from congruence or incongruence between simulation and expectations based on the theory under scrutiny. The final chapter discusses what can be learnt from these six enterprises. The book will be of great interest to scholars of criminology (in particular computational criminologists and theoretical criminologists) and AI (with an emphasis on AI for generative social processes), and more widely researchers in social science in general. It will also be valuable for master's courses in quantitative criminology.

INSTITUTION-INDEPENDENT MODEL THEORY

Springer Science & Business Media This book develops model theory independently of any concrete logical system or structure, within the abstract category-theoretic framework of the so called 'institution theory'. The development includes most of the important methods and concepts of conventional concrete model theory at the abstract institution-independent level. Consequently it is easily applicable to a rather large diverse collection of logics from the mathematical and computer science practice.

THEORY AND MODELING OF POLYMER NANOCOMPOSITES

Springer Nature This edited volume brings together the state of the art in polymer nanocomposite theory and modeling, creating a roadmap for scientists and engineers seeking to design new advanced materials. The book opens with a review of molecular and mesoscale models predicting equilibrium and non-equilibrium nanoscale structure of hybrid materials as a function of composition and, especially, filler types. Subsequent chapters cover the methods and analyses used for describing the dynamics of nanocomposites and their mechanical and physical properties. Dedicated chapters present best practices for predicting materials properties of practical interest, including thermal and electrical conductivity, optical properties, barrier properties, and flammability. Each chapter is written by leading academic and industrial scientists working in each respective sub-field. The overview of modeling methodology combined with detailed examples of property predictions for specific systems will make this book useful for academic and industrial practitioners alike.

MODEL THEORY

THEORY AND MODELING OF ROTATING FLUIDS

Cambridge University Press The first systematic account of the theory and modelling of rotating fluids for researchers and students in geophysics, astrophysics and engineering in half a century.

CONTINUOUS MODEL THEORY

Princeton University Press This is a study of the theory of models with truth values in a compact Hausdorff topological space.

DATA MODELING THEORY AND PRACTICE

Technics Publications Data Modeling Theory and Practice is for practitioners and academics who have learned the conventions and rules of data modeling and are looking for a deeper understanding of the discipline. The coverage of theory includes a detailed review of the extensive literature on data modeling and logical database design, referencing nearly 500 publications, with a strong focus on their relevance to practice. The practice component incorporates the largest-ever study of data modeling practitioners, involving over 450 participants in interviews, surveys and data modeling tasks. The results challenge many long-held assumptions about data modeling and will be of interest to academics and practitioners alike. Graeme Simsion brings to the book the practical perspective and intellectual clarity that have made his Data Modeling Essentials a classic in the field. He begins with a question about the nature of data modeling (design or description), and uses it to illuminate such issues as the definition of data modeling, its philosophical underpinnings, inputs and deliverables, the necessary behaviors and skills, the role of creativity, product diversity, quality measures, personal styles, and the differences between experts and novices. Data Modeling Theory and Practice is essential reading for anyone involved in data modeling practice, research, or teaching.

BEING NO ONE

THE SELF-MODEL THEORY OF SUBJECTIVITY

MIT Press According to Thomas Metzinger, no such things as selves exist in the world: nobody ever had or was a self. All that exists are phenomenal selves, as they appear in conscious experience. The phenomenal self, however, is not a thing but an ongoing process; it is the content of a "transparent self-model." In Being No One, Metzinger, a German philosopher, draws strongly on neuroscientific research to present a representationalist and functional analysis of what a consciously experienced first-person perspective actually is. Building a bridge between the humanities and the empirical sciences of the mind, he develops new conceptual toolkits and metaphors; uses case studies of unusual states of mind such as agnosia, neglect, blindsight, and hallucinations; and offers new sets of multilevel constraints for the concept of consciousness. Metzinger's central question is: How exactly does strong, consciously experienced subjectivity emerge out of objective events in the natural world? His epistemic goal is to determine whether conscious experience, in particular the experience of being someone that results from the emergence of a phenomenal self, can be analyzed on subpersonal levels of description. He also asks if and how our Cartesian intuitions that subjective experiences as such can never be reductively explained are themselves ultimately rooted in the deeper representational structure of our conscious minds.

A FIRST COURSE IN LINEAR MODEL THEORY

CRC Press Thoroughly updated throughout, *A First Course in Linear Model Theory, Second Edition* is an intermediate-level statistics text that fills an important gap by presenting the theory of linear statistical models at a level appropriate for senior undergraduate or first-year graduate students. With an innovative approach, the authors introduce to students the mathematical and statistical concepts and tools that form a foundation for studying the theory and applications of both univariate and multivariate linear models. In addition to adding R functionality, this second edition features three new chapters and several sections on new topics that are extremely relevant to the current research in statistical methodology. Revised or expanded topics include linear fixed, random and mixed effects models, generalized linear models, Bayesian and hierarchical linear models, model selection, multiple comparisons, and regularized and robust regression. New to the Second Edition: Coverage of inference for linear models has been expanded into two chapters. Expanded coverage of multiple comparisons, random and mixed effects models, model selection, and missing data. A new chapter on generalized linear models (Chapter 12). A new section on multivariate linear models in Chapter 13, and expanded coverage of the Bayesian linear models and longitudinal models. A new section on regularized regression in Chapter 14. Detailed data illustrations using R. The authors' fresh approach, methodical presentation, wealth of examples, use of R, and introduction to topics beyond the classical theory set this book apart from other texts on linear models. It forms a refreshing and invaluable first step in students' study of advanced linear models, generalized linear models, nonlinear models, and dynamic models.

COMPUTATIONAL HEMODYNAMICS - THEORY, MODELLING AND APPLICATIONS

Springer This book discusses geometric and mathematical models that can be used to study fluid and structural mechanics in the cardiovascular system. Where traditional research methodologies in the human cardiovascular system are challenging due to its invasive nature, several recent advances in medical imaging and computational fluid and solid mechanics modelling now provide new and exciting research opportunities. This emerging field of study is multi-disciplinary, involving numerical methods, computational science, fluid and structural mechanics, and biomedical engineering. Certainly any new student or researcher in this field may feel overwhelmed by the wide range of disciplines that need to be understood. This unique book is one of the first to bring together knowledge from multiple disciplines, providing a starting point to each of the individual disciplines involved, attempting to ease the steep learning curve. This book presents elementary knowledge on the physiology of the cardiovascular system; basic knowledge and techniques on reconstructing geometric models from medical imaging; mathematics that describe fluid and structural mechanics, and corresponding numerical/computational methods to solve its equations and problems. Many practical examples and case studies are presented to reinforce best practice guidelines for setting high quality computational models and simulations. These examples contain a large number of images for visualization, to explain cardiovascular physiological functions and disease. The reader is then exposed to some of the latest research activities through a summary of breakthrough research models, findings, and techniques. The book's approach is aimed at students and researchers entering this field from engineering, applied mathematics, biotechnology or medicine, wishing to engage in this emerging and exciting field of computational hemodynamics modelling.

MODEL THEORY

Oxford University Press Model theory is the branch of mathematical logic looking at the relationship between mathematical structures and logic languages. These formal languages are free from the ambiguities of natural languages, and are becoming increasingly important in areas such as computing, philosophy and linguistics. This book provides a clear introduction to the subject for both mathematicians and the non-specialists now needing to learn some model theory.

MODEL THEORY AND ALGEBRAIC GEOMETRY

AN INTRODUCTION TO E. HRUSHOVSKI'S PROOF OF THE GEOMETRIC MORDELL-LANG CONJECTURE

Springer This introduction to the recent exciting developments in the applications of model theory to algebraic geometry, illustrated by E. Hrushovski's model-theoretic proof of the geometric Mordell-Lang Conjecture starts from very basic background and works up to the detailed exposition of Hrushovski's proof, explaining the necessary tools and results from stability theory on the way. The first chapter is an informal introduction to model theory itself, making the book accessible (with a little effort) to readers with no previous knowledge of model theory. The authors have collaborated closely to achieve a coherent and self-contained presentation, whereby the completeness of exposition of the chapters varies according to the existence of other good references, but comments and examples are always provided to give the reader some intuitive understanding of the subject.

MODEL ORDER REDUCTION: THEORY, RESEARCH ASPECTS AND APPLICATIONS

Springer Science & Business Media The idea for this book originated during the workshop "Model order reduction, coupled problems and optimization" held at the Lorentz Center in Leiden from September 19–23, 2005. During one of the discussion sessions, it became clear that a book describing the state of the art in model order reduction, starting from the very basics and containing an overview of all relevant techniques, would be of great use for students, young researchers starting in the field, and experienced researchers. The observation that most of the theory on model order reduction is scattered over many good papers, making it difficult to find a good starting point, was supported by most of the participants. Moreover, most of the speakers at the workshop were willing to contribute to the book that is now in front of you. The goal of this book, as defined during the discussion sessions at the workshop, is three-fold: first, it should describe the basics of model order reduction. Second, both general and more specialized model order reduction techniques for linear and nonlinear systems should be covered, including the use of several related numerical techniques. Third, the use of model order reduction techniques in practical applications and current research aspects should be discussed. We have organized the book according to these goals. In Part I, the rationale behind model order reduction is explained, and an overview of the most common methods is described.

THEORY AND PRACTICE OF GEOMETRIC MODELING

Springer Science & Business Media *This book is a result of the lectures and discussions during the conference "Theory and Practice of Geometric Modeling". The event has been organized by the Wilhelm-Schickard-Institut für Informatik, Universität Tübingen and took place at the Heinrich-Fabri-Institut in Blaubeuren from October 3 to 7, 1988. The conference brought together leading experts from academic and industrial research institutions, CAD system developers and experienced users to exchange their ideas and to discuss new concepts and future directions in geometric modeling. The main intention has been to bridge the gap between theoretical results, performance of existing CAD systems and the real problems of users. The contents is structured in five parts: A Algorithmic Aspects B Surface Intersection, Blending, Ray Tracing C Geometric Tools D Different Representation Schemes in Solid Modeling E Product Modeling in High Level Specifications The material presented in this book reflects the current state of the art in geometric modeling and should therefore be of interest not only to university and industry researchers, but also to system developers and practitioners who wish to keep up to date on recent advances and new concepts in this rapidly expanding field. The editors express their sincere appreciation to the contributing authors, and to the members of the program committee, W. Boehm, J. Hoschek, A. Massabo, H. Nowacki, M. Pratt, J. Rossignac, T. Sederberg and W. Tiller, for their close cooperation and their time and effort that made the conference and this book a success.*

MODEL THEORY AND THE PHILOSOPHY OF MATHEMATICAL PRACTICE

Cambridge University Press *Recounts the modern transformation of model theory and its effects on the philosophy of mathematics and mathematical practice.*

Ω-BIBLIOGRAPHY OF MATHEMATICAL LOGIC

MODEL THEORY

Springer Science & Business Media *Gert H. Müller The growth of the number of publications in almost all scientific areas, as in the area of (mathematical) logic, is taken as a sign of our scientifically minded culture, but it also has a terrifying aspect. In addition, given the rapidly growing sophistication, specialization and hence subdivision of logic, researchers, students and teachers may have a hard time getting an overview of the existing literature, particularly if they do not have an extensive library available in their neighbourhood: they simply do not even know what to ask for! More specifically, if someone vaguely knows that something vaguely connected with his interests exists somewhere in the literature, he may not be able to find it even by searching through the publications scattered in the review journals. Answering this challenge was and is the central motivation for compiling this Bibliography. The Bibliography comprises (presently) the following six volumes (listed with the corresponding Editors): I. Classical Logic W. Rautenberg II. Non-classical Logics W. Rautenberg III. Model Theory H.-D. Ebbinghaus IV. Recursion Theory P.G. Hinman V. Set Theory A.R. Blass VI. ProofTheory; Constructive Mathematics J.E. Kister; D. van Dalen & A.S. Troelstra.*