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Current Information Sources in Mathematics Elie M. Dick 1973

Numerical Methods and Scientific Computing Norbert Köckler 1994 This introduction to software packages is written specifically for scientists and engineers who write programmes to get numerical results. It covers the whole range of numerical mathematics, from linear equations to ordinary differential equations, with short sections on the calculus of errorand partial differential equations. As it aims to give a unified approach to theory, alogorithms, applications, and the use of software, the emphasis is on examples and applications rather than proofs. This book is appearing at the same time as PAN, software that contains all the programsdescribed in the book, and additional useful software such as help systems, and utility tools as well as an enlarged hypertext version of the text.

Fourier Series, Transforms, and Boundary Value Problems J. Ray Hanna 2008-06-11 This volume introduces Fourier and transform methods for solutions to boundary value problems associated with natural phenomena. Unlike most treatments, it emphasizes basic concepts and techniques rather than theory. Many of the exercises include solutions, with detailed outlines that make it easy to follow the appropriate sequence of steps. 1990 edition.

A Modular Finite-element Model (MODFE) for Areal and Axisymmetric Ground-water Flow Problems Richard L. Cooley 1992

Waves and Rays in Elastic Continua Michael A Slawinski 2014-12-15 The present book — which is the third, significantly revised edition of the textbook originally published by Elsevier Science — emphasizes the interdependence of mathematical formulation and physical meaning in the description of seismic phenomena. Herein, we use aspects of continuum mechanics, wave theory and ray theory to explain phenomena resulting from the propagation of seismic waves. The book is divided into three main sections: Elastic Continua, Waves and Rays and Variational Formulation of Rays. There is also a fourth part, which consists of appendices. In Elastic Continua, we use continuum mechanics to describe the material through which seismic waves propagate, and to formulate a system of equations to study the behaviour of such a material. In Waves and Rays, we use these equations to identify the types of body waves propagating in elastic continua as well as to express their velocities and displacements in terms of the properties of these continua. To solve the equations of motion in anisotropic inhomogeneous continua, we invoke the concept of a ray. In Variational Formulation of Rays, we show that, in elastic continua, a ray is tantamount to a trajectory along which a seismic signal propagates in accordance with the variational principle of stationary traveltime. Consequently, many seismic problems in elastic continua can be conveniently formulated and solved using the calculus of variations. In the Appendices, we describe two mathematical concepts that are used in the book; namely, homogeneity of a function and Legendre's transformation. This section also contains a list of symbols. Request Inspection Copy

Ordinary Differential Equations Walter Leighton 1966

Publishers Weekly 1967

Guide to the Literature of Engineering, Mathematics, and the Physical Sciences Sylvia Weiser 1972

Introduction to Maple Andre HECK 2012-12-06 A fully revised, second edition of the best-selling Introduction to Maple, now compatible through Maple V Release 4. It shows not only what can be done by Maple, but also how it can be done. Emphasis is on understanding the Maple system more than on factual knowledge of built-in possibilities, and, to this end, the book contains both elementary and more sophisticated examples and many exercises. Numerous new examples have been added to show how to use Maple as a problem solver, how to assist the system during computations, and how to extend its built-in facilities. Introduction to Maple is not simply a readable manual, but also provides the necessary background for those wanting to extend the built-in knowledge of Maple by implementing new algorithms. Readers should have a background in mathematics higher than beginner level.

SIAM Journal on Scientific Computing 1994

Library of Congress Catalogs Library of Congress 1960

New Technical Books New York Public Library 1981

Books in Print Supplement 2002

Mathematics of Complexity and Dynamical Systems Robert A. Meyers 2011-10-05 Mathematics of Complexity and Dynamical Systems is an authoritative reference to the basic tools and concepts of complexity, systems theory, and dynamical systems from the perspective of pure and applied mathematics. Complex systems are systems that comprise many interacting parts with the ability to generate a new quality of collective behavior through self-organization, e.g. the spontaneous formation of temporal, spatial or functional structures. These systems are often characterized by extreme sensitivity to initial conditions as well as emergent behavior that are not readily predictable or even completely deterministic. The more than 100 entries in this wide-ranging, single source work provide a comprehensive explication of the theory and applications of mathematical complexity, covering ergodic theory, fractals and multifractals, dynamical systems, perturbation theory, solitons, systems and control theory, and related topics. Mathematics of Complexity and Dynamical Systems is an essential reference for all those interested in mathematical complexity, from undergraduate and graduate students up through professional researchers.

Linear Differential Equations and Oscillators Luis Manuel Braga da Costa Campos 2019-11-05 Linear Differential Equations and Oscillators is the first book within Ordinary Differential Equations with Applications to Trajectories and Vibrations, Six-volume Set. As a set, they are the fourth volume in the series Mathematics and Physics Applied to Science and Technology. This first book consists of chapters 1 and 2 of the fourth volume. The first chapter covers linear differential equations of any order whose unforced solution can be obtained from the roots of a characteristic polynomial, namely those: (i) with constant coefficients; (ii) with homogeneous power coefficients with the exponent equal to the order of derivation. The method of characteristic polynomials is also applied to (iii) linear finite difference equations of any order with constant coefficients. The unforced and forced solutions of (i,ii,iii) are examples of some general properties of ordinary differential equations. The second chapter applies the theory of the first chapter to linear second-order oscillators with one degree-of-freedom, such as the mechanical mass-damper-spring-force system and the electrical self-resistor-capacitor-battery circuit. In both cases are treated free undamped, damped, and amplified oscillations; also forced oscillations including beats, resonance, discrete and continuous spectra, and impulsive inputs. Describes general properties of differential and finite difference equations, with focus on linear equations and constant and some power coefficients Presents particular and general solutions for all cases of differential and finite difference equations Provides complete solutions for many cases of forcing including resonant cases Discusses applications to linear second-order mechanical and electrical oscillators with damping Provides solutions with forcing including resonance using the characteristic polynomial, Green' s functions, trigonometrical series, Fourier integrals and Laplace transforms

Numerical Methods in Computational Finance Daniel J. Duffy 2022-03-21 This book is a detailed and step-by-step introduction to the mathematical foundations of ordinary and partial differential equations, their approximation by the finite difference method and applications to computational finance. The book is structured so that it can be read by beginners, novices and expert users. Part A Mathematical Foundation for One-Factor Problems Chapters 1 to 7 introduce the mathematical and numerical analysis concepts that are needed to understand the finite difference method and its application to computational finance. Part B Mathematical Foundation for Two-Factor Problems Chapters 8 to 13 discuss a number of rigorous mathematical techniques relating to elliptic and parabolic partial differential equations in two space variables. In particular, we develop strategies to preprocess and modify a PDE before we approximate it by the finite difference method, thus avoiding ad-hoc and heuristic tricks. Part C The Foundations of the Finite Difference Method (FDM) Chapters 14 to 17 introduce the mathematical background to the finite difference method for initial boundary value problems for parabolic PDEs. It encapsulates all the background information to construct stable and accurate finite difference schemes. Part D Advanced Finite Difference Schemes for Two-Factor Problems Chapters 18 to 22 introduce a number of modern finite difference methods to approximate the solution of two factor partial differential equations. This is the only book we know of that discusses these methods in any detail. Part E Test Cases in Computational Finance Chapters 23 to 26 are concerned with applications based on previous chapters. We discuss finite difference schemes for a wide range of one-factor and two-factor problems. This book is suitable as an entry-level introduction as well as a detailed treatment of modern methods as used by industry quants and MSc/MFE students in finance. The topics have applications to numerical analysis, science and engineering. More on computational finance and the author's online courses, see www.datasim.nl.

Applied Mechanics Reviews 1973

Notices of the American Mathematical Society American Mathematical Society 1966

Applied Differential Equations Murray R. Spiegel 1958

The Publishers' Trade List Annual 1981

Guide to the Literature of Engineering, Mathematics, and the Physical Sciences Sylvia Weiser 1964

Books in Print 1987

British Books in Print 1985

Mathematica Navigator Heikki Ruskeepaa 2009-06-12 Ruskeepaa gives a general introduction to the most recent versions of Mathematica, the symbolic computation software from Wolfram. The book emphasizes graphics, methods of applied mathematics and statistics, and programming. Mathematica Navigator can be used both as a tutorial and as a handbook. While no previous experience with Mathematica is required, most chapters also include advanced material, so that the book will be a valuable resource for both beginners and experienced users. - Covers both Mathematica 6 and Mathematica 7 - The book, fully revised and updated, is based on Mathematica 6 - Comprehensive coverage from basic, introductory information through to more advanced topics - Studies several real data sets and many classical mathematical models

Groundwater Muhammad Salik Javaid 2016-07-27 Water inside the earth, the groundwater and the invisible resource is the most important source of survival of mankind on this globe. Part of the hydrological cycle between entry (percolation and recharge) and exit (natural or forced extraction and discharge), the groundwater fascinates all: engineers, hydrogeologists, agriculturists, environmentalists, scientists, academia, resource managers and domestic and industrial users. This book is the outcome of efforts of those eminent authors who despite their fascination were able to write upon some important facet of groundwater flow and the transport of pollutants with it. The dimensions covered range from simple descriptive narratives; to expose of analytical methods; to complex mathematical treatment; to numerical simulations and computer modeling. All areas have been touched upon for the sake of general readers, students, professional engineers and scientists.

Geodynamics of the Lithosphere Kurt Stüwe 2013-03-09 The large scale structure of the earth is caused by geodynamic processes which are explained using energetic, kinematic and dynamic descriptions. While "geodynamic processes" are understood to include a large variety of processes and the term is used by earth scientists quite loosely, the methods of their description involve well defined fields. Energetic descriptions are in volved with distribution of energy in our planet, typically expressed in terms of heat and temperature. Kinematic descriptions describe movements using velocities, strains and strain rates and Dynamic descriptions indicate how stresses and forces behave. As structural and metamorphic geologists we document in the field only the consequences of geological processes. The underlying causes are much harder to constrain directly. However, it is absolutely crucial to understand these causes or: "driving forces", if we are to explain the tectonic evolution of our planet. This book deals with the dynamic description of geological processes. Our descriptions relate causes and consequences - tectonic processes with field observations. In many cases, we will use equations as a concise form to describe processes and observations in nature. As we will be dealing mostly with large scale tectonic questions, the observations that we shall use are also on a large scale. For example, we shall use observations on the elevation (Fig. 1.1, 1.2) and heat flow of mountain ranges, the thickness of continents and the water depth of the oceans.

Financial Instrument Pricing Using C++ Daniel J. Duffy 2013-10-23 One of the best languages for the development of financial engineering and instrument pricing applications is C++. This book has several features that allow developers to write robust, flexible and extensible software systems. The book is an ANSI/ISO standard, fully object-oriented and interfaces with many third-party applications. It has support for templates and generic programming, massive reusability using templates (?write once?) and support for legacy C applications. In this book, author Daniel J. Duffy brings C++ to the next level by applying it to the design and implementation of classes, libraries and applications for option and derivative pricing models. He employs modern software engineering techniques to produce industrial-strength applications: Using the Standard Template Library (STL) in finance Creating your own template classes and functions Reusable data structures for vectors, matrices and tensors Classes for numerical analysis (numerical linear algebra ?) Solving the Black Scholes equations, exact and approximate solutions Implementing the Finite Difference Method in C++ Integration with the ?Gang of Four? Design Patterns Interfacing with Excel (output and Add-Ins) Financial engineering and XML Cash flow and yield curves Included with the book is a CD containing the source code in the Datasim Financial Toolkit. You can use this to get up to speed with your C++ applications by reusing existing classes and libraries. 'Unique... Let's all give a warm welcome to modern pricing tools.' -- Paul Wilmott, mathematician, author and fund manager

Magill's Survey of Science: The Michelson-Morley experiment-Planetary magnetospheres Frank Northen Magill 1992

C# for Financial Markets Daniel J. Duffy 2013-01-14 A practice-oriented guide to using C# to design and program pricing and trading models In this step-by-step guide to software development for financial analysts, traders, developers and quants, the authors show both novice and experienced practitioners how to develop robust and accurate pricing models and employ them in real environments. Traders will learn how to design and implement applications for curve and surface modeling, fixed income products, hedging strategies, plain and exotic option modeling, interest rate options, structured bonds, unfunded structured products, and more. A unique mix of modern software technology and quantitative finance, this book is both timely and practical. The approach is thorough and comprehensive and the authors use a combination of C# language features, design patterns, mathematics and finance to produce efficient and maintainable software. Designed for quant developers, traders and MSc/MFE students, each chapter has numerous exercises and the book is accompanied by a dedicated companion website, http://www.datasimfinancial.com/forum/viewforum.php?f=196&sid=f30022095850dee48c7db5ff62192b34, providing all source code, alongside audio, support and discussion forums for readers to comment on the code and obtain new versions of the software.

Pure and Applied Science Books, 1876-1982 1982 Over 220,000 entries representing some 56,000 Library of Congress subject headings. Covers all disciplines of science and technology, e.g., engineering, agriculture, and domestic arts. Also contains at least 5000 titles published before 1876. Has many applications in libraries, information centers, and other organizations concerned with scientific and technological literature. Subject index contains main listing of entries. Each entry gives cataloging as prepared by the Library of Congress. Author/title indexes.

Cumulative Book Index 1975

Mathematics for the Analysis of Algorithms Daniel H. Greene 2009-05-21 This monograph collects some fundamental mathematical techniques that are required for the analysis of algorithms. It builds on the fundamentals of combinatorial analysis and complex variable theory to present many of the major paradigms used in the precise analysis of algorithms, emphasizing the more difficult notions. The authors cover recurrence relations, operator methods, and asymptotic analysis in a format that is concise enough for easy reference yet detailed enough for those with little background with the material.

Computer-Assisted Simulation of Dynamic Systems with Block Diagram Languages Nicholas M. Karayanakis 1993-06-24 Computer-Assisted Simulation of Dynamic Systems with Block Diagram Languages explores the diverse applications of these indispensable simulation tools. The first book of its kind, it bridges the gap between block diagram languages and traditional simulation practice by linking the art of analog/hybrid computation with modern pc-based technology. Direct analogies are explored as a means of promoting interdisciplinary problem solving. The reader progresses step-by-step through the creative modeling and simulation of dynamic systems from disciplines as diverse from each other as biology, electronics, physics, and mathematics. The book guides the reader to the dynamic simulation of chaos, conformal mapping, VTOL aircraft, and other highly specialized topics. Alternate methods of simulating a single device to emphasize the dynamic rather than schematic features of a system are provided. Nearly-forgotten computational techniques like that of integrating with respect to a variable other than time are revived and applied to simulation and signal processing. Actual working models are found throughout this eminently readable book, along with a complete international bibliography for individuals researching subjects in dynamic systems. This is an excellent primary text for undergraduate and graduate courses in computer simulation or an adjunct text for a dynamic systems course. It is also recommended as a professional reference book.

Symbolic Mathematics for Chemists Fred Senese 2018-11-05 An essential guide to using Maxima, a popular open source symbolic mathematics engine to solve problems, build models, analyze data and explore fundamental concepts Symbolic Mathematics for Chemists offers students of chemistry a guide to Maxima, a popular open source symbolic mathematics engine that can be used to solve problems, build models, analyze data, and explore fundamental chemistry concepts. The author — a noted expert in the field — focuses on the analysis of experimental data obtained in a laboratory setting and the fitting of data and modeling experiments. The text contains a wide variety of illustrative examples and applications in physical chemistry, quantitative analysis and instrumental techniques. Designed as a practical resource, the book is organized around a series of worksheets that are provided in a companion website. Each worksheet has clearly defined goals and learning objectives and a detailed abstract that provides motivation and context for the material. This important resource: Offers an text that shows how to use popular symbolic mathematics engines to solve problems Includes a series of worksheet that are prepared in Maxima Contains step-by-step instructions written in clear terms and includes illustrative examples to enhance critical thinking, creative problem solving and the ability to connect concepts in chemistry Offers hints and case studies that help to master the basics while proficient users are offered more advanced avenues for exploration Written for advanced undergraduate and graduate students in chemistry and instructors looking to enhance their lecture or lab course with symbolic mathematics materials, Symbolic Mathematics for Chemists: A Guide for Maxima Users is an essential resource for solving and exploring quantitative problems in chemistry.

The Mathematical Gazette 1969

An Introduction to Methods of Complex Analysis and Geometry for Classical Mechanics and Non-linear Waves Daniel Benest 1994

Catalog of Copyright Entries. Third Series Library of Congress. Copyright Office 1958

Probability and Statistics by Example: Volume 1, Basic Probability and Statistics Yuri Suhov 2014-09-22 Probability and statistics are as much about intuition and problem solving as they are about theorem proving. Consequently, students can find it very difficult to make a successful transition from lectures to examinations to practice because the problems involved can vary so much in nature. Since the subject is critical in so many applications from insurance to telecommunications to bioinformatics, the authors have collected more than 200 worked examples and examination questions with complete solutions to help students develop a deep understanding of the subject rather than a superficial knowledge of sophisticated theories. With amusing stories and historical asides sprinkled throughout, this enjoyable book will leave students better equipped to solve problems in practice and under exam conditions.

Catalog of Copyright Entries. Third Series Library of Congress. Copyright Office 1959 Includes Part 1, Number 1: Books and Pamphlets, Including Serials and Contributions to Periodicals (January - June)

Waves And Rays In Elastic Continua (Fourth Edition) Michael A Slawinski 2020-09-24 Seismology, as a branch of mathematical physics, is an active subject of both research and development. Its reliance on computational and technological advances continuously motivates the developments of its underlying theory. The fourth edition of Waves and Rays in Elastic Continua responds to these needs.The book is both a research reference and a textbook. Its careful and explanatory style, which includes numerous exercises with detailed solutions, makes it an excellent textbook for the senior undergraduate and graduate courses, as well as for an independent study. Used in its entirety, the book could serve as a sole textbook for a year-long course in quantitative seismology. Its parts, however, are designed to be used independently for shorter courses with different emphases. The book is not limited to quantitive seismology; it can serve as a textbook for courses in mathematical physics or applied mathematics.