

Math Matiques Dunod

In two parts: Auteurs and Titres.

Non-standard finite element methods, in particular mixed methods, are central to many applications. In this text the authors, Boffi, Brezzi and Fortin present a general framework, starting with a finite dimensional presentation, then moving on to formulation in Hilbert spaces and finally considering approximations, including stabilized methods and eigenvalue problems. This book also provides an introduction to standard finite element approximations, followed by the construction of elements for the approximation of mixed formulations in $H(\text{div})$ and $H(\text{curl})$. The general theory is applied to some classical examples: Dirichlet's problem, Stokes' problem, plate problems, elasticity and electromagnetism.

Computational finance is an interdisciplinary field which joins financial mathematics, stochastics, numerics and scientific computing. Its task is to estimate as accurately and efficiently as possible the risks that financial instruments generate. This volume consists of a series of cutting-edge surveys of recent developments in the field written by leading international experts. These make the subject accessible to a wide readership in academia and financial businesses. The book consists of 13 chapters divided into 3 parts: foundations, algorithms and applications. Besides surveys of existing results, the book contains many new previously unpublished results.

The management of a water supply network can be substantially improved defining permanent sectors or districts that enhances simpler water loss detection and pressure management. However, the water network partitioning may compromise water system performance, since some pipes are usually closed to delimit districts in order not to have too many metering stations, to decrease costs and simplify water balance. This may reduce the reliability of the whole system and not guarantee the delivery of water at the different network nodes. In practical applications, the design of districts or sectors is generally based on empirical approaches or on limited field experiences. The book proposes a design support methodology, based on graph theory principles and tested on real case study. The described methodology can help water utilities, professionals and researchers to define the optimal districts or sectors of a water supply network.

The contact of one deformable body with another lies at the heart of almost every mechanical structure. Here, in a comprehensive treatment, two of the field's leading researchers present a systematic approach to contact problems. Using variational formulations, Kikuchi and Oden derive a multitude of new results, both for classical problems and for nonlinear problems involving large deflections and buckling of thin plates with unilateral supports, dry friction with nonclassical laws, large elastic and elastoplastic deformations with frictional contact, dynamic contacts with dynamic frictional effects, and rolling contacts. This method exposes properties of solutions obscured by classical methods, and it provides a basis for the development of powerful

numerical schemes. Among the novel results presented here are algorithms for contact problems with nonlinear and nonlocal friction, and very effective algorithms for solving problems involving the large elastic deformation of hyperelastic bodies with general contact conditions. Includes detailed discussion of numerical methods for nonlinear materials with unilateral contact and friction, with examples of metalforming simulations. Also presents algorithms for the finite deformation rolling contact problem, along with a discussion of numerical examples.

Les Neuf chapitres, un ouvrage vieux de 2000 ans environ, furent considérés très tôt en Chine comme le " Classique " mathématique par excellence. Comme tout " Classique " chinois, l'ouvrage a suscité des commentaires. Deux d'entre eux se sont transmis au fil des siècles avec le texte même du canon : ils sont dus à Liu Hui (IIIe siècle) et à Li Chunfeng (VIIe siècle). Le lecteur occidental découvrira dans le présent volume l'ensemble tel que les lecteurs chinois ont pu le travailler. A la différence des classiques grecs, les connaissances que présentent Les Neuf chapitres - arithmétique des fractions, extraction de racines carrée et cubique, calcul de l'aire du cercle et du volume de la pyramide, pivot de Gauss, etc. - sont exposées sous forme d'algorithmes, ces procédures de calcul que le développement de l'informatique a remises au centre de l'intérêt des mathématiciens aujourd'hui. Méconnus en Occident, leurs commentaires contredisent l'opinion répandue selon laquelle l'idée et la pratique de la démonstration n'auraient fait l'objet d'élaborations qu'en Grèce ancienne. Ils traitent en effet

systematiquement des raisons qui sous-tendent la correction d'algorithmes. Les Neuf chapitres, au fil des 246 problèmes empreints de poésie qui les structurent, tout en reflétant la vie de la Chine ancienne, invitent à reconsidérer l'origine de nos connaissances et de nos pratiques mathématiques. L'ouvrage compte une édition critique et une traduction abondamment annotées du texte, ainsi que le premier glossaire des termes mathématiques chinois anciens composé par Karine Chemla, avec des calligraphies originales de Toshiko Yasumoto. L'ensemble permet ainsi au lecteur une approche des concepts, des résultats et des pratiques propres à l'Antiquité chinoise, en les resituant dans leurs contextes sociaux et philosophiques.

The results presented in this book are a product of research conducted by the author independently and in collaboration with other researchers in the field. In this light, this work encompasses the most recent collection of various concepts of regularity and nonsmooth analysis into one monograph. The first part of the book attempts to present an accessible and thorough introduction to nonsmooth analysis theory. Main concepts and some useful results are stated and illustrated through examples and exercises. The second part gathers the most prominent and recent results of various regularity concepts of sets, functions, and set-valued mappings in nonsmooth analysis. The third and final section contains six different applications, with comments in relation to the existing literature.

In the 20th century philosophy of mathematics has to a great extent been dominated by

views developed during the so-called foundational crisis in the beginning of that century. These views have primarily focused on questions pertaining to the logical structure of mathematics and questions regarding the justification and consistency of mathematics. Paradigmatic in this respect is Hilbert's program which inherits from Frege and Russell the project to formalize all areas of ordinary mathematics and then adds the requirement of a proof, by epistemically privileged means (intuitionistic reasoning), of the consistency of such formalized theories. While interest in modified versions of the original foundational programs is still thriving, in the second part of the twentieth century several philosophers and historians of mathematics have questioned whether such foundational programs could exhaust the realm of important philosophical problems to be raised about the nature of mathematics. Some have done so in open confrontation (and hostility) to the logically based analysis of mathematics which characterized the classical foundational programs, while others (and many of the contributors to this book belong to this tradition) have only called for an extension of the range of questions and problems that should be raised in connection with an understanding of mathematics. The focus has turned thus to a consideration of what mathematicians are actually doing when they produce mathematics. Questions concerning concept-formation, understanding, heuristics, changes in style of reasoning, the role of analogies and diagrams etc.

The book provides a unique collection of in-depth mathematical, statistical, and

modeling methods and techniques for life sciences, as well as their applications in a number of areas within life sciences. It also includes a range of new ideas that represent emerging frontiers in life sciences where the application of such quantitative methods and techniques is becoming increasingly important. The book is aimed at researchers in academia, practitioners and graduate students who want to foster interdisciplinary collaborations required to meet the challenges at the interface of modern life sciences and mathematics.

In July 2004, a conference on graph theory was held in Paris in memory of Claude Berge, one of the pioneers of the field. The event brought together many prominent specialists on topics such as perfect graphs and matching theory, upon which Claude Berge's work has had a major impact. This volume includes contributions to these and other topics from many of the participants.

Section called "Annonces" consists of publishers' ads.

????le classique mathématique de la Chine ancienne et ses commentaires

Une liste exhaustive des ouvrages disponibles publiés, en français, de par le monde.

Beginning with 1953, entries for Motion pictures and filmstrips, Music and phonorecords form separate parts of the Library of Congress catalogue. Entries for Maps and atlases were issued separately 1953-1955.

[Copyright: cd241616e66a5e7ef7d7003798bfc5ac](#)