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Basic Geometry of Voting *Springer Science & Business Media Amazingly, the complexities of voting theory can be explained and resolved with comfortable geometry. A geometry which unifies such seemingly disparate topics as manipulation, monotonicity, and even the apportionment issues of the US Supreme Court. Although directed mainly toward students and others wishing to learn about voting, experts will discover here many previously unpublished results. As an example, a new profile decomposition quickly resolves the age-old controversies of Condorcet and Borda, demonstrates that the rankings of pairwise and other methods differ because they rely on different information, casts serious doubt on the reliability of a Condorcet winner as a standard for the field, makes the famous Arrow's Theorem predictable, and simplifies the construction of examples.* **Geometry of Voting** *Springer Science & Business Media Over two centuries of theory and practical experience have taught us that election and decision procedures do not behave as expected. Instead, we now know that when different tallying methods are applied to the same ballots, radically different outcomes can emerge, that most procedures can select the candidate, the voters view as being inferior, and that some commonly used methods have the disturbing anomaly that a winning candidate can lose after receiving added support. A geometric theory is developed to remove much of the mystery of three-candidate voting procedures. In this manner, the spectrum of election outcomes from all positional methods can be compared, new flaws with widely accepted concepts (such as the "Condorcet winner") are identified, and extensions to standard results (e.g. Black's single-peakedness) are obtained. Many of these results are based on the "profile coordinates" introduced here, which makes it possible to "see" the set of all possible voters' preferences leading to specified election outcomes. Thus, it now is possible to visually compare the likelihood of various conclusions. Also, geometry is applied to apportionment methods to uncover new explanations why such methods can create troubling problems.* **Geometry of Black Holes** *Oxford University Press, USA Black holes present one of the most fascinating predictions of Einstein's general relativity, with strong evidence of their existence through observations of many means. The book provides a wide background to the current research on all mathematical aspects of the geometry of black hole spacetimes.* **Riemannian Geometry** *Springer Intended for a one year course, this text serves as a single source, introducing readers to the important techniques and theorems, while also containing enough background on advanced topics to appeal to those students wishing to specialize in Riemannian geometry. This is one of the few Works to combine both the geometric parts of Riemannian geometry and the analytic aspects of the theory. The book will appeal to a readership that have a basic knowledge of standard manifold theory, including tensors, forms, and Lie groups. Important revisions to the third edition include: a substantial addition of unique and enriching exercises scattered throughout the text; inclusion of an increased number of coordinate calculations of connection and curvature; addition of general formulas for curvature on Lie Groups and submersions; integration of variational calculus into the text allowing for an early treatment of the Sphere theorem using a proof by Berger; incorporation of several recent results about manifolds with positive curvature; presentation of a new simplifying approach to the Bochner technique for tensors with application to bound topological quantities with general lower curvature bounds. From reviews of the first edition: "The book can be highly recommended to all mathematicians who want to get a more profound idea about the most interesting achievements in Riemannian geometry. It is one of the few comprehensive sources of this type." —Bernd Wegner, ZbMATH* **Fractal Geometry and Applications: A Jubilee of Benoit Mandelbrot** *American Mathematical Soc. This two-part volume offers an excellent selection of cutting-edge articles about fractal geometry, covering the great breadth of mathematics and related areas touched by this subject. Included are rich survey articles and fine expository papers. The high-quality contributions to the volume by well-known researchers-including two articles by Mandelbrot-provide a solid cross-section of recent research representing the richness and variety of contemporary advances in and around fractal geometry. In demonstrating the vitality and diversity of the field, this book will motivate further investigation into the many open problems and inspire future research directions.* **FINITE ELEMENT METHOD AND COMPUTATIONAL STRUCTURAL DYNAMICS** *PHI Learning Pvt. Ltd. Primarily intended for senior undergraduate and postgraduate students of civil, mechanical and aerospace/aeronautical engineering, this text emphasises the importance of reliability in engineering computations and understanding the process of computer aided engineering. Written with a view to promote the correct use of finite element technology and to present a detailed study of a set of essential computational tools for the practice of structural dynamics, this book is a ready-reckoner for an in-depth discussion of finite element theory and estimation and control of errors in computations. It is specifically aimed at the audience with interest in vibrations and stress analysis. Several worked out examples and exercise problems have been included to describe the various aspects of finite element theory and modelling. The exercise on error analysis will be extremely helpful in grasping the essence of posteriori error analysis and mesh refinement. KEY FEATURES • Thorough discussion of numerical algorithms for reliable and efficient computation. • Ready-to-use finite element system and other scientific applications. • Tips for improving the quality of finite element solutions. • Companion DVD containing ready to use finite element applications. AUDIENCE: Senior Undergraduate and Postgraduate students of Civil, Mechanical and Aerospace/Aeronautical engineering* **Using Algebraic Geometry** *Springer Science & Business Media The discovery of new algorithms for dealing with polynomial equations, and their implementation on fast, inexpensive computers, has revolutionized algebraic geometry and led to exciting new applications in the field. This book details many uses of algebraic geometry and highlights recent applications of Grobner bases and resultants. This edition contains two new sections, a new chapter, updated references and many minor improvements throughout.* **Numerical Techniques for Global Atmospheric Models** *Springer Science & Business Media This book surveys recent developments in numerical techniques for global atmospheric models. It is based upon a collection of lectures prepared by leading experts in the field. The chapters reveal the multitude of steps that determine the global atmospheric model design. They encompass the choice of the equation set, computational grids on the sphere, horizontal and vertical discretizations, time integration methods, filtering and diffusion mechanisms, conservation properties, tracer transport, and considerations for designing models for massively parallel computers. A reader interested in applied numerical methods but also the many facets of atmospheric modeling should find this book of particular relevance.* **Edexcel AS and a Level Modular Mathematics Core Mathematics 1 C1** *Pearson Education Ltd "This book helps in raising and sustaining motivation for better grades. These books are the best possible match to the specification, motivating readers by making maths easier to learn. They include complete past exam papers and student-friendly worked solutions which build up to practice questions, for all round exam preparation. These books also feature real-life applications of maths through the 'Life-links' and 'Why ...?' pages to show readers how this maths relates, presenting opportunities to stretch and challenge more apply students. Each book includes a Live Text CDROM which features: fully worked solutions examined step-by-step, animations for key learning points, and revision support through the Exam Cafe."--Publisher's description* **Cambridge 3 Unit Mathematics Year 11 Enhanced Version** *Cambridge University Press Features: • The current and new versions will have the same pagination. • A large number of fully worked examples demonstrate mathematical processes and encourage independent learning. Exercises are carefully graded to suit the range of students undertaking each mathematics course • Online self-marking objective response quizzes provide further opportunities to practice the multiple choice style questions included in HSC Maths exams. 2 Unit / 3 Unit Mathematics: • Foundation questions consolidate fluency and understanding, development questions encourage students to apply their understanding to a particular context. • Extension or Challenge questions inspire further thought and development for advanced students. • The wealth of questions in these three categories enables teachers to make a selection to be attempted by students of differing abilities and provides students with opportunities to practice questions of the standard they will encounter in their HSC exams.* **Introduction to Probability** *CRC Press Developed from celebrated Harvard statistics lectures, Introduction to Probability provides essential language and tools for understanding statistics, randomness, and uncertainty. The book explores a wide variety of applications and examples, ranging from coincidences and paradoxes to Google PageRank and Markov chain Monte Carlo (MCMC). Additional application areas explored include genetics, medicine, computer science, and information theory. The print book version includes a code that provides free access to an eBook version. The authors present the material in an accessible style and motivate concepts using real-world examples. Throughout, they use stories to uncover connections between the fundamental distributions in statistics and conditioning to reduce complicated problems to manageable pieces. The book includes many intuitive explanations, diagrams, and practice problems. Each chapter ends with a section showing how to perform relevant simulations and calculations in R, a free statistical software environment.* **Mathematics of Gravitation: Lorentzian geometry and Einstein equations From Fourier Analysis and Number Theory to Radon Transforms and Geometry In Memory of Leon Ehrenpreis** *Springer Science & Business Media A memorial conference for Leon Ehrenpreis was held at Temple University, November 15-16, 2010. In the spirit of Ehrenpreis's contribution to mathematics, the papers in this volume, written by prominent mathematicians, represent the wide breadth of subjects that Ehrenpreis traversed in his career, including partial differential equations, combinatorics, number theory, complex analysis and a bit of applied mathematics. With the exception of one survey article, the papers in this volume are all new results in the various fields in which Ehrenpreis worked . There are papers in pure analysis, papers in number theory, papers in what may be called applied mathematics such as population biology and parallel refractors and papers in partial differential equations. The mature mathematician will find new mathematics and the advanced graduate student will find many new ideas to explore.A biographical sketch of Leon Ehrenpreis by his daughter, a professional journalist, enhances the memorial tribute and gives the reader a glimpse into the life and career of a great mathematician.* **Automated Deduction in Geometry International Workshop on Automated Deduction in Geometry, Toulouse, France, September 27-29, 1996 : Selected Papers** *Springer Science & Business Media This book constitutes the thoroughly refereed and revised post-workshop proceedings of the International Workshop on Automated Deduction in Geometry, held in Toulouse, France, in September 1996. The revised extended papers accepted for inclusion in the volume were selected on the basis of double reviewing. Among the topics covered are automated geometric reasoning and the deduction applied to Dixon resultants, Gröbner bases, characteristic sets, computational geometry, algebraic geometry, and planet motion; furthermore the system REDLOG is demonstrated and the verification of geometric statements as well as the automated production of proof in Euclidean Geometry are present.* **Mathematics in Industrial Problems** *Springer Science & Business Media This is the eighth volume in the series "Mathematics in Industrial Prob lems." The motivation for these volumes is to foster interaction between Industry and Mathematics at the "grass roots level"; that is, at the level of specific problems. These problems come from Industry: they arise from models developed by the industrial scientists in ventures directed at the manufacture of new or improved products. At the same time, these prob lems have the potential for mathematical challenge and novelty. To identify such problems, I have visited industries and had discussions with their scientists. Some of the scientists have subsequently presented their problems in the IMA Seminar on Industrial Problems. The book is based on the seminar presentations and on questions raised in subsequent discussions. Each chapter is devoted to one of the talks and is self-contained. The chapters usually provide references to the mathematical literature and a list of open problems that are of interest to industrial scientists. For some problems, a partial solution is indicated briefly. The last chapter of the book contains a short description of solutions to some of the problems raised in the previous volume, as well as references to papers in which such solutions have been published.* **Mathematics for Machine Learning** *Cambridge University Press Distills key concepts from linear algebra, geometry, matrices, calculus, optimization, probability and statistics that are used in machine learning.* **Automorphisms of Affine Spaces** *Springer Science & Business Media Automorphisms of Affine Spaces describes the latest results concerning several conjectures related to polynomial automorphisms: the Jacobian, real Jacobian, Markus-Yamabe, Linearization and tame generators conjectures. Group actions and dynamical systems play a dominant role. Several contributions are of an expository nature, containing the latest results obtained by the leaders in the field. The book also contains a concise introduction to the subject of invertible polynomial maps which formed the basis of seven lectures given by the editor prior to the main conference. Audience: A good introduction for graduate students and research mathematicians interested in invertible polynomial maps.* **3D Structure from Multiple Images of Large-Scale Environments European Workshop, SMILE'98, Freiburg, Germany, June 6-7, 1998, Proceedings** *Springer This book constitutes the strictly refereed post-workshop proceedings of the European Workshop on 3D Structure from Multiple Images of Large-Scale Environments, SMILE'98, held in conjunction with ECCV'98 in*

Freiburg, Germany, in June 1998. The 21 revised full papers presented went through two cycles of reviewing and were carefully selected for inclusion in the book. The papers are organized in sections on multiview relations and correspondence search, 3D structure from multiple images, calibration and reconstruction using scene constraints, range integration and augmented reality application. **Journal of Applied Mechanics Euclidean Geometry in Mathematical Olympiads** American Mathematical Soc. This is a challenging problem-solving book in Euclidean geometry, assuming nothing of the reader other than a good deal of courage. Topics covered included cyclic quadrilaterals, power of a point, homothety, triangle centers; along the way the reader will meet such classical gems as the nine-point circle, the Simson line, the symmedian and the mixtilinear incircle, as well as the theorems of Euler, Ceva, Menelaus, and Pascal. Another part is dedicated to the use of complex numbers and barycentric coordinates, granting the reader both a traditional and computational viewpoint of the material. The final part consists of some more advanced topics, such as inversion in the plane, the cross ratio and projective transformations, and the theory of the complete quadrilateral. The exposition is friendly and relaxed, and accompanied by over 300 beautifully drawn figures. The emphasis of this book is placed squarely on the problems. Each chapter contains carefully chosen worked examples, which explain not only the solutions to the problems but also describe in close detail how one would invent the solution to begin with. The text contains a selection of 300 practice problems of varying difficulty from contests around the world, with extensive hints and selected solutions. This book is especially suitable for students preparing for national or international mathematical olympiads or for teachers looking for a text for an honor class. **Fitting Smooth Functions to Data** American Mathematical Soc. This book is an introductory text that charts the recent developments in the area of Whitney-type extension problems and the mathematical aspects of interpolation of data. It provides a detailed tour of a new and active area of mathematical research. In each section, the authors focus on a different key insight in the theory. The book motivates the more technical aspects of the theory through a set of illustrative examples. The results include the solution of Whitney's problem, an efficient algorithm for a finite version, and analogues for Hölder and Sobolev spaces in place of Cm. The target audience consists of graduate students and junior faculty in mathematics and computer science who are familiar with point set topology, as well as measure and integration theory. The book is based on lectures presented at the CBMS regional workshop held at the University of Texas at Austin in the summer of 2019. **Geometry of Toric Varieties** SMF Toric varieties form a beautiful class of algebraic varieties, which are often used as a testing ground for verifying general conjectures in algebraic geometry, for example, in Hilbert schemes, singularity theory, Mori theory, and so on. This volume gathers expanded versions of lectures presented during the summer school of ``Geometry of Toric Varieties'' in Grenoble (France). These lectures were given during the second and third weeks of the school. (The first week was devoted to introductory material.) The paper by D. Cox is an overview of recent work in toric varieties and its applications, putting the other contributions of the volume into perspective. **Canadian Conference on Computational Geometry** McGill-Queen's Press - MQUP The 8th Canadian conference on computational geometry had an international flavour. Sixty-one papers were submitted by authors from over 20 countries representing four continents. The conference was held at Carleton University in August 1996. **Introduction to Global Variational Geometry** Elsevier This book provides a comprehensive introduction to modern global variational theory on fibred spaces. It is based on differentiation and integration theory of differential forms on smooth manifolds, and on the concepts of global analysis and geometry such as jet prolongations of manifolds, mappings, and Lie groups. The book will be invaluable for researchers and PhD students in differential geometry, global analysis, differential equations and mathematical physics, and for the readers who wish to undertake further rigorous study in this broad interdisciplinary field. Featured topics - Analysis on manifolds - Differential forms on jet spaces - Global variational functionals - Euler-Lagrange mapping - Helmholtz form and the inverse problem - Symmetries and the Noether's theory of conservation laws - Regularity and the Hamilton theory - Variational sequences - Differential invariants and natural variational principles - First book on the geometric foundations of Lagrange structures - New ideas on global variational functionals - Complete proofs of all theorems - Exact treatment of variational principles in field theory, inc. general relativity - Basic structures and tools: global analysis, smooth manifolds, fibred spaces **Birational Geometry, Rational Curves, and Arithmetic** Springer Science & Business Media This book features recent developments in a rapidly growing area at the interface of higher-dimensional birational geometry and arithmetic geometry. It focuses on the geometry of spaces of rational curves, with an emphasis on applications to arithmetic questions. Classically, arithmetic is the study of rational or integral solutions of diophantine equations and geometry is the study of lines and conics. From the modern standpoint, arithmetic is the study of rational and integral points on algebraic varieties over nonclosed fields. A major insight of the 20th century was that arithmetic properties of an algebraic variety are tightly linked to the geometry of rational curves on the variety and how they vary in families. This collection of solicited survey and research papers is intended to serve as an introduction for graduate students and researchers interested in entering the field, and as a source of reference for experts working on related problems. Topics that will be addressed include: birational properties such as rationality, unirationality, and rational connectedness, existence of rational curves in prescribed homology classes, cones of rational curves on rationally connected and Calabi-Yau varieties, as well as related questions within the framework of the Minimal Model Program. **Index to Mathematical Problems, 1975-1979** MathPro Press **Abstract Algebra A First Course** CRC Press When a student of mathematics studies abstract algebra, he or she inevitably faces questions in the vein of, "What is abstract algebra" or "What makes it abstract?" Algebra, in its broadest sense, describes a way of thinking about classes of sets equipped with binary operations. In high school algebra, a student explores properties of operations (+, −, ×, and ÷) on real numbers. Abstract algebra studies properties of operations without specifying what types of number or object we work with. Any theorem established in the abstract context holds not only for real numbers but for every possible algebraic structure that has operations with the stated properties. This textbook intends to serve as a first course in abstract algebra. The selection of topics serves both of the common trends in such a course: a balanced introduction to groups, rings, and fields; or a course that primarily emphasizes group theory. The writing style is student-centered, conscientiously motivating definitions and offering many illustrative examples. Various sections or sometimes just examples or exercises introduce applications to geometry, number theory, cryptography and many other areas. This book offers a unique feature in the lists of projects at the end of each section. the author does not view projects as just something extra or cute, but rather an opportunity for a student to work on and demonstrate their potential for open-ended investigation. The projects ideas come in two flavors: investigative or expository. The investigative projects briefly present a topic and posed open-ended questions that invite the student to explore the topic, asking and to trying to answer their own questions. Expository projects invite the student to explore a topic with algebraic content or pertain to a particular mathematician's work through responsible research. The exercises challenge the student to prove new results using the theorems presented in the text. The student then becomes an active participant in the development of the field. **Selected Works of Wen-Tsun Wu** World Scientific This important book presents all the major works of Professor Wen-Tsun Wu, a widely respected Chinese mathematician who has made great contributions in the fields of topology and computer mathematics throughout his research career. The book covers Wu's papers from 1948 to 2005 and provides a comprehensive overview of his major achievements in algebraic topology, computer mathematics, and history of ancient Chinese mathematics. In algebraic topology, he discovered Wu classes and Wu formulas for Stiefel-Whitney classes of sphere bundles or differential manifolds, established an imbedding theory with an application to the layout problem of integrated circuits, and introduced the I*-functors which turned the "rational homotopy theory" created by D Sullivan into algorithmic form. In computer mathematics, he discovered Wu's method of mechanical theorem proving by means of computers, which has been applied to prove and even discover on the computers hundreds of non-trivial theorems in various kinds of elementary and differential geometries. He also discovered a new effective method of polynomial equations solving, which has been used to solve problems raised from the fields of robotics and mechanisms, CAGD, computer vision, theoretic physics, celestial mechanics, and chemical equilibrium computation. **the educational times, and journal of the college of preceptors Introduction to Riemannian Manifolds** Springer This text focuses on developing an intimate acquaintance with the geometric meaning of curvature and thereby introduces and demonstrates all the main technical tools needed for a more advanced course on Riemannian manifolds. It covers proving the four most fundamental theorems relating curvature and topology: the Gauss-Bonnet Theorem, the Cartan-Hadamard Theorem, Bonnet's Theorem, and a special case of the Cartan-Ambrose-Hicks Theorem. **Advanced Problems in Mathematics Preparing for University** This new and expanded edition is intended to help candidates prepare for entrance examinations in mathematics and scientific subjects, including STEP (Sixth Term Examination Paper). STEP is an examination used by Cambridge Colleges for conditional offers in mathematics. They are also used by some other UK universities and many mathematics departments recommend that their applicants practice on the past papers even if they do not take the examination.Advanced Problems in Mathematics bridges the gap between school and university mathematics, and prepares students for an undergraduate mathematics course. The questions analysed in this book are all based on past STEP questions and each question is followed by a comment and a full solution. The comments direct the reader's attention to key points and put the question in its true mathematical context. The solutions point students to the methodology required to address advanced mathematical problems critically and independently.This book is a must read for any student wishing to apply to scientific subjects at university level and for anyone interested in advanced mathematics. This work was published by Saint Philip Street Press pursuant to a Creative Commons license permitting commercial use. All rights not granted by the work's license are retained by the author or authors. **Proceedings of the Fifth Canadian Conference on Computational Geometry University of Waterloo, Waterloo, Ontario, August 5-9, 1993 Algebraic Geometry Salt Lake City 2015 : 2015 Summer Research Institute, July 13-31, 2015, University of Utah, Salt Lake City, Utah** American Mathematical Soc. This is Part 2 of a two-volume set. Since Oscar Zariski organized a meeting in 1954, there has been a major algebraic geometry meeting every decade: Woods Hole (1964), Arcata (1974), Bowdoin (1985), Santa Cruz (1995), and Seattle (2005). The American Mathematical Society has supported these summer institutes for over 50 years. Their proceedings volumes have been extremely influential, summarizing the state of algebraic geometry at the time and pointing to future developments. The most recent Summer Institute in Algebraic Geometry was held July 2015 at the University of Utah in Salt Lake City, sponsored by the AMS with the collaboration of the Clay Mathematics Institute. This volume includes surveys growing out of plenary lectures and seminar talks during the meeting. Some present a broad overview of their topics, while others develop a distinctive perspective on an emerging topic. Topics span both complex algebraic geometry and arithmetic questions, specifically, analytic techniques, enumerative geometry, moduli theory, derived categories, birational geometry, tropical geometry, Diophantine questions, geometric representation theory, characteristic and -adic tools, etc. The resulting articles will be important references in these areas for years to come. **Handbook of Philosophical Logic** Springer Science & Business Media It is with great pleasure that we are presenting to the community the second edition of this extraordinary handbook. It has been over 15 years since the publication of the first edition and there have been great changes in the landscape of philosophical logic since then. The first edition has proved invaluable to generations of students and researchers in formal philosophy and language, as well as to consumers of logic in many applied areas. The main logic artiele in the Encyelopaedia Britannica 1999 has described the first edition as 'the best starting point for exploring any of the topics in logic'. We are confident that the second edition will prove to be just as good. ! The first edition was the second handbook published for the logic commu nity. It followed the North Holland one volume Handbook 0/ Mathematical Logic, published in 1977, edited by the late Jon Barwise. The four volume Handbook 0/ Philosophical Logic, published 1983-1989 came at a fortunate at the evolution of logic. This was the time when logic temporal junction was gaining ground in computer science and artificial intelligence cireles. These areas were under increasing commercial pressure to provide devices which help andjor replace the human in his daily activity. This pressure required the use of logic in the modelling of human activity and organisa tion on the one hand and to provide the theoretical basis for the computer program constructs on the other. **Partial Differential Equations and Functional Analysis In Memory of Pierre Grisvard** Springer Science & Business Media Pierre Grisvard, one of the most distinguished French mathematicians, died on April 22, 1994. A Conference was held in November 1994 out of which grew the invited articles contained in this volume. All of the papers are related to functional analysis applied to partial differential equations, which was Grisvard's specialty. Indeed his knowledge of this area was extremely broad. He began his career as one of the very first students of Jacques Louis Lions, and in 1965, he presented his "State Thesis" on interpolation spaces, using in particular, spectral theory for linear operators in Banach spaces. After 1970, he became a specialist in the study of optimal regularity for par tial differential equations with boundary conditions. He studied singulari ties coming from coefficients, boundary conditions, and mainly non-smooth domains, and left a legacy of precise results which have been published in journals and books. Pierre Grisvard spent most of his career as a full professor at the University of Nice, where he started in 1967. For shorter or longer periods, he visited several foreign countries, and collaborated with some of the most famous mathematicians in his field. He was also an excellent organizer and directed a large number of Ph.D. students. Finally, this volume contains a bibliography of Grisvard's works as well as one paper which he wrote and which has not been published before. **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. **Cartan Geometries and their Symmetries A Lie Algebroid Approach** Springer In this book we first review the ideas of Lie groupoid and Lie algebroid, and the associated concepts of connection. We next consider Lie groupoids of fibre morphisms of a fibre bundle, and the connections on such groupoids together with their symmetries. We also see how the infinitesimal approach, using Lie algebroids rather than Lie groupoids, and in particular using Lie algebroids of vector fields along the projection of the fibre bundle, may be of benefit. We then introduce Cartan geometries, together with a number of tools we shall use to study them. We take, as particular examples, the four classical types of geometry: affine, projective, Riemannian and conformal geometry. We also see how our approach can start to fit into a more general theory. Finally, we specialize to the geometries (affine and projective) associated with path spaces and geodesics, and consider their symmetries and other properties. **Advances in Robot Kinematics: Analysis and Control** Springer Science & Business Media The contributions in this book were presented at the sixth international symposium on Advances in Robot Kinematics organised in June/July 1998 in Strobl/Salzburg in Austria. The preceding symposia of the series took place in Ljubljana (1988), Linz (1990), Ferrara (1992), Ljubljana (1994), and Piran

(1996). Ever since its first event, ARK has attracted the most outstanding authors in the area and managed to create a perfect combination of professionalism and friendly athmosphere. We are glad to observe that, in spite of a strong competition of many international conferences and meetings, ARK is continuing to grow in terms of the number of participants and in terms of its scientific impact. In its ten years, ARK has contributed to develop a remarkable scientific community in the area of robot kinematics. The last four symposia were organised under the patronage of the International Federation for the Theory of Machines and Mechanisms -IFToMM. interest to researchers, doctoral students and teachers, The book is of engineers and mathematicians specialising in kinematics of robots and mechanisms, mathematical modelling, simulation, design, and control of robots. It is divided into sections that were found as the prevalent areas of the contemporary kinematics research. As it can easily be noticed, an important part of the book is dedicated to various aspects of the kinematics of parallel mechanisms that persist to be one of the most attractive areas of research in robot kinematics.
Geospatial Algebraic Computations Theory and Applications *Springer Improved geospatial instrumentation and technology such as in laser scanning has now resulted in millions of data being collected, e.g., point clouds. It is in realization that such huge amount of data requires efficient and robust mathematical solutions that this third edition of the book extends the second edition by introducing three new chapters: Robust parameter estimation, Multiobjective optimization and Symbolic regression. Furthermore, the linear homotopy chapter is expanded to include nonlinear homotopy. These disciplines are discussed first in the theoretical part of the book before illustrating their geospatial applications in the applications chapters where numerous numerical examples are presented. The renewed electronic supplement contains these new theoretical and practical topics, with the corresponding Mathematica statements and functions supporting their computations introduced and applied. This third edition is renamed in light of these technological advancements.* **Convex Optimization** *Cambridge University Press A comprehensive introduction to the tools, techniques and applications of convex optimization.*