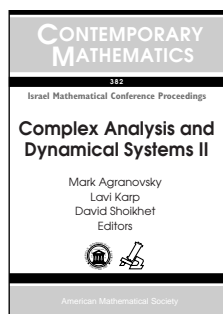


# New Publications Offered by the AMS

## Analysis



### Complex Analysis and Dynamical Systems II

A Conference in Honor of Professor Lawrence Zalcman's Sixtieth Birthday, June 9–12, 2003, Nahariya, Israel

Mark Agranovsky, *Bar-Ilan University, Ramat-Gan, Israel,*

and Lavi Karp and David Shoikhet, *ORT Braude College, Karmiel, Israel,* Editors

This volume is a collection of papers reflecting the conference held in Nahariya, Israel in honor of Professor Lawrence Zalcman's sixtieth birthday. The papers, many written by leading authorities, range widely over classical complex analysis of one and several variables, differential equations, and integral geometry.

Topics covered include, but are not limited to, these areas within the theory of functions of one complex variable: complex dynamics, elliptic functions, Kleinian groups, quasiconformal mappings, Tauberian theorems, univalent functions, and value distribution theory. Altogether, the papers in this volume provide a comprehensive overview of activity in complex analysis at the beginning of the twenty-first century and testify to the continuing vitality of the interplay between classical and modern analysis. It is suitable for graduate students and researchers interested in computer analysis and differential geometry.

This book is copublished with Bar-Ilan University.

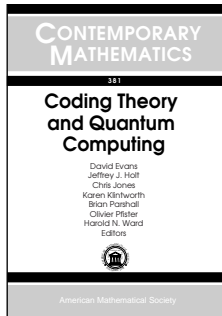
**Contents:** M. Agranovsky and D. Shoikhet, Lawrence Zalcman at sixty; M. Agranovsky and D. Shoikhet, Bibliography of Lawrence Zalcman; M. L. Agranovsky and E. K. Narayanan, A local two radii theorem for the twisted spherical means on  $\mathbb{C}^n$ ; V. Azarin, A multiplier problem and characteristics of growth of entire functions; J. Bellissard, J. Geronimo, A. Volberg, and P. Yuditskii, Are they limit periodic?; W. Bergweiler, Quasinormal families and periodic points; M. Blinov, M. Briskin, and Y. Yomdin, Local center conditions for the Abel equation and cyclicity of its zero solution;

D. Bshouty and A. Lyzzaik, Univalent functions starlike with respect to a boundary point; O. Calin, D.-C. Chang, P. Greiner, and Y. Kannai, On the geometry induced by a Grusin operator; M. Elin and V. Khatskevich, The Kœnigs embedding problem for operator affine mappings; H. M. Farkas, On an arithmetical function II; P. C. Fenton, A glance at Wiman-Valiron theory; L. Flatto, Billiards in an ellipse; F. W. Gehring and G. J. Martin,  $(p, q, r)$ -Kleinian groups and the Margulis constant; J. Globevnik, Holomorphic extendibility and the argument principle; A. Golberg, Homeomorphisms with finite mean dilations; A. Goł'dberg, On a connection between the number of poles of a meromorphic function and the number of zeros of its derivatives; I. Graham, G. Kohr, and J. A. Pfaltzgraff, The general solution of the Loewner differential equation on the unit ball in  $\mathbb{C}^n$ ; W. K. Hayman, On the zeros of a  $q$ -Bessel function; A. Hinkkanen, Entire functions with no unbounded Fatou components; D. Khavinson, A note on a theorem of J. Globevnik; F. C. Klebaner, Behaviour of a dynamical system far from its equilibrium; J. Korevaar, A Tauberian theorem for Laplace transforms with pseudofunction boundary behavior; S. L. Krushkal, The Schwarzian derivative and complex Finsler metrics; A. M. Kytmanov and S. G. Myslivets, On evaluation of the Cauchy principal value of the singular Cauchy-Szegő integral in a ball of  $\mathbb{C}^n$ ; A. Lecko, Boundary properties of convex functions; O. Makhmudov and I. E. Niyozov, Regularization of a solution to the Cauchy problem for the system of thermoelasticity; I. Markina, Modules of vector measures on the Heisenberg group; E. Ournycheva and B. Rubin, An analogue of the Fuglede formula in integral geometry on matrix spaces; V. P. Palamodov, Characteristic problems for the spherical mean transform; V. S. Rabinovich, On the essential spectrum of electromagnetic Schrödinger operators; E. Reich, A critical example for the necessary and sufficient condition for unique quasiconformal extremality; S. Reich and A. J. Zaslavski, Generic convergence of iterates for a class of nonlinear mappings in hyperbolic spaces; V. Ryazanov, U. Srebro, and E. Yakubov, The Beltrami equation and FMO functions; B.-W. Schulze and N. Tarkhanov, Pseudodifferential operators with operator-valued symbols; J. Siciak, Pluripolar sets and pseudocontinuation; H. Silverman and E. M. Silvia, Convolution inverses; S. K. Vodopyanov, Composition operators on Sobolev spaces; V. V. Volchikov and Vit. V. Volchikov, New results in integral geometry.

Contemporary Mathematics, Volume 382

October 2005, 432 pages, Softcover, ISBN 0-8218-3709-5, LC 2005041245, 2000 *Mathematics Subject Classification:* 30-XX, 32-XX, 37-XX; 34-XX, 35-XX, 46-XX, 47-XX, All AMS members US\$79, List US\$99, Order code CONM/382

# Applications



## Coding Theory and Quantum Computing

David Evans and Jeffrey J. Holt, *University of Virginia, Charlottesville, VA*, Chris Jones, *St. Mary's College of California, Moraga, CA*, and Karen Klintworth, Brian Parshall, Olivier Pfister, and Harold N. Ward, *University of Virginia, Charlottesville, VA*, Editors

A conference, Coding Theory and Quantum Computing, was held in Charlottesville, VA, to provide an opportunity for computer scientists, mathematicians, and physicists to interact about subjects of common interest. This proceedings volume grew out of that meeting.

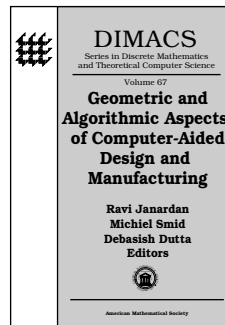
It is divided into two parts: "Coding Theory" and "Quantum Computing". In the first part, Harold Ward gives an introduction to coding theory. Other papers survey recent important work, such as coding theory applications of Gröbner bases, methods of computing parameters of codes corresponding to algebraic curves, and problems in the theory of designs. The second part of the book covers a wide variety of directions in quantum information with an emphasis on understanding entanglement.

The material presented is suitable for graduate students and researchers interested in coding theory and in quantum computing.

**Contents:** *Coding theory:* J. B. Farr and S. Gao, Gröbner bases, Padé approximation, and decoding of linear codes; G. L. Matthews, Some computational tools for estimating the parameters of algebraic geometry codes; H. N. Ward, An introduction to algebraic coding theory; Q. Xiang, Recent results on  $p$ -ranks and Smith normal forms of some  $2 - (v, k, \lambda)$  designs; *Quantum computing:* E. Feldman and M. Hillery, Quantum walks on graphs and quantum scattering theory; S. J. Lomonaco, Jr. and L. H. Kauffman, A continuous variable Shor algorithm; S. J. van Enk, Entangled states of light; L. Viola, H. Barnum, E. Knill, G. Ortiz, and R. Somma, Entanglement beyond subsystems; A. Yimsiriwattana and S. J. Lomonaco, Jr., Generalized GHZ states and distributed quantum computing.

Contemporary Mathematics, Volume 381

August 2005, 147 pages, Softcover, ISBN 0-8218-3600-5, LC 2005041088, 2000 *Mathematics Subject Classification:* 81P68, 68Q05, 94B05, 05E20, All AMS members US\$39, List US\$49, Order code CONM/381



## Geometric and Algorithmic Aspects of Computer-Aided Design and Manufacturing

Ravi Janardan, *University of Minnesota, Minneapolis, MN*, Michiel Smid, *Carleton University, Ottawa, ON, Canada*, and Debasish Dutta, *University of Michigan, Ann Arbor, MI*, Editors

Computer-Aided Design and Manufacturing (CAD/CAM) is concerned with all aspects of the process of designing, prototyping, manufacturing, inspecting, and maintaining complex geometric objects under computer control. As such, there is a natural synergy between this field and Computational Geometry (CG), which involves the design, analysis, implementation, and testing of efficient algorithms and data representation techniques for geometric entities such as points, polygons, polyhedra, curves, and surfaces. The DIMACS Center (Piscataway, NJ) sponsored a workshop to further promote the interaction between these two fields. Attendees from academia, research laboratories, and industry took part in the invited talks, contributed presentations, and informal discussions. This volume is an outgrowth of that meeting.

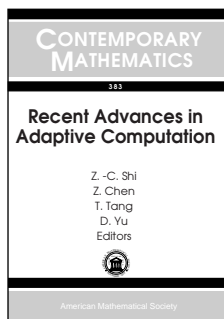
Topics covered in this volume include geometric modeling, computational topology, computational metrology, geometric constraint solving, part immobilization, geometric aspects of machining, layered manufacturing, and algebraic methods.

The book is suitable for graduate students and researchers interested in geometric and algorithmic aspects of computer-aided design and manufacturing.

**Contents:** I. Boier-Martin, D. Zorin, and F. Bernardini, A survey of subdivision-based tools for surface modeling; T. K. Dey, Sample based geometric modeling; D. Blackmore, Y. Mileyko, M. C. Leu, W. C. Regli, and W. Sun, Computational topology and swept volumes; V. Srinivasan, Elements of computational metrology; M. Sitharam, Combinatorial approaches to geometric constraint solving; Problems, progress and directions; A. F. van der Stappen, Immobilization: Analysis, existence, and output-sensitive synthesis; R. Janardan and M. Smid, Geometric algorithms for layered manufacturing; P. Singh and D. Dutta, A process planning framework for multi-direction layered deposition; T. Kim and S. E. Sarma, Machinability: Geometric reasoning for cutting; D. Misra, V. Sundararajan, and P. K. Wright, Zig-zag tool path generation for sculptured surface finishing; I. Z. Emiris and I. S. Kotsireas, Implicitization exploiting sparseness; J. Keyser, K. Ouchi, and J. M. Rojas, The exact rational univariate representation for detecting degeneracies; W. R. Franklin, Mass properties of the union of millions of identical cubes.

DIMACS: Series in Discrete Mathematics and Theoretical Computer Science, Volume 67

September 2005, approximately 360 pages, Hardcover, ISBN 0-8218-3628-5, LC 2004062274, 2000 *Mathematics Subject Classification*: 12Y05, 52C45, 65D17, 65D18, 68U05, 68U07, 68W30, 68W40, All AMS members US\$79, List US\$99, Order code DIMACS/67



## Recent Advances in Adaptive Computation

Z.-C. Shi and Z. Chen, *Chinese Academy of Sciences, Beijing, China*, T. Tang, *Hong Kong Baptist University, China*, and D. Yu, *Chinese Academy of Sciences, Beijing, China*, Editors

There has been rapid development in the area of adaptive computation over the past decade. The International Conference on Recent Advances in Adaptive Computation was held at Zhejiang University (Hangzhou, China) to explore these new directions. The conference brought together specialists to discuss modern theories and practical applications of adaptive methods. This volume contains articles reflecting the invited talks given by leading mathematicians at the conference. It is suitable for graduate students and researchers interested in methods of computation.

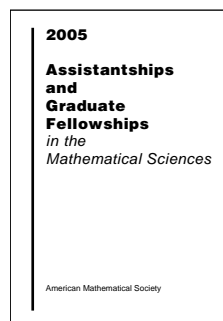
**Contents:** M. Ainsworth, A synthesis of a posteriori error estimation techniques for conforming, non-conforming and discontinuous Galerkin finite element methods; C. Carstensen and M. Jensen, Averaging techniques for reliable and efficient a posteriori finite element error control: Analysis and applications; Z. Chen and X. Liu, Adaptive computation with PML for time-harmonic scattering problems; B. Guo, Recent progress on a-posteriori error analysis for the  $p$  and  $h$ - $p$  finite element methods; R. H. W. Hoppe, Adaptive mortar edge element methods in electromagnetic field computation; W. B. Liu, Adaptive multi-meshes in finite element approximation of optimal control; R. Rannacher, Adaptive finite element methods in flow computations; A. H. Schatz, Maximum norm error estimates for the finite element method allowing highly refined grids; T. Tang, Moving mesh methods for computational fluid dynamics; J. Behrens and L. Mentrup, A conservative scheme for 2D and 3D adaptive semi-Lagrangian advection; L. Chen and J. Xu, An optimal streamline diffusion finite element method for a singularly perturbed problem; Y. Chen, A posteriori error estimates of mixed methods for two phase flow problems; M. Gunzburger and H.-C. Lee, Reduced-order modeling of Navier-Stokes equations via centroidal Voronoi tessellation; B.-O. Heimsund and X.-C. Tai, A two-mesh superconvergence method for mesh adaptivity; W. Huang and X. Zhan, Adaptive moving mesh modeling for two dimensional groundwater flow and transport; Y.-L. Huang and W.-C. Wang, Adaptive computation of the corner singularity with the monotone jump condition capturing scheme; S. Li, Adaptive mesh refinement and its application to magneto-hydrodynamics; Z. Li and X. Yang, An immersed finite element method for elasticity equations with interfaces; R. Lin and Z. Zhang, Derivative superconvergence

of equilateral triangular finite elements; K. Liang and P. Lin, A splitting moving mesh method for 3-D quenching and blow-up problems; K.-S. Moon, E. von Schwerin, A. Szepessy, and R. Tempone, An adaptive algorithm for ordinary, stochastic and partial differential equations; N. Yan, Recovery type a posteriori error estimate for distributed convex optimal control problems governed by integral-differential equations; S. Zhang and D. Yu, A mortar element method for coupling natural boundary element method and finite element method for unbounded domain problem; P. A. Zegeling, W. D. de Boer, and H. Z. Tang, Robust and efficient adaptive moving mesh solution of the 2-D Euler equations.

Contemporary Mathematics, Volume 383

October 2005, approximately 440 pages, Softcover, ISBN 0-8218-3662-5, LC 2005045327, 2000 *Mathematics Subject Classification*: 65M12, 65M50, 65M60, 65N12, 65N15, 65N30, 65N50, 65N55, 76-02, 76D05, All AMS members US\$87, List US\$109, Order code CONM/383

## General and Interdisciplinary



## Assistantships and Graduate Fellowships 2005

From a review of a previous edition:

*This directory is a tool for undergraduate mathematics majors seeking information about graduate programs in mathematics. Although most of the information can be gleaned from the Internet, the usefulness of this directory for the prospective graduate student is the consistent format for*

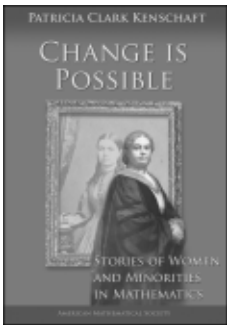
*comparing different mathematics graduate programs without the hype. Published annually, the information is up-to-date, which is more than can be said of some Websites. Support for graduate students in mathematics is a high priority of the American Mathematical Society, which also provides information for fellowships and grants they offer as well as support from other societies and foundations. The book is highly recommended for academic and public libraries.*

—American Reference Books Annual

This valuable reference source brings together a wealth of information about resources available for graduate study in mathematical sciences departments in the U.S. and Canada.

November 2005, approximately 128 pages, Softcover, ISBN 0-8218-3866-0, Individual member US\$18, List US\$23, Order code ASST/2005





## Change is Possible Stories of Women and Minorities in Mathematics

Patricia Clark Kenschaft,  
Montclair State University,  
Upper Montclair, NJ

*The role of minority and women mathematicians in developing our American mathematical community is an important but previously under-told story.*

*Pat Kenschaft, in her highly readable and entertaining style, fills this knowledge gap. This valuable book should be in your personal library!*

—Donald G. Saari, University of California, Irvine

*Kenschaft reveals the passions that motivated past and present mathematicians and the obstacles they overcame to achieve their dreams. Through research and in-depth personal interviews, she has explored the sensitive issues of racism and sexism, rejoicing in positive changes and alerting us to issues that still need our attention.*

—Claudia Zaslavsky, the author of "Africa Counts" and other books on equality issues in mathematics education

Based on dozens of interviews and extensive historical research, and spiced with interesting photographs, this entertaining book relates stories about mathematicians who have defied stereotypes.

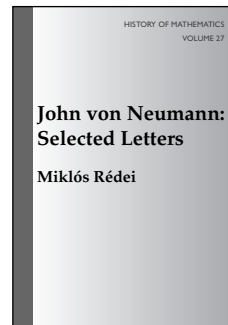
There are five chapters about women that provide insight into the nineteenth and the mid-twentieth century, the early 1970s, the early 1990s, and 2004. Activists in many fields will take heart at the progress made during that time. The author documents the rudimentary struggles to become professionals, being married without entirely giving up a career, organizing to eliminate flagrant discrimination, improving the daily treatment of women in the professional community, and the widespread efforts toward true equality.

The stories of African Americans in mathematics include the efforts of Benjamin Banneker, an eighteenth century American who had three grandparents born in Africa. He helped design Washington, DC, and made the computations for almanacs that succeeded Benjamin Franklin's. There are stories about African American mathematicians who were students and faculty in late nineteenth century colleges and accounts of several efforts to integrate the mathematical community in the mid-twentieth century. These stories indicate that though some efforts were more successful than others, all of them were difficult.

The book concludes with a happier chapter about five black mathematicians in the early twenty-first century. The book also includes five interviews with leading Latin American mathematicians, along with the results of a survey of Latino research mathematicians in the Southwest.

The author is a skilled story-teller with good stories to tell. This book is a page-turner that all mathematicians—as well as others concerned with equality—should read. It is a work of great interest and an enjoyable read.

**Contents:** Introduction; With the help of good white men; Women and mathematics in the nineteenth century; The Twentieth century: Mathematics and marriage; African American mathematicians from the eighteenth through the twentieth century; Latino mathematicians; Reawakening: The Association for Women in Mathematics; Skits tell what's happening around 1990; Women in mathematics now (2004); Minorities in mathematics now (2004); Conclusions; Appendix (to Chapter 5): What were the careers of 75 African American mathematicians of New Jersey in mid-1985? August 2005, approximately 212 pages, Softcover, ISBN 0-8218-3748-6, LC 2005048105, 2000 *Mathematics Subject Classification*: 01A80; 01A70, 01A99, **All AMS members US\$23**, List US\$29, Order code CHANGE



## John von Neumann: Selected Letters

Miklós Rédei, Eotvos Lorand  
University, Budapest, Hungary,  
Editor

John von Neumann was perhaps the most influential mathematician of the twentieth century. Not only did he contribute to almost all branches of mathematics, he created new fields and was a pioneering influence in the

development of computer science.

During and after World War II, he was a much sought-after technical advisor. He served as a member of the Scientific Advisory Committee at the Ballistic Research Laboratories, the Navy Bureau of Ordnance, and the Armed Forces Special Weapons Project. He was a consultant to the Los Alamos Scientific Laboratory and was appointed by U.S. President Dwight D. Eisenhower to the Atomic Energy Commission. He received the Albert Einstein Commemorative Award, the Enrico Fermi Award, and the Medal of Freedom.

This collection of about 150 of von Neumann's letters to colleagues, friends, government officials, and others illustrates both his brilliance and his strong sense of responsibility. It is the first substantial collection of his letters, giving a rare inside glimpse of his thinking on mathematics, physics, computer science, science management, education, consulting, politics, and war. With an introductory chapter describing the many aspects of von Neumann's scientific, political, and social activities, this book makes great reading. Readers of quite diverse backgrounds will be fascinated by this first-hand look at one of the towering figures of twentieth century science.

Also of interest and available from the AMS is *John von Neumann: The Scientific Genius Who Pioneered the Modern Computer, Game Theory, Nuclear Deterrence, and Much More*.

Copublished with the London Mathematical Society beginning with volume 4. Members of the LMS may order directly from the AMS at the AMS member price. The LMS is registered with the Charity Commissioners.

**Contents:** Introductory comments; Letter to N. Aronszajn; Letters to F. Aydelotte; Letter to E.F. Beckenbach; Letter to

H. Bethe; Letters to G. Birkhoff; Letter to W.J.E. Blaschke; Letter to R.S. Burington; Letters to V. Bush; Letter to R. Carnap; Letter to W. Cattell; Letter to T.M. Cherry; Letter to H. Cirker; Letter to H. Crockner; Letter to M.R. Davie; Letter to W.E. Deming; Letter to J.L. Destouches; Letter to P.A.M. Dirac; Letters to J. Dixmier; Letter to P.A. Dodd; Letter to W.M. DuMond; Letter to R.E. Duncan; Letter to editor of Evening Star; Letter to R. Farquharson; Letter to A. Flexner; Letter to R.A. Fornaguerra; Letter to N.H. Goldsmith; Letter to W.H. Gottschalk (and Hans Rademacher); Letters to K. Gödel; Letter to G. Haberler; Letters to I. Halperin; Letter to G.B. Harrison; Letter to M. Horvath; Letter to A.S. Householder; Letters to C.C. Hurd; Letter to K. Husimi; Letters to P. Jordan; Letters to I. Kaplansky; Letter to C.E. Kemble; Letter to J.R. Killian; Letters to H.D. Kloosterman; Letter to H. Kuhn; Letter to J. Lederberg; Letter to W.E. Lingelbach; Letter to S. MacLane; Letter to J.C.C. McKinsey; Letter to M.M. Mitchell; Letter to T.V. Moore; Letter to O. Morgenstern; Letters to M. Morse; Letter to E. Nagel; Letter to J.R. Oppenheimer; Letters to R. Ortvy; Letter to W. Overbeck; Letter to H.H. Rankin; Letter to H.P. Robertson; Letter to E. Schrödinger; Letter to E. Segre; Letters to F.B. Silsbee; Letter to L. Spitzer; Letters to M. Stone; Letters to L.L. Strauss; Letter to J. Stroux; Letter to T. Tannaka; Letter to E. Teller; Letters to L.B. Tuckerman; Letters to S. Ulam; Letter to E.R. van Kampen; Letters to O. Veblen; Letters to N. Wiener; Letter to H. Wold; Notes on addresses of von Neumann's letters; Bibliography.

**History of Mathematics, Volume 27**

November 2005, approximately 328 pages, Hardcover, ISBN 0-8218-3776-1, LC 2005048258, 2000 *Mathematics Subject Classification*: 00A99, 01A70, **All AMS members US\$47**, List US\$59, Order code HMATH/27

of mathematics worthy of study in its own right, capable of supporting both general topology and measure theory. He is recognized as the era's leading Cantorian.

Hausdorff published seven articles in set theory during the period 1901-1909, mostly about ordered sets. This volume contains translations of these papers with accompanying introductory essays. They are highly accessible, historically significant works, important not only for set theory, but also for model theory, analysis and algebra.

This book is suitable for graduate students and researchers interested in set theory and the history of mathematics.

Also available from the AMS by Felix Hausdorff are the classic works, *Grundzüge der Mengenlehre* (Volume 61) and *Set Theory* (Volume 119), in the AMS Chelsea Publishing series.

*This item will also be of interest to those working in general and interdisciplinary areas.*

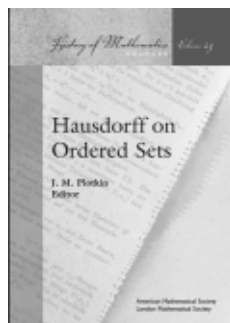
Copublished with the London Mathematical Society beginning with volume 4. Members of the LMS may order directly from the AMS at the AMS member price. The LMS is registered with the Charity Commissioners.

**Contents:** J. M. Plotkin, Selected Hausdorff bibliography; J. M. Plotkin, Introduction to "About a certain kind of ordered sets"; F. Hausdorff, About a certain kind of ordered sets [H 1901b]; J. M. Plotkin, Introduction to "The concept of power in set theory"; F. Hausdorff, The concept of power in set theory [H 1904a]; J. M. Plotkin, Introduction to "Investigations into order types, I, II, III"; F. Hausdorff, Investigations into order types [H 1906b]; J. M. Plotkin, Introduction to "Investigations into order types IV, V"; F. Hausdorff, Investigations into order types [H 1907a]; J. M. Plotkin, Introduction to "About dense order types"; F. Hausdorff, About dense order types [H 1907b]; J. M. Plotkin, Introduction to "The fundamentals of a theory of ordered sets"; F. Hausdorff, The fundamentals of a theory of ordered sets [H 1908]; J. M. Plotkin, Introduction to "Graduation by final behavior"; F. Hausdorff, Graduation by final behavior [H 1909a]; F. Hausdorff, Appendix. Sums of  $\aleph_1$  sets [H 1936b]; Bibliography.

**History of Mathematics, Volume 25**

July 2005, 322 pages, Softcover, ISBN 0-8218-3788-5, LC 2005045328, 2000 *Mathematics Subject Classification*: 01A75, 01A60, 03-03, 06-03, 26-03, **All AMS members US\$55**, List US\$69, Order code HMATH/25

## Logic and Foundations



### Hausdorff on Ordered Sets

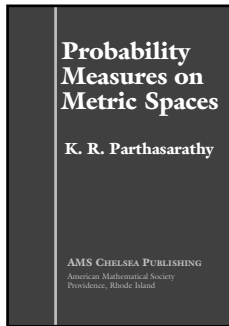
J. M. Plotkin, Michigan State University, East Lansing, MI, Editor

Georg Cantor, the founder of set theory, published his last paper on sets in 1897. In 1900, David Hilbert made Cantor's Continuum Problem and the challenge of well-ordering the real numbers the first problem of his

famous lecture at the International Congress in Paris. Thus, as the nineteenth century came to a close and the twentieth century began, Cantor's work was finally receiving its due and Hilbert had made one of Cantor's most important conjectures his number one problem. It was time for the second generation of Cantorians to emerge.

Foremost among this group were Ernst Zermelo and Felix Hausdorff. Zermelo isolated the Choice Principle, proved that every set could be well-ordered, and axiomatized the concept of set. He became the father of abstract set theory. Hausdorff eschewed foundations and developed set theory as a branch

## Probability



### Probability Measures on Metric Spaces

K. R. Parthasarathy

*From a review of the original edition:*

*A very readable book which should serve as an excellent source from which a student could learn the subject ... a convenient reference for the specialist for theorems which must by now be regarded as basic to the subject.*

—*Mathematical Reviews*

Having been out of print for over 10 years, the AMS is delighted to bring this classic volume back to the mathematical community.

With this fine exposition, the author gives a cohesive account of the theory of probability measures on complete metric spaces (which he views as an alternative approach to the general theory of stochastic processes). After a general description of the basics of topology on the set of measures, he discusses regularity, tightness, and perfectness of measures, properties of sampling distributions, and metrizable and compactness theorems. Next, he describes arithmetic properties of probability measures on metric groups and locally compact abelian groups. Covered in detail are notions such as decomposability, infinite divisibility, idempotence, and their relevance to limit theorems for “sums” of infinitesimal random variables. The book concludes with numerous results related to limit theorems for probability measures on Hilbert spaces and on the spaces  $C[0, 1]$ .

The *Mathematical Reviews* comments about the original edition of this book are as true today as they were in 1967. It remains a compelling work and a priceless resource for learning about the theory of probability measures.

The volume is suitable for graduate students and researchers interested in probability and stochastic processes and would make an ideal supplementary reading or independent study text.

*This item will also be of interest to those working in analysis.*

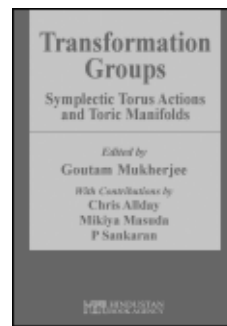
**Contents:** The Borel subsets of a metric space; Probability measures in a metric space; Probability measures in a metric group; Probability measures in locally compact abelian groups; The Kolmogorov consistency theorem and conditional probability; Probability measures in a Hilbert space; Probability measures on  $C[0, 1]$  and  $D[0, 1]$ ; Bibliographical notes; Bibliography; List of symbols; Author index; Subject index.

#### AMS Chelsea Publishing

September 2005, 276 pages, Hardcover, ISBN 0-8218-3889-X, 2000 *Mathematics Subject Classification*: 60Bxx, **All AMS members US\$35**, List US\$39, Order code CHEL/352.H

## New AMS-Distributed Publications

### Algebra and Algebraic Geometry



### Transformation Groups

Symplectic Torus Actions and Toric Manifolds

Goutam Mukherjee, *Indian Statistical Institute, Calcutta, India*, Editor

The importance of cohomology theory in the study of symplectic and Hamiltonian torus actions has been recognized for a long time. Its usefulness in the field continues today, specifically in the theory of toric varieties. One of the major aims of this book is to illustrate the cohomological methods used in the study of symplectic and Hamiltonian torus actions and to present some recent results.

The second purpose of this book is to present the theory of toric manifolds, which is a study of toric varieties from a topological viewpoint, and to illustrate some applications to combinatorics.

Most of the techniques and proofs are either new and have not appeared elsewhere or are written in a style that is more accessible to readers. The volume is suitable for graduate students in mathematics having some basic knowledge in algebraic and differential topology.

*This item will also be of interest to those working in geometry and topology.*

A publication of Hindustan Book Agency; distributed worldwide except in India by the AMS.

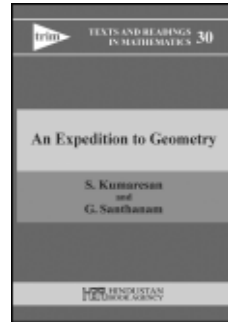
**Contents:** Localization theorem and symplectic torus actions; Toric varieties; Torus actions on manifolds; Bibliography; Index.

#### Hindustan Book Agency

April 2005, 140 pages, Hardcover, ISBN 81-85931-54-2, 2000 *Mathematics Subject Classification*: 14M25, 53D20, 55P60, 57R17, 57R91, 57S15, **All AMS members US\$32**, List US\$40, Order code HIN/22

## Geometry and Topology

NEW AMS PUBLICATIONS



### An Expedition to Geometry

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This book uses a holistic view of geometry to introduce axiomatic, algebraic, analytic, and differential geometry.

Starting with an informal introduction to non-Euclidean plane geometries, the book develops the theory of these geometries to put them on a rigorous footing. It can be considered an explanation of the Kleinian view *a la* Erlangen Programme. The treatment, however, goes beyond the Kleinian view of geometry.

**Some noteworthy topics presented include ...**

- various results about triangles (including results on areas of geodesic triangles) in Euclidean, hyperbolic, and spherical planes
- affine and projective classification of conics
- twopoint homogeneity of the three planes and
- the fact that the set of distance preserving maps (isometries) are essentially the same as the set of lengths preserving maps of these planes.

Geometric intuition is emphasized throughout the book. Figures are included wherever needed. The book has several exercises varying from computational problems to investigative or explorative open questions.

A publication of Hindustan Book Agency; distributed worldwide except in India by the AMS.

**Contents:** Introduction; Affine geometry; Projective geometry; Classification of conics; Euclidean geometry; Hyperbolic plane geometry; Spherical plane geometry; Theory of surfaces; A group action.

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