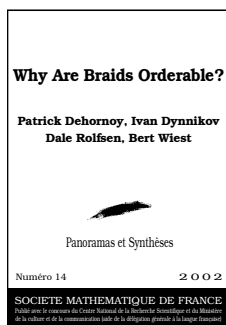


New Publications Offered by the AMS

Algebra and Algebraic Geometry



Why Are Braids Orderable?

Patrick Dehornoy, *Université de Caen, France*, **Ivan Dynnikov**, *Moscow State University*, **Dale Rolfsen**, *University of British Columbia, Vancouver, Canada*, and **Bert Wiest**, *Université de Rennes I, France*

In the decade since the discovery that Artin's braid groups enjoy a left-invariant linear ordering, several quite different approaches have been applied to understand this phenomenon. This book is an account of those approaches, involving self-distributive algebra, uniform finite trees, combinatorial group theory, mapping class groups, laminations, and hyperbolic geometry.

This volume is suitable for graduate students and research mathematicians interested in algebra and topology.

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

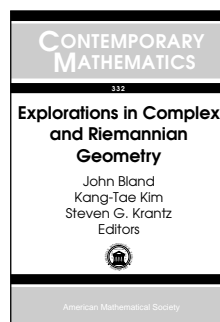
A publication of the Société Mathématique de France (Marseille). Distributed by the AMS in the U.S., Canada, and Mexico. Orders from other countries should be sent to the SMF. Members of the SMF receive a 30% discount from list.

Contents: A linear ordering of braids; Self-distributivity; Handle reduction; Finite trees; Automorphisms of a free group; Curve diagrams; Hyperbolic geometry; Triangulations; Bi-ordering the pure braid groups; Open questions; Bibliography; Index; Index of notations.

Panoramas et Synthèses, Number 14

June 2003, 190 pages, Softcover, ISBN 2-85629-135-X, 2000 *Mathematics Subject Classification:* 20F36, 06F15, 20C40, 20N02, 57M60, 57M07, **Individual member \$30**, List \$33, Order code PASY/14N

Analysis



Explorations in Complex and Riemannian Geometry

A Volume Dedicated to Robert E. Greene

John Bland, *University of Toronto, ON, Canada*, **Kang-Tae Kim**, *Pohang*

University of Science & Technology, Korea, and **Steven G. Krantz**, *Washington University, St. Louis, MO*, Editors

This book contains contributions by an impressive list of leading mathematicians. The articles include high-level survey and research papers exploring contemporary issues in geometric analysis, differential geometry, and several complex variables. Many of the articles will provide graduate students with a good entry point into important areas of modern research.

The material is intended for researchers and graduate students interested in several complex variables and complex geometry.

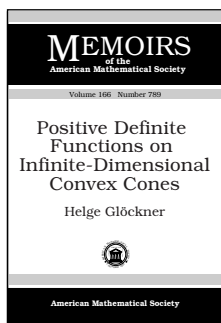
This item will also be of interest to those working in geometry and topology.

Contents: **B. Berndtsson**, Bergman kernels related to Hermitian line bundles over compact complex manifolds; **J. P. D'Angelo**, A gentle introduction to points of finite type on real hypersurfaces; **P. Eberlein**, The moduli space of 2-step nilpotent Lie algebras of type (p, q) ; **F. Forstnerič**, The homotopy principle in complex analysis: A survey; **K. Grove**, Finiteness theorems in riemannian geometry; **Y. Itokawa**, **Y. Machigashira**, and **K. Shiohama**, Generalized Toponogov's theorem for manifolds with radial curvature bounded below; **H. Jacobowitz**, The global isometric embedding problem; **K.-T. Kim** and **S. G. Krantz**, The Bergman metric invariants and their boundary behavior; **S. Kobayashi**, Natural connections in almost complex manifolds; **S. Kumar**, **B. Leeb**, and **J. Millson**, The generalized triangle inequalities for rank 3 symmetric

spaces of noncompact type; **J. D. McNeal**, Subelliptic estimates and scaling in the $\bar{\partial}$ -Neumann problem; **N. Mok**, Negativity of curvature on spaces parametrizing Hodge decompositions of reduced first cohomology groups; **T. Ohsawa**, On the extension of L^2 holomorphic functions VI—A limiting case; **P. Petersen**, Variations on a theme of Synge; **L. P. Rothschild**, Mappings between real submanifolds in complex space; **B. Shiffman**, **T. Tate**, and **S. Zelditch**, Harmonic analysis on toric varieties; **B. Wong**, On complex manifolds with noncompact automorphism groups; **H.-H. Wu** and **F. Zheng**, Kähler manifolds with slightly positive bisectional curvature.

Contemporary Mathematics, Volume 332

October 2003, 336 pages, Softcover, ISBN 0-8218-3273-5, LC 2003052196, 2000 *Mathematics Subject Classification*: 32H02, 32M05, 32H40, 32M10, 53C20, 53C24, 53C22, 53C55, 53C56, 53C60, **All AMS members \$63**, List \$79, Order code CONM/332N



Positive Definite Functions on Infinite-Dimensional Convex Cones

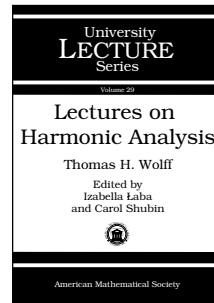
Helge Glöckner, *Technische Universität Darmstadt, Germany*

Contents: *Part I. Preliminaries and Preparatory Results:* Bounded and

unbounded operators; Cone-valued measures; Measures on topological spaces; Projective limits of cone-valued measures; Holomorphic functions; Involutive semigroups and their representations; Positive definite kernels and functions; C^* -algebras associated with involutive semigroups; Integral representations of positive definite functions; Convex cones and their faces; Examples of convex cones; Conelike semigroups: definition and examples; Representations of conelike semigroups I; Fourier and Laplace transforms; Generalized Bochner and Stone Theorems; *Part II. Main Results:* Nussbaum Theorem for open convex cones; Positive definite functions on convex cones with non-empty interior; Positive definite functions on convex sets; Associated Hilbert spaces and representations; Nussbaum Theorem for generating convex cones; Representations of conelike semigroups II; Associated unitary representations; Holomorphic extension of unitary representations; Holomorphic extension of representations of nuclear groups; References; Index; List of symbols.

Memoirs of the American Mathematical Society, Volume 166, Number 789

November 2003, 128 pages, Softcover, ISBN 0-8218-3256-5, LC 2003057764, 2000 *Mathematics Subject Classification*: 43A35, 43A65; 20M30, 44A10, 46E22, **Individual member \$32**, List \$53, Institutional member \$42, Order code MEMO/166/789N



Lectures on Harmonic Analysis

Thomas H. Wolff (edited by **Izabella Laba**, *University of British Columbia, Vancouver, Canada*, and **Carol Shubin**, *California State University Northridge*)

“There were lots of young analysts who flocked to Chicago in those years, but virtually from the start it was clear that Tom had a special brilliance ... Eventually, the mathematical door would open a crack as Tom discovered a new technique, usually of astonishing originality. The end would now be in sight, as [he] unleashed his tremendous technical abilities ... Time after time, [Wolff] would pick a central problem in an area and solve it. After a few more results, the field would be changed forever ... In the mathematical community, the common and rapid response to these breakthroughs was that they were seen, not just as watershed events, but as lightning strikes that permanently altered the landscape.”

—Peter W. Jones, Yale University

“Tom Wolff was not only a deep thinker in mathematics but also a technical master.”

—Barry Simon, California Institute of Technology

Thomas H. Wolff was a leading analyst and winner of the Salem and Bôcher Prizes. He made significant contributions to several areas of harmonic analysis, in particular to geometrical and measure-theoretic questions related to the Kakeya needle problem. Wolff attacked the problem with awesome power and originality, using both geometric and combinatorial ideas. This book provides an inside look at the techniques used and developed by Wolff. It is based on a graduate course on Fourier analysis he taught at Caltech.

The selection of the material is somewhat unconventional in that it leads the reader, in Wolff’s unique and straightforward way, through the basics directly to current research topics. The book demonstrates how harmonic analysis can provide penetrating insights into deep aspects of modern analysis. It is an introduction to the subject as a whole and an overview of those branches of harmonic analysis that are relevant to the Kakeya conjecture.

The first few chapters cover the usual background material: the Fourier transform, convolution, the inversion theorem, the uncertainty principle, and the method of stationary phase. However, the choice of topics is highly selective, with emphasis on those frequently used in research inspired by the problems discussed in later chapters. These include questions related to the restriction conjecture and the Kakeya conjecture, distance sets, and Fourier transforms of singular measures. These problems are diverse, but often interconnected; they all combine sophisticated Fourier analysis with intriguing links to other areas of mathematics, and they continue to stimulate first-rate work.

The book focuses on laying out a solid foundation for further reading and research. Technicalities are kept to a minimum, and simpler but more basic methods are often favored over the most recent methods. The clear style of the exposition and the quick progression from fundamentals to advanced topics

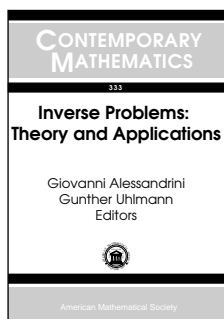
ensure that both graduate students and research mathematicians will benefit from the book.

Contents: The L^1 Fourier transform; The Schwartz space; Fourier inversion and the Plancherel theorem; Some specifics, and L^p for $p < 2$; The uncertainty principle; The stationary phase method; The restriction problem; Hausdorff measures; Sets with maximal Fourier dimension and distance sets; The Kakeya problem; Recent work connected with the Kakeya problem; Bibliography for Chapter 11; Historical notes; Bibliography.

University Lecture Series, Volume 29

October 2003, 137 pages, Softcover, ISBN 0-8218-3449-5, LC 2003057819, 2000 *Mathematics Subject Classification*: 42Bxx, 42-02; 28A75, 28A78, All AMS members \$25, List \$31, Order code ULECT/29N

Applications



Inverse Problems: Theory and Applications

Giovanni Alessandrini, *Università de Trieste, Italy*, and Gunther Uhlmann, *University of Washington, Seattle*, Editors

This volume presents the proceedings of a workshop on Inverse Problems and Applications and a special session

on Inverse Boundary Problems and Applications.

Inverse problems arise in practical situations, such as medical imaging, exploration geophysics, and non-destructive evaluation where measurements made in the exterior of a body are used to deduce properties of the hidden interior. A large class of inverse problems arise from a physical situation modeled by partial differential equations. The inverse problem is to determine some coefficients of the equation given some information about solutions. Analysis of such problems is a fertile area for interaction between pure and applied mathematics. This interplay is well represented in this volume where several theoretical and applied aspects of inverse problems are considered.

The book includes articles on a broad range of inverse problems including the inverse conductivity problem, inverse problems for Maxwell's equations, time reversal mirrors, ultrasound using elastic pressure waves, inverse problems arising in the environment, inverse scattering for the three-body problem, and optical tomography. Also included are several articles on unique continuation and on the study of propagation of singularities for hyperbolic equations in anisotropic media.

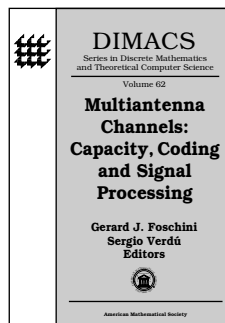
This volume is suitable for graduate students and research mathematicians interested in inverse problems and applications.

This item will also be of interest to those working in differential equations.

Contents: G. Alessandrini, A. Morassi, and E. Rosset, Size estimates; V. Bacchelli, C. D. Pagani, and F. Saleri, Uniqueness in the inverse conductivity problem for thin imperfections weakly or strongly conducting; E. Beretta and E. Francini, Asymptotic formulas for perturbations in the electromagnetic fields due to the presence of thin inhomogeneities; L. Borcea, G. Papanicolaou, and C. Tsogka, A resolution study for imaging and time reversal in random media; L. Escauriaza and S. Vessella, Optimal three cylinder inequalities for solutions to parabolic equations with Lipschitz leading coefficients; M. Giudici, Some problems for the application of inverse techniques to environmental modeling; V. Isakov, G. Nakamura, and J.-N. Wang, Uniqueness and stability in the Cauchy problem for the elasticity system with residual stress; L. Ji and J. McLaughlin, Using a Hankel function expansion to identify stiffness for the boundary impulse input experiment; C. E. Kenig, G. Ponce, and L. Vega, On the uniqueness of solutions of higher order nonlinear dispersive equations; Y. V. Kurylev, M. Lassas, and E. Somersalo, Reconstruction of a manifold from electromagnetic boundary measurements; A. Lorenzi and E. Paparoni, Direct and inverse problems for second-order integro-differential operator equations in an unbounded time interval; C. J. Nolan and G. Uhlmann, Geometrical optics for generic anisotropic materials; M. Piana and M. Bertero, Linear approaches in microwave tomography; A. Tamasan, Optical tomography in weakly anisotropic scattering media; G. Uhlmann and A. Vasy, Inverse problems in three-body scattering.

Contemporary Mathematics, Volume 333

October 2003, approximately 224 pages, Softcover, ISBN 0-8218-3367-7, LC 2003056023, 2000 *Mathematics Subject Classification*: 35R30, 35R25, 35R15, 35Q60, 35S10, 15A29, 81U40, 86A22, 58J40, 35K10, All AMS members \$47, List \$59, Order code CONM/333N



Multiantenna Channels: Capacity, Coding and Signal Processing

Gerard J. Foschini, *Lucent Technologies Bell Laboratories, Holmdel, NJ*, and Sergio Verdú, *Princeton University, NJ*, Editors

This volume is a collection of papers from the DIMACS Workshop on Signal Processing for Wireless Transmission. The workshop brought together theoreticians and practitioners working on wireless communications, information, and coding theory from a variety of perspectives. The main topics discussed in the book are capacity of multiantenna channels, vector broadcast channels and "dirty-paper" coding, signal processing, and ad hoc networking in wideband channels. These are all major themes in current research in physical-layer design for wireless communication.

The book is suitable for graduate students and researchers interested in mathematical problems of communication theory.

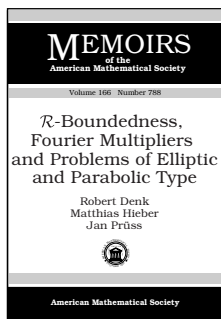
Contents: *Capacity of multiantenna channels:* H. Xu, D. Chizhik, H. Huang, and R. Valenzuela, Broadband MIMO

channel model for realistic capacity and system performance evaluations; **A. M. Tulino, A. Lozano, and S. Verdú**, Bandwidth-power tradeoff of multi-antenna systems in the low-power regime; **A. L. Moustakas, S. H. Simon, and A. M. Sengupta**, Distribution of MIMO capacity in the presence of correlated signals and interferers: A (not so) large N analysis; **S. H. Simon and A. L. Moustakas**, Optimality of beamforming in multiple transmitter multiple receiver communication systems with partial channel knowledge; *Capacity of broadcast channels and dirty-paper coding*; **N. Jindal, S. Vishwanath, S. Jafar, and A. Goldsmith**, Duality, dirty paper coding, and capacity for multiuser wireless channels; **D. Tse and P. Viswanath**, On the capacity of the multiple antenna broadcast channel; **S. Vishwanath, G. Kramer, S. Shamai (Shitz), S. Jafar, and A. Goldsmith**, Capacity bounds for Gaussian vector broadcast channels; **G. Caire and S. Shamai (Shitz)**, Writing on dirty tape with LDPC codes; **G. J. Foschini and A. H. Diaz**, Dirty paper coding: Perturbing off the infinite dimensional lattice limit; *Signal processing for multi-antenna channels*; **B. Hassibi and H. Vikalo**, Maximum-likelihood decoding and integer least-squares: The expected complexity; **D. Chizhik**, Slowing the time-fluctuating MIMO channel; **G. J. Foschini and M. Sellathurai**, A spacetime architectural superstructure enabling efficient multiple antenna communication; **E. Biglieri, A. Nordin, and G. Taricco**, Space-time coding with iterative receiver interfaces; **S. N. Diggavi, N. Al-Dhahir, and A. R. Calderbank**, Diversity order of space-time block codes in inter-symbol interference multiple-access channels; **D. Samardzija and N. Mandayam**, Pilot assisted estimation of MIMO fading channel response and achievable data rates; *Networking capacity*; **Y. Souilmi and R. Knopp**, Challenges in UWB signaling for adhoc networking; **I. Maric and R. Yates**, Efficient multihop broadcast for wideband systems.

DIMACS: Series in Discrete Mathematics and Theoretical Computer Science, Volume 62

November 2003, 299 pages, Hardcover, ISBN 0-8218-3407-X, LC 2003057746, 2000 *Mathematics Subject Classification*: 94A05, 94A13, 94A14, 94A15, 94A24, 94A40, 94B99, 15A52, **All AMS members \$76**, List \$95, Order code DIMACS/62N

Differential Equations



\mathcal{R} -Boundedness, Fourier Multipliers and Problems of Elliptic and Parabolic Type

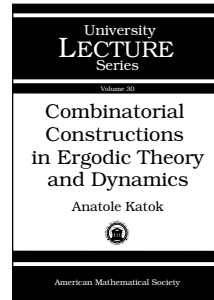
Robert Denk, *University of Regensburg, Germany*,
Matthias Hieber, *University of Darmstadt, Germany*, and
Jan Prüss, *University of Halle, Germany*

Contents: Introduction; Notations and conventions; *\mathcal{R} -Boundedness and Sectorial Operators*: Sectorial operators; The classes $BTP(X)$ and $\mathcal{H}^\infty(X)$; \mathcal{R} -bounded families of operators; \mathcal{R} -sectorial operators and maximal L_p -regularity; *Elliptic*

and Parabolic Boundary Value Problems: Elliptic differential operators in $L_p(\mathbb{R}^n; E)$; Elliptic problems in a half space; General Banach spaces; Elliptic problems in a half space: Banach spaces of class \mathcal{HT} ; Elliptic and parabolic problems in domains; Notes; References.

Memoirs of the American Mathematical Society, Volume 166, Number 788

November 2003, 114 pages, Softcover, ISBN 0-8218-3378-2, LC 2003057766, 2000 *Mathematics Subject Classification*: 35J40, 35K50, 42B15, **Individual member \$31**, List \$52, Institutional member \$42, Order code MEMO/166/788N



Combinatorial Constructions in Ergodic Theory and Dynamics

Anatole Katok, *Pennsylvania State University, University Park*

Ergodic theory studies measure-preserving transformations of measure spaces. These objects are intrinsically infinite, and the notion of an individual point or of an orbit makes no sense. Still there are a variety of situations when a measure preserving transformation (and its asymptotic behavior) can be well described as a limit of certain finite objects (periodic processes).

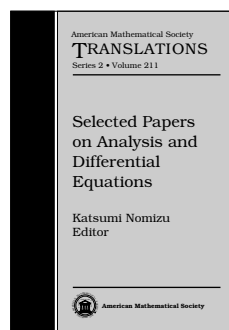
The first part of this book develops this idea systematically. Genericity of approximation in various categories is explored, and numerous applications are presented, including spectral multiplicity and properties of the maximal spectral type. The second part of the book contains a treatment of various constructions of cohomological nature with an emphasis on obtaining interesting asymptotic behavior from approximate pictures at different time scales.

The book presents a view of ergodic theory not found in other expository sources. It is suitable for graduate students familiar with measure theory and basic functional analysis.

Contents: Approximation and genericity in ergodic theory; Cocycles, cohomology and combinatorial constructions; References.

University Lecture Series, Volume 30

November 2003, 121 pages, Softcover, ISBN 0-8218-3496-7, LC 2003059582, 2000 *Mathematics Subject Classification*: 37A20; 37A25, 37C40, 37D20, 37D30, **All AMS members \$23**, List \$29, Order code ULECT/30N



Selected Papers on Analysis and Differential Equations

Katsumi Nomizu, *Brown University, Providence, RI*, Editor

This volume contains translations of papers that originally appeared in the Japanese journal, *Sugaku*. Ordinarily the papers would appear in the AMS translation of that journal, but to expedite publication, the Society has chosen to publish them as a volume of selected papers. The papers range over a variety of topics, including nonlinear partial differential equations, C^* -algebras, and Schrödinger operators.

The volume is suitable for graduate students and research mathematicians interested in analysis and differential equations.

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

Contents: **N. Ikeda**, Van Vleck formula for Wiener integrals and Jacobi fields; **R. Kuwabara**, Spectral geometry for Schrödinger operators in a magnetic field; **K. Matsumoto**, Symbolic dynamics and C^* -algebras; **G. Nakamura**, Inverse problems for elasticity; **Y. Shibata**, Time-global solutions of nonlinear evolution equations and their stability; **K. Tachizawa**, Wavelets and eigenvalues of Schrödinger operators; **E. Yanagida** and **S. Yotsutani**, Recent topics on nonlinear partial differential equations: Structure of radial solutions for semilinear elliptic equations.

American Mathematical Society Translations—Series 2, Volume 211

November 2003, 137 pages, Hardcover, ISBN 0-8218-3508-4, LC 2003055613, 2000 *Mathematics Subject Classification*: 00B55; 35-XX, 42-XX, 46L35, 58Jxx, 74-XX, **All AMS members \$55**, List \$69, Order code TRANS2/211N

General and Interdisciplinary



Combined Membership List 2003–2004

The *Combined Membership List* (CML) is a comprehensive directory of the membership of the American Mathematical Society, the American Mathematical Association of Two-Year Colleges, the Association for Women in Mathematics, the Canadian Mathematical Society, the Mathematical Association of America,

and the Society for Industrial and Applied Mathematics.

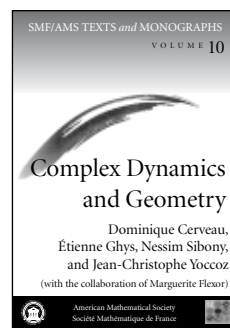
It includes a complete alphabetical list of all individual members in all six organizations. For each member, the CML provides an address, title, department, institution, telephone number (if available), and electronic address (if provided) and also indicates membership in the six participating societies. In addition, the CML lists academic, institutional, and corporate

members of the six participating societies providing addresses and telephone numbers of mathematical sciences departments.

The CML is an invaluable reference for keeping in touch with colleagues and for making connections in the mathematical sciences community in the United States and abroad.

December 2003, approximately 320 pages, Softcover, ISBN 0-8218-3468-1, **Individual member \$41**, List \$68, Institutional member \$54, Order code CML/2003/2004N

Geometry and Topology



Complex Dynamics and Geometry

Dominique Cerveau, *Université de Rennes, France*,
Étienne Ghys, *Ecole Normale Supérieure de Lyon, France*,
Nessim Sibony and **Jean-Christophe Yoccoz**, *Université de Paris-Sud, Orsay* (with the collaboration of **Marguerite Flexor**)

In the last twenty years, the theory of holomorphic dynamical systems has had a resurgence of activity, particularly concerning the fine analysis of Julia sets associated with polynomials and rational maps in one complex variable. At the same time, closely related theories have had a similar rapid development, for example the qualitative theory of differential equations in the complex domain.

The meeting, “Etat de la recherche”, held at Ecole Normale Supérieure de Lyon, presented the current state of the art in this area, emphasizing the unity linking the various sub-domains. This volume contains four survey articles corresponding to the talks presented at this meeting.

D. Cerveau describes the structure of polynomial differential equations in the complex plane, focusing on the local analysis in neighborhoods of singular points. E. Ghys surveys the theory of laminations by Riemann surfaces which occur in many dynamical or geometrical situations. N. Sibony describes the present state of the generalization of the Fatou-Julia theory for polynomial or rational maps in two or more complex dimensions. Lastly, the talk by J.-C. Yoccoz, written by M. Flexor, considers polynomials of degree 2 in one complex variable, and in particular, with the hyperbolic properties of these polynomials centered around the Jakobson theorem.

This is a general introduction that gives a basic history of holomorphic dynamical systems, demonstrating the numerous and fruitful interactions among the topics. In the spirit of the “Etat de la recherche de la SMF” meetings, the articles are written for a broad mathematical audience, especially students or mathematicians working in different fields. This book is translated from the French edition by Leslie Kay.

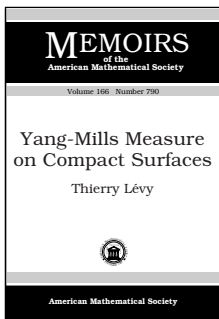
This item will also be of interest to those working in differential equations.

Contents: *E. Ghys, Holomorphic Dynamical Systems: The contribution of the nineteenth century: monodromy; The*

beginning of the twentieth century; Poincaré, Painlevé, Fatou, and Julia; The years 1960–1980; Since 1980, unification?; Bibliography; *D. Cerveau, Codimension-one Holomorphic Foliations, Reduction of Singularities in Low Dimensions, and Applications*: Introduction; Examples of foliations (with and without singularities); Germs of foliations; Reduction of singularities; Reduction of singularities of foliations in dimension 2; Reduction of singularities in dimension 3; Application to the existence of separatrices; Dimension > 3 ; What can we do with the reduction of singularities?; Foliations of \mathbb{C}^3 that are reduced by point blow-ups; foliations with very connected singular locus; Other applications; Bibliography; *E. Ghys, Riemann Surface Laminations*: Introduction; Examples; Transverse measures, harmonic measures; The Gauss-Bonnet and Riemann-Roch theorems; Uniformization of laminations; Uniformization of parabolic laminations; Meromorphic functions on laminations; Bibliography; *N. Sibony, Dynamics of Rational Maps on \mathbb{P}^k* : Introduction; Iteration of rational maps of \mathbb{P}^k ; Polynomial automorphisms of \mathbb{C}^k ; Holomorphic endomorphisms of \mathbb{P}^k ; Appendix; Bibliography; *J.-C. Yoccoz, notes by M. Flexor, Dynamics of Quadratic Polynomials*: Introduction; Hyperbolic aspects; Quasiperiodic aspects; Bibliography.

SMF/AMS Texts and Monographs, Volume 10

October 2003, 197 pages, Softcover, ISBN 0-8218-3228-X, LC 2003052359, 2000 *Mathematics Subject Classification*: 30D05, 57R30, All AMS members \$47, List \$59, Order code SMFAMS/10N



Yang-Mills Measure on Compact Surfaces

Thierry Lévy, *Université de Strasbourg, France*

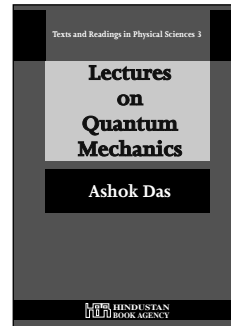
This item will also be of interest to those working in analysis.

Contents: Discrete Yang-Mills measure; Continuous Yang-Mills measure; Abelian gauge theory; Small scale structure in the semi-simple case; Surgery of the Yang-Mills measure; Bibliography.

Memoirs of the American Mathematical Society, Volume 166, Number 790

November 2003, 122 pages, Softcover, ISBN 0-8218-3429-0, LC 2003057765, 2000 *Mathematics Subject Classification*: 58D20, 81T13, 81T27, 60G60, 60F20, Individual member \$32, List \$53, Institutional member \$42, Order code MEMO/166/790N

Mathematical Physics



Lectures on Quantum Mechanics

Ashok Das, *University of Rochester, NY*

These are the lecture notes from a two-semester graduate course and a two-semester undergraduate course taught by the author. The lectures are arranged in a logical manner and reflect the informality of the classroom.

Each topic is explained with several examples so that the ideas develop naturally, which is immensely helpful to students. The book is self contained; most of the steps in the development of the subject are derived in detail and integrals are either evaluated or listed when needed. The motivated student can work through the notes independently and without difficulty.

The book is suitable for graduate students in mathematics or advanced undergraduates in physics interested in an introduction to quantum mechanics.

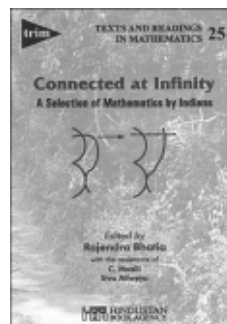
A publication of the Hindustan Book Agency. Distributed exclusively by the American Mathematical Society in North America and worldwide on the AMS Bookstore.

Contents: Review of classical mechanics; Review of essential mathematics; Basics of quantum mechanics; Simple applications of Schrödinger equation; Harmonic oscillator; Symmetries and their consequences; Angular momentum; Schrödinger equation in higher dimensions; Hydrogen atom; Approximate methods; WKB approximation; Stationary perturbation theory; Time dependent perturbation theory; Spin; Scattering theory; Relativistic one particle equations; Path integral quantum mechanics; Index.

Hindustan Book Agency

July 2003, 528 pages, Hardcover, ISBN 81-85931-41-0, 2000 *Mathematics Subject Classification*: 81Sxx, All AMS members \$40, List \$50, Order code HIN/16N

Number Theory



Connected at Infinity A Selection of Mathematics by Indians

Rajendra Bhatia, *Indian Statistical Institute, New Delhi, India*, Editor

This is a special collection of articles describing the work of some of the best-known mathematicians from India.

The first part contains seven articles by leading experts, each of whom chooses one major research paper by an Indian mathematician and explains to a wider audience its contents, context, importance, and impact. Works

New Publications Offered by the AMS

by R. C. Bose, S. Chowla, M. S. Narasimhan, M. S. Raghunathan, C. P. Ramanujam, C. S. Seshadri, and S. R. S. Varadhan are included here.

The second part contains four articles that have appeared earlier. Two of them by S. S. Abhyankar explain his own work. The last two are reprints of the finest commentaries on the work of Harish-Chandra.

The book will be of interest to graduate students and research mathematicians who wish to learn more about the contributions of Indian mathematicians to various areas of modern mathematics, including analytic number theory, algebraic groups, geometry, and probability.

This item will also be of interest to those working in algebra and algebraic geometry, geometry and topology, and probability.

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