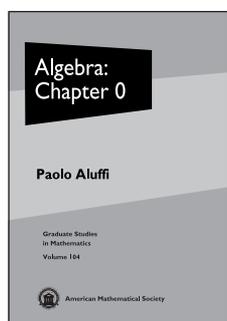


# New Publications Offered by the AMS

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please go to <http://www.ams.org/bookstore-email>.

## Algebra and Algebraic Geometry



### Algebra: Chapter 0

Paolo Aluffi, *Florida State University, Tallahassee, FL*

*Algebra: Chapter 0* is a self-contained introduction to the main topics of algebra, suitable for a first sequence on the subject at the beginning graduate or upper undergraduate level. The primary distinguishing feature of the book, compared to standard textbooks in algebra, is the early introduction of

categories, used as a unifying theme in the presentation of the main topics. A second feature consists of an emphasis on homological algebra: basic notions on complexes are presented as soon as modules have been introduced, and an extensive last chapter on homological algebra can form the basis for a follow-up introductory course on the subject. Approximately 1,000 exercises both provide adequate practice to consolidate the understanding of the main body of the text and offer the opportunity to explore many other topics, including applications to number theory and algebraic geometry. This will allow instructors to adapt the textbook to their specific choice of topics and provide the independent reader with a richer exposure to algebra. Many exercises include substantial hints, and navigation of the topics is facilitated by an extensive index and by hundreds of cross-references.

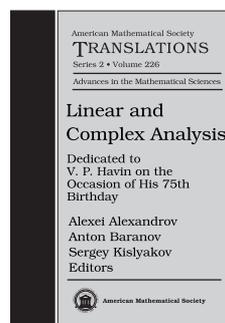
**Contents:** Preliminaries: Set theory and categories; Groups, first encounter; Rings and modules; Groups, second encounter; Irreducibility and factorization in integral domains; Linear algebra; Fields; Linear algebra, reprise; Homological algebra; Index.

**Graduate Studies in Mathematics, Volume 104**

July 2009, approximately 728 pages, Hardcover, ISBN: 978-0-8218-4781-7, LC 2009004043, 2000 *Mathematics Subject Classification*: 00-01; 12-01, 13-01, 15-01, 18-01, 20-01, **AMS members US\$71**, List US\$89, Order code GSM/104



## Analysis



### Linear and Complex Analysis

Dedicated to V. P. Havin on  
the Occasion of His 75th  
Birthday

Alexei Alexandrov, *Steklov  
Mathematical Institute at St.  
Petersburg, Russia*, Anton  
Baranov, *Saint Petersburg State*

*University, St. Petersburg, Russia*, and Sergey  
Kislyakov, *Steklov Mathematical Institute at St.  
Petersburg, Russia*, Editors

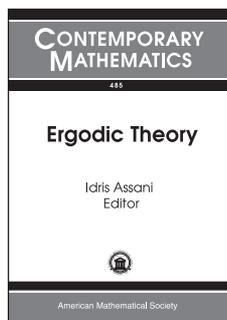
The volume consists of articles by friends and collaborators of a renowned Russian mathematician V. P. Havin, prepared on the occasion of Havin's 75th birthday. The articles in the volume are devoted to areas of analysis where Havin himself worked successfully for many years.

**Contents:** A. Aleman and C. Sundberg, Zeros of functions in weighted Bergman spaces; S. Alesker, S. Artstein-Avidan, and V. Milman, A characterization of the Fourier transform and related topics; J. Bourgain, Geodesic restrictions and  $L^p$ -estimates for eigenfunctions of Riemannian surfaces; S. Favorov and L. Golinskii, A Blaschke-type condition for analytic and subharmonic functions and application to contraction operators; A. Fryntov and L. Nazarov, New estimates for the length of the Erdős-Herzog-Piranian lemniscate; P. M. Gauthier and M. S. Melnikov, Compact approximation by bounded functions and functions continuous up to the boundary; J.-P. Kahane, Un théorème de Helson pour des séries de Walsh; X. Massaneda and J. Ortega-Cerdà, Interpolation sequences for the Bernstein algebra; V. Maz'ya, Integral and isocapacitary inequalities; V. V. Peller, Differentiability of functions of contractions; A. Poltoratski, Asymptotic behavior of arguments of Cauchy integrals; D. Sarason, Free interpolation in the Nevanlinna class; K. Seip, Interpolation by Dirichlet series in  $H^\infty$ ; M. Solomyak, Remarks on counting negative eigenvalues of the Schrödinger operator on regular metric trees; S. Treil,  $H^1$  and dyadic  $H^1$ ; V. Vasyunin and A. Volberg, Monge-Ampère equation and Bellman optimization of Carleson embedding theorems; A. Volberg and P. Yuditskii, Remarks on

Nehari's problem, matrix  $A_2$  condition, and weighted bounded mean oscillation.

**American Mathematical Society Translations—Series 2**  
(*Advances in the Mathematical Sciences*), Volume 226

June 2009, approximately 269 pages, Hardcover, ISBN: 978-0-8218-4801-2, LC 91-640741, 2000 *Mathematics Subject Classification*: 30-06, **AMS members US\$87**, List US\$109, Order code TRANS2/226



## Ergodic Theory

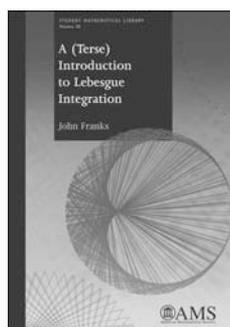
**Idris Assani**, *University of North Carolina, Chapel Hill, NC*, Editor

This book contains papers written by participants at the two Chapel Hill Ergodic Theory Workshops organized in February 2007 and 2008. The topics covered by these papers help to illustrate the interaction between ergodic theory and related fields such as harmonic analysis, number and probability theories.

**Contents:** P. C. Allaart and R. D. Mauldin, Injectivity of the Dubins–Freedman construction of random distributions; I. Assani and Z. Buczolich, A maximal inequality for the tail of the bilinear Hardy–Littlewood function; G. Cohen and M. Lin, Almost sure convergence of weighted sums of independent random variables; J.-P. Conze, Recurrence, ergodicity and invariant measures for cocycles over a rotation; N. Chevallier and J.-P. Conze, Examples of recurrent or transient stationary walks in  $\mathbb{R}^d$  over a rotation of  $\mathbb{T}^2$ ; Y. Coudene, A short proof of the unique ergodicity of horocyclic flows; D. Lenz, Aperiodic order via dynamical systems: Diffraction for sets of finite local complexity; M. Lin and M. Weber, Laws of iterated logarithm for weighted sums of iid random variables; R. D. Mauldin and A. Yingst, Homeomorphic Bernoulli trial measures and ergodic theory; J. Rosenblatt, Distinguishing transformations by averaging methods; I. Assani, Some open problems.

**Contemporary Mathematics**, Volume 485

June 2009, 162 pages, Softcover, ISBN: 978-0-8218-4649-0, LC 2008048524, 2000 *Mathematics Subject Classification*: 28D05, 34C28, 37A05, 37A20, 37A45, 42A16, 47A35, 60F15, 60G50, 62J05, **AMS members US\$47**, List US\$59, Order code CONM/485



## A (Terse) Introduction to Lebesgue Integration

**John Franks**, *Northwestern University, Evanston, IL*

This book provides a student's first encounter with the concepts of measure theory and functional analysis. Its structure and content reflect the belief

that difficult concepts should be introduced in their simplest and most concrete forms.

Despite the use of the word “terse” in the title, this text might also have been called *A (Gentle) Introduction to Lebesgue Integration*. It is terse in the sense that it treats only a subset of those concepts typically found in a substantial graduate-level analysis course. The

book emphasizes the motivation of these concepts and attempts to treat them simply and concretely. In particular, little mention is made of general measures other than Lebesgue until the final chapter and attention is limited to  $R$  as opposed to  $R^n$ .

After establishing the primary ideas and results, the text moves on to some applications. Chapter 6 discusses classical real and complex Fourier series for  $L^2$  functions on the interval and shows that the Fourier series of an  $L^2$  function converges in  $L^2$  to that function. Chapter 7 introduces some concepts from measurable dynamics. The Birkhoff ergodic theorem is stated without proof and results on Fourier series from Chapter 6 are used to prove that an irrational rotation of the circle is ergodic and that the squaring map on the complex numbers of modulus 1 is ergodic.

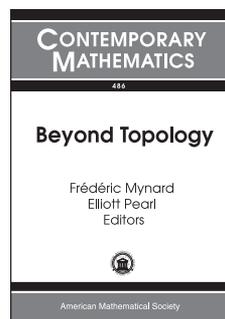
This book is suitable for an advanced undergraduate course or for the start of a graduate course. The text presupposes that the student has had a standard undergraduate course in real analysis.

**Contents:** The regulated and Riemann integrals; Lebesgue measure; The Lebesgue integral; The integral of unbounded functions; The Hilbert space  $L^2$ ; Classical Fourier series; Two ergodic transformations; Background and foundations; Lebesgue measure; A non-measurable set; Bibliography; Index.

**Student Mathematical Library**, Volume 48

July 2009, approximately 205 pages, Softcover, ISBN: 978-0-8218-4862-3, 2000 *Mathematics Subject Classification*: 28A20, 28A25, 42B05, **AMS members US\$30**, List US\$37, Order code STML/48

## Geometry and Topology



## Beyond Topology

**Frédéric Mynard**, *Georgia Southern University, Statesboro, GA*, and **Elliott Pearl**, *Toronto, ON, Canada*, Editors

The purpose of this collection is to guide the non-specialist through the basic theory of various generalizations of topology, starting with clear motivations for their introduction. Structures considered

include closure spaces, convergence spaces, proximity spaces, quasi-uniform spaces, merotopic spaces, nearness and filter spaces, semi-uniform convergence spaces, and approach spaces. Each chapter is self-contained and accessible to the graduate student, and focuses on motivations to introduce the generalization of topologies considered, presenting examples where desirable properties are not present in the realm of topologies and the problem is remedied in the more general context. Then, enough material will be covered to prepare the reader for more advanced papers on the topic. While category theory is not the focus of the book, it is a convenient language to study these structures and, while kept as a tool rather than an object of study, will be used throughout the book. For this reason, the book contains an introductory chapter on categorical topology.

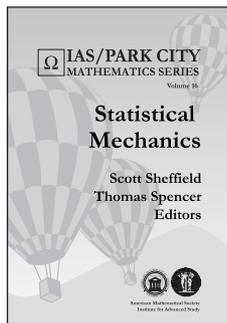
**Contents:** R. Lowen, M. Sioen, and S. Verwulgen, Categorical topology; H. L. Bentley, E. Colebunders, and E. Vandersmissen, A convenient setting for completions and function spaces; A. Di Concilio, Proximity: a powerful tool in extension theory, function spaces, hyperspaces, boolean algebras and point-free geometry; S.

**Dolecki**, An initiation into convergence theory; **M. Erné**, Closure; **H.-P. A. Künzi**, An introduction to quasi-uniform spaces; **R. Lowen** and **C. Van Olmen**, Approach theory; **G. Preuss**, Semiuniform convergence spaces and filter spaces.

**Contemporary Mathematics**, Volume 486

June 2009, 383 pages, Softcover, ISBN: 978-0-8218-4279-9, LC 2008050812, 2000 *Mathematics Subject Classification*: 54Axx, 54-02, **AMS members US\$87**, List US\$109, Order code CONM/486

## Mathematical Physics



### Statistical Mechanics

**Scott Sheffield**, *Massachusetts Institute of Technology, Cambridge, MA*, and **Thomas Spencer**, *Institute for Advanced Study, Princeton, NJ*, Editors

In recent years, statistical mechanics has been increasingly recognized as a central domain of mathematics.

Major developments include the

Schramm-Loewner evolution, which describes two-dimensional phase transitions, random matrix theory, renormalization group theory and the fluctuations of random surfaces described by dimers. The lectures contained in this volume present an introduction to recent mathematical progress in these fields. They are designed for graduate students in mathematics with a strong background in analysis and probability.

This book will be of particular interest to graduate students and researchers interested in modern aspects of probability, conformal field theory, percolation, random matrices and stochastic differential equations.

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

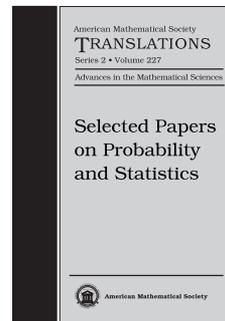
Titles in this series are co-published with the Institute for Advanced Study/Park City Mathematics Institute. Members of the Mathematical Association of America (MAA) and the National Council of Teachers of Mathematics (NCTM) receive a 20% discount from list price.

**Contents:** **D. C. Brydges**, Lectures on the renormalisation group; **A. Guionnet**, Statistical mechanics and random matrices; **R. Kenyon**, Lectures on dimers; **G. Lawler**, Schramm-Loewner evolution (*SLE*); **W. Werner**, Lectures on two-dimensional critical percolation.

**IAS/Park City Mathematics Series**, Volume 16

July 2009, 360 pages, Hardcover, ISBN: 978-0-8218-4671-1, LC 2009003040, 2000 *Mathematics Subject Classification*: 82-01, 82-06, 60-01, 60-06, 30-XX, 05-XX, 15-XX, 81Txx, **AMS members US\$60**, List US\$75, Order code PCMS/16

## Probability



### Selected Papers on Probability and Statistics

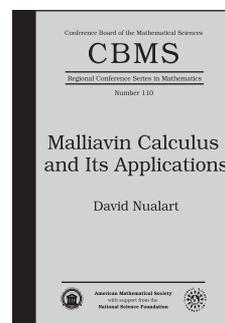
This volume contains translations of papers that originally appeared in the Japanese journal *Sūgaku*. The papers range over a variety of topics in probability theory, statistics, and applications.

This volume is suitable for graduate students and research mathematicians interested in probability and statistics.

**Contents:** **J. Akahori**, **M. Izumi**, and **S. Watanabe**, Noises, stochastic flows and  $E_0$ -semigroups; **S. Kuriki** and **A. Takemura**, Volume of tubes and distribution of the maxima of Gaussian random fields; **T. Funaki**, Stochastic analysis on large scale interacting systems; **T. Mikami**, Optimal transportation problem as stochastic mechanics; **M. Hayashi**, Quantum estimation and the quantum central limit theorem; **S. Aoki** and **A. Takemura**, Statistics and Gröbner bases—The origin and development of computational algebraic statistics; **S. Tomizawa**, Analysis of square contingency tables in statistics; **M. Akahira**, The structure of higher order asymptotic theory of statistical estimation; **A. Takahashi**, On an asymptotic expansion approach to numerical problems in finance; **K. Kuroda** and **N. Matsuyama**, Actuarial mathematics: Theory and current practice in Japan.

**American Mathematical Society Translations—Series 2**, Volume 227

June 2009, approximately 272 pages, Hardcover, ISBN: 978-0-8218-4821-0, LC 2009004070, 2000 *Mathematics Subject Classification*: 60-06, 62-06, **AMS members US\$91**, List US\$114, Order code TRANS2/227



### Malliavin Calculus and Its Applications

**David Nualart**, *The University of Kansas, Lawrence, KS*

The Malliavin calculus was developed to provide a probabilistic proof of Hörmander's hypoellipticity theorem. The theory has expanded to encompass other significant applications.

The main application of the Malliavin calculus is to establish the regularity of the probability distribution of functionals of an underlying Gaussian process. In this way, one can prove the existence and smoothness of the density for solutions of various stochastic differential equations. More recently, applications of the Malliavin calculus in areas such as stochastic calculus for fractional Brownian motion, central limit theorems for multiple stochastic integrals, and mathematical finance have emerged.

The first part of the book covers the basic results of the Malliavin calculus. The middle part establishes the existence and smoothness results that then lead to the proof of Hörmander's hypoellipticity

theorem. The last part discusses the recent developments for Brownian motion, central limit theorems, and mathematical finance. A co-publication of the AMS and CBMS.

**Contents:** The derivative operator; The divergence operator; The Ornstein-Uhlenbeck semigroup; Sobolev spaces and equivalence of norms; Regularity of probability laws; Support properties. Density of the maximum; Application of Malliavin calculus to diffusion processes; The divergence operator as a stochastic integral; Central limit theorems and Malliavin calculus; Applications of Malliavin calculus in finance; Bibliography; Index.

**CBMS Regional Conference Series in Mathematics**, Number 110  
 May 2009, 85 pages, Softcover, ISBN: 978-0-8218-4779-4, LC 2009003082, 2000 *Mathematics Subject Classification*: 60H07; 60H05, 60H10, **All Individuals US\$23**, List US\$29, Order code CBMS/110

## New AMS-Distributed Publications

### Algebra and Algebraic Geometry



### Generalized Bialgebras and Triples of Operads

**Jean-Louis Loday**, *Centre National de la Recherche Scientifique, Strasbourg, France*

This book introduces the notion of generalized bialgebra, which includes the classical notion of bialgebra (Hopf algebra) and many others, among them the tensor algebra equipped with the deconcatenation as coproduct. The author proves that, under some mild conditions, a connected generalized bialgebra is completely determined by its primitive part. This structure theorem extends the classical Poincaré-Birkhoff-Witt theorem and Cartier-Milnor-Moore theorem, valid for cocommutative bialgebras, to a large class of generalized bialgebras.

Technically, the author works in the theory of operads which allows him to state his main theorem and permits him to give it a conceptual proof. A generalized bialgebra type is determined by two operads: one for the coalgebra structure  $C$  and one for the algebra structure  $\mathcal{A}$ . There is also a compatibility relation relating the two. Under some conditions, the primitive part of such a generalized bialgebra is an algebra over some sub-operad of  $\mathcal{A}$ , denoted  $\mathcal{P}$ . The structure theorem gives conditions under which a connected generalized bialgebra is cofree (as a connected  $C$ -coalgebra) and can be reconstructed out of its primitive part by means of an enveloping functor from  $\mathcal{P}$ -algebras to  $\mathcal{A}$ -algebras. The classical case is  $(C, \mathcal{A}, \mathcal{P}) = (Com, As, Lie)$ .

This structure theorem unifies several results, generalizing the PBW and the CMM theorems, scattered in the literature. The author treats many explicit examples and suggests a few conjectures.

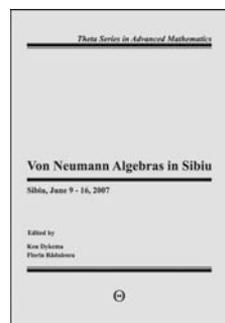
A publication of the Société Mathématique de France, Marseilles (SMF), distributed by the AMS in the U.S., Canada, and Mexico. Orders from other countries should be sent to the SMF. Members of the SMF receive a 30% discount from list.

**Contents:** Introduction; Algebraic operads; Generalized bialgebra and triple of operads; Applications and variations; Examples; Duplicital bialgebras; Appendix; Bibliography; Index.

**Astérisque**, Number 320

February 2009, 114 pages, Softcover, ISBN: 978-2-85629-257-0, 2000 *Mathematics Subject Classification*: 16A24, 16W30, 17A30, 18D50, 81R60, **Individual member US\$38**, List US\$42, Order code AST/320

## Analysis



### Von Neumann Algebras in Sibiu

Conference Proceedings, Sibiu, June 9–16, 2007

**Ken Dykema**, *Texas A&M University, College Station, TX*, and **Florin Rădulescu**, *University of Iowa, Iowa City, IA*, Editors

The volume represents the proceedings of the International Workshop on Free Probabilities, Operator Spaces, and von Neumann Algebras, held on June 9–16, 2007, in Sibiu, Romania. It contains five original refereed research papers, as well as an innovative survey by Roberto Longo, presenting a remarkable new perspective on the “one particle structure” of conformal field theory.

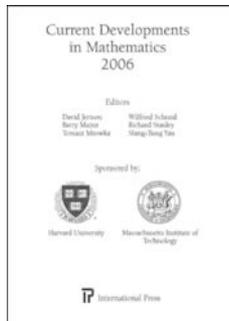
A publication of the Theta Foundation. Distributed worldwide, except in Romania, by the AMS.

**Contents:** **S. T. Belinschi**,  $C$ -free convolution for measures with unbounded support; **P. Boivin** and **J. Renault**, A Hausdorff-Young inequality for measured groupoids; **F. Fidaleo**, New results in noncommutative ergodic theory; **R. Longo**, Real Hilbert subspaces, modular theory,  $SL(2, \mathbb{R})$  and CFT; **F. Rădulescu**, A non-commutative, analytic version of Hilbert’s 17th problem in type  $II_1$  von Neumann algebras; **S. Sakai**, Recent topics on  $C^*$ -algebras (consistency and independency) and Kadison-Singer problem.

**International Book Series of Mathematical Texts**

December 2008, 109 pages, Hardcover, ISBN: 978-973-87899-4-4, 2000 *Mathematics Subject Classification*: 00B25, 46-06, 47-06, **AMS members US\$26**, List US\$33, Order code THETA/13

## General and Interdisciplinary



### Current Developments in Mathematics, 2006

Barry Mazur, Wilfried Schmid, and Shing-Tung Yau, Harvard University, Cambridge, MA, and David Jerison, Tomasz Mrowka, and Richard P. Stanley, Massachusetts Institute of

Technology, Cambridge, MA, Editors

The Current Developments in Mathematics (CDM) conference is an annual seminar, jointly hosted by Harvard University and the Massachusetts Institute of Technology, and devoted to surveying the most recent developments in mathematics. In choosing speakers, the hosts take a broad look at the field of geometry and select geometers who transcend classical perceptions within their field. All speakers are prominent specialists in the fields of algebraic geometry, mathematical physics, and other areas. International Press is pleased to present the full contents of these proceedings in the CDM book series.

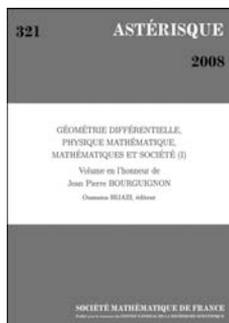
A publication of International Press. Distributed worldwide by the American Mathematical Society.

**Contents:** L. Clozel, The Sato–Tate conjecture; S. Gukov and E. Witten, Gauge theory, ramification, and the geometric Langlands program; D. Li and Y. Sinai, Complex singularities of the Burgers system and renormalization group method; P. Seidel, A biased view of symplectic cohomology; T. Tao, Global behaviour of nonlinear dispersive and wave equations.

#### International Press

February 2008, 344 pages, Hardcover, ISBN: 978-1-57146-167-4, 2000 *Mathematics Subject Classification*: 00Bxx, AMS members US\$54, List US\$68, Order code INPR/73

## Geometry and Topology



### Géométrie Différentielle, Physique Mathématique, Mathématiques et Société (I)

Volume en l'honneur de Jean Pierre Bourguignon

Oussama Hijazi, Université Henri Poincaré, Vandoeuvre-les-Nancy, France, Editor

This volume, the first in a two-volume set, contains original research articles on various aspects of differential geometry, analysis on manifolds, complex geometry, algebraic geometry, number theory and general relativity.

The articles are based on talks presented at the Conference on Differential Geometry, Mathematical Physics, Mathematics and Society, held in honor of Jean-Pierre Bourguignon on the occasion of his 60th birthday. The conference was held from August 27 to 31, 2007 at the Institut des Hautes Études Scientifiques and at the École Polytechnique.

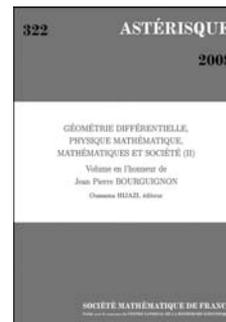
*This item will also be of interest to those working in number theory.*

A publication of the Société Mathématique de France, Marseilles (SMF), 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:** J. Simons and D. Sullivan, Structured bundles define differential  $K$ -theory; N. Hitchin, Einstein metrics and magnetic monopoles; K. Liu, X. Sun, and S.-T. Yau, Geometry of moduli spaces; R. L. Bryant, Gradient Kähler Ricci solitons; D. Auroux, Special Lagrangian fibrations, mirror symmetry and Calabi–Yau double covers; J. Cheeger and B. Kleiner, Characterization of the Radon–Nikodym property in terms of inverse limits; X. Chen and Y. Tang, Test congruence and geodesic rays; R. Mazzeo, Flexibility of singular Einstein metrics; P. T. Chruściel and J. L. Costa, On uniqueness of stationary vacuum black holes; H. Omori, Y. Maeda, N. Miyazaki, and A. Yoshioka, A new nonformal noncommutative calculus: Associativity and finite part regularization.

Astérisque, Number 321

February 2009, 298 pages, Softcover, ISBN: 978-2-85629-258-7, 2000 *Mathematics Subject Classification*: 14J32, 46L65, 53C55, 53D10, 53D12, 53D55, 58G11, 83C57, **Individual member US\$56**, List US\$62, Order code AST/321



### Géométrie Différentielle, Physique Mathématique, Mathématiques et Société (II)

Volume en l'honneur de Jean Pierre Bourguignon

Oussama Hijazi, Université Henri Poincaré, Vandoeuvre-les-Nancy, France, Editor

This volume, the second in a two-volume set, contains original research articles on various aspects of differential geometry, analysis on manifolds, complex geometry, algebraic geometry, number theory and general relativity.

The articles are based on talks presented at the Conference on Differential Geometry, Mathematical Physics, Mathematics and Society, held in honor of Jean-Pierre Bourguignon on the occasion of his 60th birthday. The conference was held from August 27 to 31, 2007 at the Institut des Hautes Études Scientifiques and at the École Polytechnique.

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

A publication of the Société Mathématique de France, Marseilles (SMF), 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:** C. Voisin, Rationally connected 3-folds and symplectic geometry; S.-Y. Chang and P. C. Yang, The  $Q$ -curvature equation in conformal geometry; J.-M. Bismut, A survey of the hypoelliptic Laplacian; G. Tian, New results and problems on Kähler–Ricci flow; V. Apostolov, D. M. Calderbank, P. Gauduchon, and C. W. Tønnesen-Friedman, Extremal Kähler metrics on ruled manifolds and stability; N. Mok, Geometric structures on uniruled projective manifolds defined by their varieties of minimal rational tangents; D. Hoffman and B. White, On the number of minimal surfaces with a given boundary; P. Sarnak, Equidistribution and primes; R. Harvey, B. Lawson, and J. Werner, The projective hull of certain curves in  $\mathbb{C}^2$ .

Astérisque, Number 322

February 2009, 255 pages, Softcover, ISBN: 978-2-85629-259-4, 2000 *Mathematics Subject Classification*: 14J45, 30H05, 32H02, 32M15, 32Q99, 35H10, 53C10, 58A14, 58J20, **Individual member US\$78**, List US\$87, Order code AST/322

## Number Theory



### Représentations $p$ -adiques Cristallines et de de Rham dans le Cas Relatif

Olivier Brinon, *Université Paris-Nord, Villetaneuse, France*

The author defines and studies the notions of de Rham and crystalline smooth  $p$ -adic sheaves over “suitable”  $p$ -adic bases. To

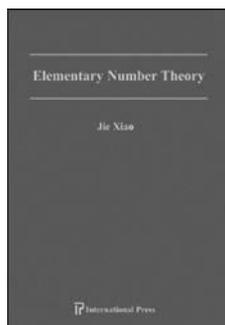
do this, he introduces  $p$ -adic period rings (analogous to those of J.-M. Fontaine), which are used to associate differential invariants to them. In the good reduction case, he obtains a fully faithful functor from the category of crystalline smooth  $p$ -adic sheaves in that of filtered  $F$ -isocrystals on the special fiber.

A publication of the Société Mathématique de France, Marseilles (SMF), 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:** Introduction; Notations, premières propriétés; L’anneau  $C$ ; Rappels sur l’anneau  $B_{HT}$  de Hyodo; L’anneau  $B_{dR}$ ; L’anneau  $B_{cris}$ ;  $(\varphi, \nabla)$ -modules filtrés; Représentations  $p$ -adiques; Appendices; Bibliographie; Index.

Mémoires de la Société Mathématique de France, Number 112

December 2008, 159 pages, Softcover, ISBN: 978-2-85629-250-1, 2000 *Mathematics Subject Classification*: 11F80, 11S25, 14F30, **Individual member US\$50**, List US\$55, Order code SMFMEM/112



### Elementary Number Theory

Jie Xiao, *Tsinghua University, Beijing, China*

A self-contained introduction to Number Theory, this volume requires a background knowledge only of some simple properties of the system of integers. The book begins with a few preliminaries on induction principles, followed by a quick review of division algorithm. The second chapter then explores the use of divisors, the greatest (least) common divisor (multiple), the Euclidean algorithm, and linear indeterminate equation. Subsequent chapters deal with prime numbers, congruences, congruent equations, cryptography, Diophantine equations, and Gaussian integers. Each chapter ends with exercises to illustrate the theory and provide practice in the techniques, with answers to even-numbered problems at the end of the book.

A publication of International Press. Distributed worldwide by the American Mathematical Society.

**Contents:** Basics; Divisibility; Primes; Congruences; Congruent equations; Three additional topics; Solutions to even-numbered exercises.

International Press

December 2006, 84 pages, Hardcover, ISBN: 978-1-57146-163-6, 2000 *Mathematics Subject Classification*: 11-XX, **AMS members US\$20**, List US\$25, Order code INPR/74