

Mathematical Surveys and Monographs,

Vol. 205: Chow, B. /Chu, S.-C. / Glickenstein, D. / Guenther, C. / Isenberg, J. / Ivey, T. /Knopf, D. / Lu,P. /Luo,F. /Ni,L.: The Ricci Flow:

Techniques and Applications, Part IV: Long-Time Solutions and Related Topics

3. Perelman completed Hamilton's program to prove Thurston's geometrization conjecture.

In higher dimensions the Ricci flow has remarkable properties, which indicates its usefulness to understand relations between the geometry and topology of manifolds.

This book discusses recent developments on gradient Ricci solitons, which model the singularities developing under the Ricci flow. In the shrinking case there is a surprising rigidity which suggests the likelihood of a well-developed structure theory.

A broader class of solutions is ancient solutions; the authors discuss the beautiful classification in dimension 2.

In higher dimensions they consider both ancient and singular Type I solutions, which must have shrinking gradient Ricci soliton models. Next, Hamilton's theory of 3-dimensional nonsingular solutions is presented, following his original work.

Oct.2015

374pp.

9780821849910

20,500.

A. M. S.

http://www.yurinsha.com

ホームページは毎月25日更新予定です

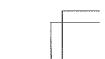
No. 497

2015 Sep. - Oct.

数理科学







Krantz,S.:

How to Teach Mathematics, 3rd ed.

This third edition is a lively and provocative tract on how to teach mathematics in today's new world of online learning tools and innovative teaching devices. This third edition has been streamlined from the second edition, but still includes the nuts and bolts of good teaching,

discussing material related to new developments in teaching methodology and technique, as well as adding an entire new chapter on online teaching methods. Oct. 2015 146 pp.

9781470425524

6,520.

Student Mathematical Library,

Vol. 77: Kuhnel,W.:

497-022

Differential Geometry: Curves -- Surfaces -- Manifolds, 3rd ed.

This carefully written book is an introduction to the beautiful ideas and results of differential geometry.

The first half covers the geometry of curves and surfaces, which provide much of the motivation and intuition for the general theory.

The second part studies the geometry of general manifolds, with particular emphasis on connections and curvature.

The text is illustrated with many figures and examples.

The prerequisites are undergraduate analysis and linear algebra.

This new edition provides many advancements, including more figures and exercises, and--as a new feature--a good number of solutions to selected exercises. 412 pp.

Oct. 2015 9781470423209

9,130.

Vol. 76: Roe,J.:

497-030

Winding Around:

The Winding Number in Topology, Geometry, and Analysis The winding number is one of the most basic invariants in topology. It measures the number of times a moving point P goes around a fixed point Q, provided that P travels on a path that never goes through Q and that the final position of P is the same as its starting position.

This simple idea has far-reaching applications.

The reader of this book will learn how the winding number canhelp us show that every polynomial equation has a root, guarantee a fair division of three objects in space by a single planar cut, explain why every simple closed curve has an inside and an outside, relate calculus to curvature and the singularities of vector fields, allow one to subtract infinity from infinity and get a finite answer, generalize to give a fundamental and beautiful insight into the topology of matrix groups.

Oct. 2015

269 pp. 9,110.

9781470421984

Vol. 75: Kantor, I. /Matousek, J. /Samal, R.: Mathematics++:

497-269

Selected Topics Beyond the Basic Courses

Mathematics++ is a concise introduction to six selected areas of 20th century mathematics providing numerous modern mathematical tools used in contemporary research in computer science, engineering, and other fields. The areas are: measure theory, high-dimensional geometry, Fourier analysis, representations of groups, multivariate polynomials, and topology.

Sep. 2015

353 pp. 9,110.

9781470422615

A. M. S.

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CBMS Regional Conference Series in Mathematics,

Vol. 123: Graham, R. /Butler, S.:

497-086

Rudiments of Ramsey Theory, 2nd ed.

In every sufficiently large structure which has been partitioned there will always be some well-behaved structure in one of the parts.

This takes many forms. For example, colorings of the integers by finitely many colors must have long monochromatic arithmetic progressions; and colorings of the edges of large graphs must have monochromatic subgraphs of a specified type (Ramsey's theorem).

Oct. 2015

9780821841563

5,400.

Contemporary Mathematics,

Vol. 647: Kennedy, G. / Caibar, M. /

497-090

Castravet, A.-M. /Macri, E. (eds.):

Hodge Theory and Classical Algebraic Geometry This volume surveys recent progress in Hodge theory, its generalizations, and applications. The topics range from more classical aspects of Hodge theory to modern developments in compactifications of period domains, applications of Saito's theory of mixed Hodge modules, and connections with derived category theory and non-commutative motives.

Sep. 2015 9781470409906

137 pp. 19,570.

Vol. 646: Li, W. / Walter Wei, S. (eds.):

Geometry and Topology of Submanifolds and Currents

497-199

On the topology side, topics include Plateau problems, Voevodsky's motivic cohomology, Reidemeister zeta function and systolic inequality, and freedom in 2- and 3-dimensional manifolds.

On the geometry side, the authors discuss classifying isoparametric hypersurfaces and review Hartogs triangle, finite volume flows, nonexistence of stable p-currents, and a generalized Bernstein type problem.

Sep. 2015

186 pp.

9781470415563

19,570.

Vol. 645: Jarosz, K. (ed.):

497-150

Function Spaces in Analysis

The papers cover a broad range of topics, including spaces and algebras of analytic functions of one and of many variables (and operators on such spaces), spaces of integrable functions, spaces of Banach-valued functions, isometries of function spaces, geometry of Banach spaces, and other related subjects.

Aug. 2015

9781470416942

19,530.

Vol. 644: Feehan, P. /Song, J. /

497-143 Weinkove,B. /Wentworth,R. (eds.):

Analysis, Complex Geometry, & Mathematical Physics

The conference featured thirty speakers who spoke on a range of topics reflecting the breadth and depth of the research interests of Duong H. Phong on the occasion of his sixtieth birthday. A common thread, familiar from Phong's own work, was the focus on the interplay between the deep tools of analysis and the rich structures of geometry and physics.

Aug. 2015

359 pp.

9781470414641

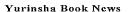
19,530,

A. M. S.

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University Lecture Series,

Vol. 63: Tabuada, G.:

497-111

Noncommutative Motives

The theory of motives began in the early 1960s when Grothendieck envisioned the existence of a "universal cohomology theory of algebraic varieties". The theory of noncommutative motives is more recent. It began in the 1980s when the Moscow school began the study of algebraic varieties via their derived categories of coherent sheaves, and continued in the 2000s when Kontsevich conjectured the existence of a

Oct. 2015 9781470423971 114 рр.

/814/04239/1

"universal invariant of noncommutative algebraic varieties".

CRM Monographs Series,

Vol. 36: Poulin,P.:

497-168

Lecons d'analyse classique: Exposition d'un cours fait par Paul Koosis a l'Universite McGill, Montreal

Je reconnais les choix et le style de Paul Koosis, et j'aime beaucoup les deux. Le titre est volontairement modeste et hors-mode; ce qui fait l'originalite du livre est que, sous l'apparence du "classique", il echappe completement aux modes actuelles. Il ne me parait pas avoir d'equivalent, en aucune langue. C'est un beau cadeau au francais ...-Jean-Pierre Kahane, Universite Paris-Sud Orsay, France This book is based on a graduate course given in 2005-2006 by Paul Koosis, Emeritus Professor at McGill University.

It addresses tonics carefully selected by Prof. Koosis and is intended for

It addresses topics carefully selected by Prof. Koosis and is intended for those who, far from seeking an exhaustive catalog of technical and abstract results, prefer to be initiated in the most essential and prolific discoveries of the 20th century in classical analysis. Harmonic analysis, quasi-analyticity, zeroes of classes of entire functions (including a new proof of the Levinson-Cartwright theorem), weighted approximation, gap theorems, harmonic measures, and other gems of classical analysis are presented in a rigorous, detailed, and elegant style. This work prepares students for more advanced studies and serves readers who, aware of the basics in measure theory and complex analysis, wish to follow Prof. Koosis in his marvelous development of the subject.

Sep. 2015 9781470419936

173 pp.

20,270.

Proceedings of Symposia in Pure Mathematics,

Vol. 90: Donagi,R. /Katz,S. /Klemm,A. /Morrison,D. (eds.): String -Math 2012

This was the second in a series of annual large meetings devoted to the interface of mathematics and string theory.

These meetings have rapidly become the flagship conferences in the field. Topics include super Riemann surfaces and their super moduli, generalized moonshine and K3 surfaces, the latest developments in supersymmetric and topological field theory, localization techniques, applications to knot theory, and many more.

The contributors include many leaders in the field, such as Sergio Cecotti, Matthias Gaberdiel, Rahul Pandharipande, Albert Schwarz, Anne Taormina, Johannes Walcher, Katrin Wendland, and Edward Witten.

Oct. 2015

341 pp.

9780821894958

22,320.

A.M.S.

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Compact Textbooks in Mathematics

497-103 Roman,S.: An Introduction to Catalan Numbers

This textbook provides an introduction to the Catalan numbers and their remarkable properties, along with their various applications in combinatorics. Intended to be accessible to students new to the subject, the book begins with more elementary topics before progressing to more mathematically sophisticated topics. Each chapter focuses on a specific combinatorial object counted by these numbers, including paths, trees, tilings of a staircase, null sums in Zn+1, interval structures, partitions, permutations, semiorders, and more. Exercises are included at the end of book, along with hints and solutions, to help students obtain a better grasp of the material. The text is ideal for undergraduate students studying combinatorics, but will also appeal to anyone with a mathematical background who has an interest in learning about the Catalan numbers.

Nov. 2015

84 pp.

8,240. 9783319221434

Progress in Mathematics,

Vol. 312: Nevins, M. /Trapa, P. (eds.): Representations of Reductive Groups:

In Honor of the 60th Birthday of David A. Vogan, Jr.

Over the last forty years, David Vogan has left an indelible imprint on the representation theory of reductive groups.

His groundbreaking ideas have lead to deep advances in the theory of real and p-adic groups, and have forged lasting connections with other subjects, including number theory, automorphic forms, algebraic geometry, and combinatorics.

This book is an outgrowth of the conference of the same name, dedicated to David Vogan on his 60th birthday, which took place at MIT, 2014. This volume highlights the depth and breadth of Vogan's influence over the subjects mentioned above, and point to many exciting new directions that remain to be explored. 531 pp. 23,100.

Nov. 2015

9783319234427

Vol. 311: Touze, A. /Franjou, V. (eds.): 497-112 Lectures on Functor Homology

This book features a series of lectures, that explores three different fields in which functor homology (short for homological algebra in functor categories) has recently played a significant role. For each of these applications, the functor viewpoint provides both essential insights and new methods for tackling difficult mathematical problems. In the lectures by Aurelien Djament, polynomial functors appear as coefficients in the homology of infinite families of classical groups, e.g. general linear groups or symplectic groups, and their stabilization. Djament's theorem states that this stable homology can be computed using only the homology with trivial coefficients and the manageable functor homology.

The series includes an intriguing development of Scorichenko's unpublished results. The lectures by Wilberd van der Kallen lead to the solution of the general cohomological finite generation problem, extending Hilbert's fourteenth problem and its solution to the context of cohomology.

Nov. 2015

151 pp.

9783319213040

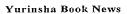
14,280.

Birkhauser

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Contemporary Matheamticians,

Grunbaum,F. /van Moerbeke,P. /Moll,V.: Henry P. Mckean Jr.: Selecta

497-013

This volume presents a selection of papers by Henry P. McKean, which illustrate the various areas in mathematics in which he has made seminal contributions.

Topics covered include probability theory, integrable systems, geometry and financial mathematics. Each paper represents a contribution by Prof. McKean, either alone or together with other researchers, that has had a profound influence in the respective area.

Nov. 2015

429 pp.

9783319222363

19,940.

Birkhauser Advanced Texts /Basler Lehrbucher

Petersen,K.:

497-101

Eulerian Numbers

This text presents the Eulerian numbers in the context of modern enumerative, algebraic, and geometric combinatorics.

The book first studies Eulerian numbers from a purely combinatorial point of view, then embarks on a tour of how these numbers arise in the study of hyperplane arrangements, polytopes, and simplicial complexes.

Some topics include a thorough discussion of gamma-nonnegativity and real-rootedness for Eulerian polynomials, as well as the weak order and the shard intersection order of the symmetric group.

The book also includes a parallel story of Catalan combinatorics, wherein the Eulerian numbers are replaced with Narayana numbers.

Oct. 2015 9781493930906 447 pp. 12,240.

Studies in Universal Logic

Vol. 2: Koslow, A. /Buchsbaum, A. (eds.): The Road to Universal Logic:

497-020

Festschrift for the 50th Birthday of Jean-Yves Beziau Vol. II This second volume of a collection of papers offers new perspectives and challenges in the study of logic.

It is presented in honor of the fiftieth birthday of Jean-Yves Beziau.
The papers touch upon a wide range of topics including paraconsistent logic, quantum logic, geometry of oppositions, categorical logic, computational logic, fundamental logic notions and history of logic (Leibniz, Peirce, Hilbert).

July 2015 9783319153674 610 pp. 14,700.

Vol. 1: Gauthier,Y.:

497-045

Towards An Arithmetical Logic: The Arithmetical Foundations of Logic

This book offers an original contribution to the foundations of logic and mathematics and focuses on the internal logic of mathematical theories, from arithmetic or number theory to algebraic geometry.

Arithmetical logic is the term used to refer to the internal logic of classical arithmetic, here called Fermat-Kronecker arithmetic and combines Fermat's method of infinite descent with Kronecker's general arithmetic of homogeneous polynomials.

Nov. 2015

9783319220864

260 pp.

10,500.

Birkhauser

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Advances in Mathematical Fluid Mechanics

Amann,H./Giga Yoshikazu/ Kozono Hideo /Okamoto Hisashi /Yamazaki Masao: Recent Developments of Mathematical Fluid Mechanics

The aim of this proceeding is addressed to present recent developments of the mathematical research on the Navier-Stokes equations, 497-121 the Euler equations and other related equations.

In particular, we are interested in such problems as:

- 1) existence, uniqueness and regularity of weak solutions 2) stability and its asymptotic behavior of the rest motion and the steady state 3) singularity and blow-up of weak and strong solutions 4) vorticity and energy conservation
- 5) fluid motions around the rotating axis or outside of the rotating body 6) free boundary problems 7) maximal regularity theorem and
- other abstract theorems for mathematical fluid mechanics.

Dec. 2015

450 pp.

9783034809382

Advanced Courses in Mathematics - CRM Barcelona

Llibre, J. / Moeckel, R. / Simo, C.:

Central Configurations,

Periodic Orbits, and Hamiltonian Systems

This book collects the notes of the lectures given in the Advanced Course on Central Configurations, Periodic Orbits and Beyond in Celestial Mechanics (DANCE Winter School) held at Centre de Recerca Matematica (CRM) from January 27th to 31th, 2014. The notes consist of three series of lectures.

Dec. 2015 9783034809320 6.180.

Progress in Mathematical Physics,

Vol. **: Eynard, B.:

497-081

497-287

Counting Surfaces:

Combinatorics, Matrix Models and Algebraic Geometry The problem of enumerating maps (a map is a set of polygonal "countries" on a world of a certain topology, not necessarily the plane or the sphere) is an important problem in mathematics and physics, and it has many applications ranging from statistical physics, geometry, particle physics, informatics, biology, ... etc.

This problem has been studied by many communities of researchers, mostly combinatorists, probabilists, and physicists.

In 1978+, physicists have invented a method called "matrix models" to address that problem, and many results have been obtained.

Oct. 2015

9783764387969

150 pp.

Vol. 68: Darrigol, O. /Duplantier, B. /

Raimond, J.-M. /Rivasseau, V. (eds.): Niels Bohr, 1913-2013:

Poincare Seminar 2013

This fourteenth volume in the Poincare Seminar Series is devoted to Niels Bohr, his foundational contributions to understanding atomic structure and quantum theory and their continuing importance today.

Aug. 2015

180 pp.

9783319143156

17,510.

Birkhauser

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London Mathematical Society Lecture Note Series,

Vol. 422: Campbell, C. /Quick, M. / Robertson, E. /Roney-Dougal, C.: **Groups St Andrews 2013**

497-066

Every four years, leading researchers gather to survey the latest developments in all aspects of group theory. Since 1981, the proceedings of those meetings have provided a regular snapshot of the state of the art in group theory and helped to shape the direction of research in the field. This volume contains selected papers from the 2013 meeting held in St Andrews.

It begins with major articles from each of the four main speakers: Emmanuel Breuillard (Paris-Sud), Martin Liebeck (Imperial College London), Alan Reid (Texas) and Karen Vogtmann (Cornell) 502 pp.

Nov. 2015 9781107514546

18,860.

Cambridge Tracts in Mathematics,

V*ol. 205:* Pinkus,A.:

497-166

Ridge Functions

Ridge functions are a rich class of simple multivariate functions which have found applications in a variety of areas.

These include partial differential equations (where they are sometimes termed 'plane waves'), computerised tomography, projection pursuit in the analysis of large multivariate data sets, the MLP model in neural networks, Waring's problem over linear forms, and approximation theory. Ridge Functions is the first book devoted to studying them as entities in and of themselves.

The author describes their central properties and provides a solid theoretical foundation for researchers working in areas such as approximation or data science.

He also includes an extensive bibliography and discusses some of the unresolved questions that may set the course for future research in the field.

Aug. 2015

220 pp.

9781107124394

25,500.

Vol. ***: Franz,U./Privault,N.:

Probability on Real Lie Algebras

Jan. 2016

9781107128651

Encyclopedia of Mathematics and its Applications,

Vol. ***: Berthe, V. /Rigo, M.:

Combinatorics, Words and Symbolic Dynamics

Internationally recognised researchers look at developing trends in combinatorics with applications in the study of words and in symbolic dynamics.

They explain the important concepts, providing a clear exposition of some recent results, and emphasise the emerging connections between these different fields.

Topics include combinatorics on words, pattern avoidance, graph theory, tilings and theory of computation, multidimensional subshifts, discrete dynamical systems, ergodic theory, numeration systems, dynamical arithmetics, automata theory and synchronised words, analytic combinatorics, continued fractions and probabilistic models. Jan. 2016 490 pp.

9781107077027

26,040.

Cambridge

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Cambridge Studies in Advanced Mathematics,

Vol. ***: Godsil, C. / Meagher, K.:

Erdos-Ko-Rado Theorems: Algebraic Approaches

Aimed at graduate students and researchers, this fascinating text provides a comprehensive study of the Erdos-Ko-Rado Theorem, with a focus on algebraic methods. The authors begin by discussing well-known proofs of the EKR bound for intersecting families.

The natural generalization of the EKR Theorem holds for many different objects that have a notion of intersection, and the bulk of this book focuses on algebraic proofs that can be applied to these different objects. The authors introduce tools commonly used in algebraic graph theory and show how these can be used to prove versions of the EKR Theorem. Topics include association schemes, strongly regular graphs, the Johnson

scheme, the Hamming scheme and the Grassmann scheme. Feb. 2016

9781107128446

13,440.

Vol. 99: Goldfeld, D.: (Now in Paperback ed.) 2006 Printing Automorphic Forms and L-Functions for 497-085 the Group GL(N, R)

L-functions associated to automorphic forms encode all classical number theoretic information. They are akin to elementary particles in physics. This 2006 book provides an entirely self-contained introduction to the theory of L-functions in a style accessible to graduate students with a basic knowledge of classical analysis, complex variable theory, and algebra.

Also within the volume are many new results not yet found in the literature. The exposition provides complete detailed proofs of results in an easy-to-read format using many examples and without the need to know and remember many complex definitions.

The main themes of the book are first worked out for GL(2,R) and GL(3,R), and then for the general case of GL(n,R).

In an appendix to the book, a set of Mathematica functions is presented, designed to allow the reader to explore the theory from a computational point of view.

Dec. 2015

9781107565029

10,920.

Cambridge

Advanced Studies in Pure Mathematics,

Vol. 67: Ambrosio, L. / Giga Yoshikazu / Rybka, P. /Tonegawa Yoshihiro:

497-001

Variational Methods for Evolving Objects

The conference, organized by L. Ambrosio, Y. Giga, P. Rybka and Y. Tonegawa, featured 6 one-hour lectures and three courses, all given by world top researchers in the field of calculus of variations and

non-linear partial differential equations. Each of three courses (by L. Ambrosio, Y. Brenier and R. Jerrard) consisted of four 50-minute lectures and was carefully prepared so that they served as exiellent introduction for graduate students,

new post-docs and non-experts. The conference was well-attended with 77 participants.

June 2015

9784864970280

Mathematical Society of Japan

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Lecture Notes in Mathematics,

Vol. 2150: Kharchenko, V.:

497-091

Quantum Lie Theory: A Multilinear Approach

This is an introduction to the mathematics behind the phrase "quantum Lie algebra". The numerous attempts over the last 15-20 years to define a quantum Lie algebra as an elegant algebraic object with a binary "quantum" Lie bracket have not been widely accepted.

In this book, an alternative approach is developed that includes multivariable operations. Among the problems discussed are the following: a PBW-type theorem; quantum deformations of Kac-Moody algebras; generic and symmetric quantum Lie operations; the Nichols algebras; the Gurevich-Manin Lie algebras; and Shestakov-Umirbaev operations for the Lie theory of nonassociative products.

Jan. 2016 9783319227030

275 pp.

Vol. 2149: Andersen, L. /Asmussen, S. /Aurzada, F. / Glynn,P. /Maejima,M. /Pihlsgard,M. /Simon,Th.: Levy Matters V

The first chapter, by Makoto Maejima, surveys representations of the main sub-classes of infinitesimal distributions in terms of mappings of certain Levy processes via stochastic integration.

The second chapter, by Lars Norvang Andersen, Soren Asmussen, Peter W. Glynn and Mats Pihisgard, concerns Levy processes reflected at two barriers, where reflection is formulated a la Skorokhod. These processes can be used to model systems with a finite capacity, which is crucial in many real life situations, a most important quantity being the overflow or the loss occurring at the upper barrier. If a process is killed when crossing the boundary, a natural question concerns its lifetime. Deep formulas from fluctuation theory are the key to many classical results, which are reviewed in the third chapter by Frank Aurzada and Thomas Simon.

The main part, however, discusses recent advances and developments in the setting where the process is given either by the partial sum of a random walk or the integral of a Levy process.

Dec. 2015

9783319231372

9,270.

Vol. 2132: Aviles, A. /Cabello, F. /

Castillo, J. / Gonzalez, M. / Moreno, Y.: Separably Injective Banach Spaces

This monograph contains a detailed exposition of the up-to-date theory of separably injective spaces: new and old results are put into perspective with concrete examples (such as \ell_\infty/c_0 and C(K) spaces, where K is a finite height compact space or an F-space, ultrapowers of \mathcal L_\infty spaces and spaces of universal disposition). It is no exaggeration to say that the theory of separably injective Banach spaces is strikingly different from that of injective spaces. For instance, separably injective Banach spaces are not necessarily isometric to, or complemented subspaces of, spaces of continuous functions on a compact space.

Moreover, in contrast to the scarcity of examples and general results concerning injective spaces, we know of many different types of separably injective spaces and there is a rich theory around them.

Nov. 2015

200 pp.

9783319147406

7,210.

Springer

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497-125

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Page 9

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Graduate Texts in Mathematics,

Vol. 273: Fomenko, A. /Fuchs, D.:

497-082

Homotopic Topology

This textbook on algebraic topology updates a popular textbook from the golden era of the Moscow school of I. M. Gelfand. The first English translation, done many decades ago, remains very much in

demand, although it has been long out-of-print and is difficult to obtain. Therefore, this updated English edition will be much welcomed by the mathematical community.

Distinctive features of this book include: a concise but fully rigorous presentation, supplemented by a plethora of illustrations of a high technical and artistic caliber; a huge number of nontrivial examples and computations done in detail; a deeper and broader treatment of topics in comparison to most beginning books on algebraic topology; an extensive, and very concrete, treatment of the machinery of spectral sequences.

The second edition contains an entirely new chapter on K-theory and the Riemann-Roch theorem (after Hirzebruch and Grothendieck).

Jan. 2016

568 pp.

9783319234878

Universitext

Balinsky, A. /Evans, W. /Desmond, L. /Roger, T.: The Analysis and Geometry of Hardy's Inequality

This volume presents advances that have been made over recent decades in areas of research featuring Hardy's inequality and related topics. The inequality and its extensions and refinements are not only of intrinsic interest but are indispensable tools in many areas of mathematics and mathematical physics.

497-127

Hardy inequalities on domains have a substantial role and this necessitates a detailed investigation of significant geometric properties of a domain and its boundary.

Other topics covered in this volume are Hardy-Sobolev-Maz'ya inequalities; inequalities of Hardy-type involving magnetic fields; Hardy, Sobolev and Cwikel-Lieb-Rosenbljum inequalities for Pauli operators; the Rellich inequality.

The Analysis and Geometry of Hardy's Inequality provides an up-to-date account of research in areas of contemporary interest and would be suitable for a graduate course in mathematics or physics.

Nov. 2015 9783319228693

236 pp.

10,300.

Applied Mathematical Sciences,

Vol. 155: Holden, H. /Risebro, N.:

497-248

Hyperbolic Conservation Laws, 2nd ed.

This is the second edition of a well-received book providing the fundamentals of the theory hyperbolic conservation laws.

Front Tracking for

Several chapters have been rewritten, new material has been added, in particular, a chapter on space dependent flux functions and the detailed solution of the Riemann problem for the Euler equations.

Hyperbolic conservation laws are central in the theory of nonlinear partial differential equations and in science and technology.

Dec. 2015 9783662475065

14,420.

Springer

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Springer Monographs in Mathematics

Ohsawa Takeo:

497-099

L^2 Approaches in Several Complex Variable: Development of Oka-Cartan Theory by

L2 Estimates for the ? Operator

The purpose of this monograph is to present the current status of a rapidly developing part of several complex variables, motivated by the applicability of effective results to algebraic geometry and differential geometry. Highlighted are the new precise results on the L2 extension of holomorphic functions. In Chapter 1, the classical questions of several complex variables motivating the development of this field are reviewed after necessary preparations from the basic notions of those variables and of complex manifolds such as holomorphic functions, pseudoconvexity, differential forms, and cohomology. In Chapter 2, the L^2 method of solving the d-bar equation is presented emphasizing its differential geometric aspect.

In Chapter 3, a refinement of the Oka-Cartan theory is given by this method. The L^2 extension theorem with an optimal constant is included, obtained recently by Z. Blocki and by Q.-A. Guan and X.-Y. Zhou separately. In Chapter 4, various results on the Bergman kernel are presented, including recent works of Maitani-Yamaguchi, Berndtsson, and Guan-Zhou. Most of these results are obtained by the L^2 method.

Sep. 2015

190 pp. 13,800.

9784431557463

Cecil, T. /Ryan, P.: Geometry of Hypersurfaces 497-068

This exposition provides the state-of-the art on the differential geometry of hypersurfaces in real, complex, and quaternionic space forms. Special emphasis is placed on isoparametric and Dupin hypersurfaces in real space forms as well as Hopf hypersurfaces in complex space forms. The book is accessible to a reader who has completed a one-year graduate course in differential geometry. The text, including open problems and an extensive list of references, is an excellent resource for researchers in this area. Geometry of Hypersurfaces begins with the basic theory of submanifolds in real space forms. Topics include shape operators, principal curvatures and foliations, tubes and parallel hypersurfaces, curvature spheres and focal submanifolds. The focus then turns to the theory of isoparametric hypersurfaces in spheres. Important examples and classification results are given, including the construction of isoparametric hypersurfaces based on representations of Clifford algebras.

Nov. 2015

589 pp.

9781493932450

22,660.

IMPA Monographs,

Vol. 3: Velho, L. /Gomes, J.:

497-172

From Fourier Analysis to Wavelets

This text introduces the basic concepts of function spaces and operators, both from the continuous and discrete viewpoints.

Fourier and Window Fourier Transforms are introduced and used as a guide to arrive at the concept of Wavelet transform.

The fundamental aspects of multiresolution representation, and its importance to function discretization and to the construction of wavelets is also discussed.

Nov. 2015 9783319220741

148 pp.

13,800.

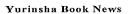
Springer

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Springer Studium Mathematik

Wedhorn,T.:

Manifolds, Sheaves, and Cohomology

This book explores the theory of real and complex manifolds is 497-115 developed using the modern language of ringed spaces.

The author especially emphasizes the difference between local and global questions. As a central tool, cohomology theory of sheaves is introduced here. The text provides an accessible overview for master studies in mathematics. It is enriched by many illustrative examples and exercises.

Dec. 2015 9783658106324 299 pp. 10,300.

Developments in Mathematics,

Vol. 42: Lakshmibai, V. /Brown, J.:

497-093

The Grassmannian Variety: Geometric and Representation-Theoretical Aspects

This book gives a comprehensive treatment of the Grassmannian varieties and their Schubert subvarieties, focusing on the geometric and representation-theoretic aspects of Grassmannian varieties. Research of Grassmannian varieties is centered at the crossroads of commutative algebra, algebraic geometry, representation theory, and combinatorics. Therefore, this text uniquely presents an exciting playing field for graduate students and researchers in mathematics, physics, and computer science, to expand their knowledge in the field of algebraic geometry.

Oct. 2015 9781493930814 175 pp.

Springer Undergraduate Mathematics

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Slinko, A.:

497-108

Algebra for Applications: Cryptography, Secret Sharing, Error-Correcting, Fingerprinting, Compression

This book examines the relationship between mathematics and data in the modern world. Indeed, modern societies are awash with data which must be manipulated in many different ways: encrypted, compressed, shared between users in a prescribed manner, protected from an unauthorised access and transmitted over unreliable channels.

Nov. 2015 9783319219509 269 pp. 7,210.

Springer Series in Statistics

Seber,G .:

497-237

The Linear Model and Hypothesis: A General Unifying Theory

This book provides a concise and integrated overview of hypothesis testing in four important subject areas, namely linear and nonlinear models, multivariate analysis, and large sample theory.

The approach used is a geometrical one based on the concept of projections and their associated idempotent matrices, thus largely avoiding the need to involvematrix ranks. It is shown that all the hypotheses encountered are either linear or asymptotically linear, and that all the underlying models used are either exactly or asymptotically linear normal models.

Nov. 2015

195 pp. 17,510.

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17,3

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Springer INdAM Series,

Vol. 12: Benedetti, B. / Delucchi, E. / Moci, L. (eds.): Combinatorial Methods in Topology and Algebra

This book arises from the INdAM conference

"CoMeTA 2013 - Combinatorial Methods in Topology and Algebra,"

which was held in Cortona in September 2013.

The event brought together emerging and leading researchers at the crossroads of Combinatorics, Topology and Algebra, with a particular focus on new trends in subjects such as: hyperplane arrangements; discrete geometry and combinatorial topology; polytope theory and triangulations of manifolds; combinatorial algebraic geometry and commutative algebra; algebraic combinatorics; and combinatorial representation theory. The book is divided into two parts. The first expands on the topics discussed at the conference by providing additional background and explanations, while the second presents original contributions on new trends in the topics addressed by the conference.

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200 pp.

20.600.

Fields Institute Communications,

497-217

Vol. 76: Dawson, D. /Kulik, R. /Ould Haye, M. / Szyszkowicz, B. /Zhao, Y. (eds.):

Asymptotic Laws and Methods in Stochastics: A Volume in Honour of Miklos Csorgo

This book contains articles arising from a conference in honour of mathematician-statistician Miklos Csorgo on the occasion of his 80th birthday, held in Ottawa in July 2012. It comprises research papers and overview articles, which provide a substantial glimpse of the history and state-ofthe-art of the field of asymptotic methods in probability and statistics, written by leading experts.

The volume consists of twenty articles on topics on limit theorems for self-normalized processes, planar and multiparameter processes, the central limit theorem and laws of large numbers, change-point problems, short and long range time series, applied probability and stochastic processes, and the theory and methods of statistics. It also includes Csorgo's list of publications during more than 50 years, since 1962.

Oct. 2015 9781493930753

346 pp. 19,570.

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497-147

Hamiltonian Partial Differential Equations and Applications

Topics covered within are representative of the field's wide scope, including KAM and normal form theories, perturbation and variational methods, integrable systems, stability of nonlinear solutions as well as applications to cosmology, fluid mechanics and water waves.

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Hamiltonian partial differential equations. Sep. 2015

424 pp. 19,570.

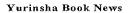
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Asterisque,

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We describe a new approach to relative p-adic Hodge theory based on

systematic use of Witt vector constructions and nonarchimedean analytic geometry in the style of both Berkovich and Huber. We give a thorough development of ϕ -modules over a relative Robba ring associated to a perfect Banach ring of characteristic p, including local systems on the algebraic and analytic spaces associated to the base ring, and the relationship between (pro-)etale cohomology and ϕ -cohomology. We also make a critical link to mixed characteristic by exhibiting an equivalence of tensor categories between the finite etale algebras over an arbitrary perfect Banach algebra over a nontrivially normed complete field of characteristic p and the finite etale algebras over a corresponding Banach Q_,-algebra.

Aug. 2015 9782856298077

239 pp.

15,120.

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De la geometrie algebrique aux formes automorphes, (I) - (II)

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The range of subjects covered reflects the diversity and richness of the works and interests of Gerard Laumon: etale cohomology of schemes and stacks, -adic sheaves and Fourier transform, character sheaves, classic and geometric Langlands correspondence, Grothendieck-Lefschetz trace formula, Arthur-Selberg trace formula, Shimura varieties, Higgs fibre bundles and Hitchin fibration, ...

Vol. 369: June 2015

9782856298053

18,900.

Vol. 370: June 2015 305 pp.

9782856298060

22,260.

Numero 140 - 141: Ayoub, J.:

Motifs des varietes analytiques rigides

Memoires de la Societe Mathematique de France,

The first chapter deals with the homotopical approach of Morel & Voevodsky. One finds there the construction of the motivic stable homotopy category of rigid analytic varieties and a complete description of this category in terms of algebraic motives when the base field has equal characteristic zero and its valuation is discrete.

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Aug. 2015 9782856298114

386 pp.

Societe Mathematique de France

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Jan. 2016 9781118742242

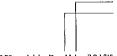
320 pp.

23,370.

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Nankai Tracts in Mathematics,

Vol. **: Banyaga, A. /Houenou, D.:

497-177

A Brief Introduction to Symplectic and Contact Manifolds

The book introduces the basic notions in Symplectic and Contact Geometry at the level of the second year graduate student. It also contains many exercises, some of which are solved only in the last chapter.

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The material just described can be used as a one semester course on Symplectic and Contact Geometry. The book contains also more advanced material, suitable to advanced graduate students and researchers.

Apr. 2016 9789814696708

140 pp.

10.230.

Lecture Notes Series, Institute for Mathematical Sciences, National University of Singapore,

Vol. 29: Chong, C. / Feng, Q. /

497-043

Slaman, T. /Woodin, H. /Yang, Y. (eds.): Forcing, Iterated Ultrapowers, and Turing Degrees

This volume presents the lecture notes of short courses given by three leading experts in mathematical logic at the 2010 and 2011 Asian Initiative for Infinity Logic Summer Schools.

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Oct. 2015

9789814699945

13,950.

Mathematical Olympiad Series,

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497-023/024

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Feb. 2016 9789814704137/696487

8,930./4,650, (Paper ed.)

Vol. 11: Su.Y. /Xiong,B.:

497-037/038

Methods and Techniques for Proving Inequalities This book is part of the Mathematical Olympiad Series which discusses

several aspects related to maths contests, such as algebra, number theory, combinatorics, graph theory and geometry.

The book explains many basic techniques for proving inequalities such as direct comparison, method of magnifying and reducing, substitution method, construction method, and so on.

Feb. 2016 9789814704120/696456

272 pp. 10,230./6,510. (Paper ed.)

World Scientific Publishing

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Jennifer Beineke & Jason Rosenhouse (ed.)

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Jan. 2016 288 p. 9780691164038 Hardback ¥8,880

This book brings together authors from a variety of specialties to present fascinating problems and solutions in recreational mathematics. Contributors to the book show how sophisticated mathematics can help you construct mazes that look like famous people, how the analysis of crossword puzzles has much in common with understanding epidemics, and how the theory of electrical circuits is useful in understanding the classic Towers of Hanoi puzzle. The card game SET is related to the theory of error-correcting codes, and simple tic-tac-toe takes on a new life when played on an affine plane. Inspirations for the book's wealth of problems include board games, card tricks, fake coins, flexagons, pencil puzzles, poker, and so much more.