

Yurinsha Book News

Mathematical Surveys and Monographs,

Vol. 205: Chow, B. / Chu, S.-C. / 495-135

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

Sep. - Oct. 2015

数理科学 **友 隣 社** 洋書専門

Krantz, S.:

497-021

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.

Oct. 2015

412 pp.

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 can help 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.

9781470421984

9,110.

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

497-269

Mathematics++:**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.

9781470422615

9,110.

A. M. S.

Yurinsha Book News

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 82 pp. 5,400.
9780821841563

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 137 pp. 19,570.
9781470409906

Vol. 646: Li, W. / Walter Wei, S. (eds.): 497-199

**Geometry and Topology of
Submanifolds and Currents**

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. 19,570.
9781470415563

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 310 pp. 19,530.
9781470416942

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. 19,530.
9781470414641

A. M. S.

Yurinsha Book News

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 "universal invariant of noncommutative algebraic varieties".

Oct. 2015 114 pp.
9781470423971 8,180.

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 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 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 173 pp.
9781470419936 20,270.

Proceedings of Symposia in Pure Mathematics,

**Vol. 90: Donagi, R. /Katz, S. /Klemm, A. /Morrison, D. (eds.):
String -Math 2012** 497-190

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.

Yurinsha Book News

Compact Textbooks in Mathematics

Roman, S.:

497-103

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 $\mathbb{Z}n+1$, 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.

9783319221434

8,240.

Progress in Mathematics,

Vol. 312: Nevins, M. / Trapa, P. (eds.):

497-098

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 led 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.

Nov. 2015

531 pp.

9783319234427

23,100.

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

Contemporary Mathematicians,

Grünbaum, F. / van Moerbeke, P. / Moll, V.: 497-013
Henry P. McKean Jr.:
Selecta

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. 19,940.
 9783319222363

Birkhäuser Advanced Texts / Basler Lehrbücher

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 447 pp. 12,240.
 9781493930906

Studies in Universal Logic

Vol. 2: Koslow, A. / Buchsbaum, A. (eds.): 497-020
The Road to Universal Logic:

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 610 pp. 14,700.
 9783319153674

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 260 pp. 10,500.
 9783319220864

Birkhäuser

Yurinsha Book News

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, the Euler equations and other related equations. 497-121

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. 19,570.
9783034809382

Advanced Courses in Mathematics - CRM Barcelona

Llibre, J. / Moeckel, R. / Simo, C.: 497-159
**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 Matemàtica (CRM) from January 27th to 31th, 2014. The notes consist of three series of lectures.

Dec. 2015 240 pp. 6,180.
9783034809320

Progress in Mathematical Physics,

Vol. **: Eynard, B.: 497-081
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 150 pp. 6,170.
9783764387969

Vol. 68: Darrigol, O. / Duplantier, B. /
Raimond, J.-M. / Rivasseau, V. (eds.): 497-287
**Niels Bohr, 1913-2013:
Poincaré Seminar 2013**

This fourteenth volume in the Poincaré 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. 17,510.
9783319143156

Birkhauser

London Mathematical Society Lecture Note Series,

**Vol. 422: Campbell, C. / Quick, M. /
Robertson, E. / Roney-Dougal, C.:** 497-066
Groups St Andrews 2013

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)

Nov. 2015 502 pp. 18,860.
9781107514546

Cambridge Tracts in Mathematics,

Vol. 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. 25,500.
9781107124394

Vol. *: Franz, U. / Privault, N.:**
Probability on Real Lie Algebras
Jan. 2016 9781107128651 価格未定

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. 497-059
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. 26,040.
9781107077027

Cambridge

Yurinsha Book News

Cambridge Studies in Advanced Mathematics,

Vol. *: Godsil,C./Meagher,K.:** 497-084
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 13,440.
9781107128446

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

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 508 pp. 10,920.
9781107565029

Cambridge

Advanced Studies in Pure Mathematics,

Vol. 67: Ambrosio,L./Giga Yoshikazu / 497-001
Rybka,P./Tonegawa Yoshihiro :
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 excellent introduction for graduate students, new post-docs and non-experts.

The conference was well-attended with 77 participants.

June 2015 310 pp. 6,204.
9784864970280

Mathematical Society of Japan

Page 8

*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

275 pp.

9783319227030

9,270.

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

497-123

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 Pihlsgard, 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

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9783319231372

9,270.

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

497-125

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 ℓ_1 and $C(K)$ spaces, where K is a finite height compact space or an F -space, ultrapowers of L_∞ 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

Yurinsha Book News

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

14,420.

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

236 pp.

9783319228693

10,300.

Applied Mathematical Sciences,

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

497-248

Front Tracking for

Hyperbolic Conservation Laws, 2nd ed.

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

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

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9783662475065

14,420.

Springer

Ohsawa Takeo :

497-099

**L^2 Approaches in Several Complex Variable:
Development of Oka-Cartan Theory by
 L^2 Estimates for the $\bar{\partial}$ 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 L^2 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 $\bar{\partial}$ -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. Błocki 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.

9784431557463

13,800.

Cecil, T. /Ryan, P.:

497-068

Geometry of Hypersurfaces

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

148 pp.

9783319220741

13,800.

Springer

Yurinsha Book News

Springer Studium Mathematik

Wedhorn, T.:

Manifolds, Sheaves, and Cohomology

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

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

299 pp.

9783658106324

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

175 pp.

9781493930814

14,420.

Springer Undergraduate Mathematics

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

269 pp.

9783319219509

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.

9783319219295

17,510.

Springer

Yurinsha Book News

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.

497-058

Dec. 2015

200 pp.

9783319201542

20,600.

Fields Institute Communications,

**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**

497-217

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-of-the-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

346 pp.

9781493930753

19,570.

**Vol. 75: Guyenne,P./Nicholls,D. (eds.):
Hamiltonian Partial Differential Equations
and Applications**

497-147

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.

The volume contains both surveys and original research papers and gives a concise overview of the above topics, with results ranging from mathematical modeling to rigorous analysis and numerical simulation.

It will be of particular interest to graduate students as well as researchers in mathematics and physics, who wish to learn more about the powerful and elegant analytical techniques for Hamiltonian partial differential equations.

Sep. 2015

424 pp.

9781493929498

19,570.

Springer

Page 13

Yurinsha Book News

Asterisque,

Vol. 371: Kedlaya, K. / Liu, R.:
**Relative p -Adic Hodge Theory:
Foundations**

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 the relationship between these objects and étale \mathbb{Z}_p -local systems and \mathbb{Q}_p -local systems on the algebraic and analytic spaces associated to the base ring, and the relationship between (pro-)étale cohomology and ϕ -cohomology.

We also make a critical link to mixed characteristic by exhibiting an equivalence of tensor categories between the finite étale algebras over an arbitrary perfect Banach algebra over a nontrivially normed complete field of characteristic p and the finite étale algebras over a corresponding Banach \mathbb{Q}_p -algebra.

Aug. 2015 239 pp. 15,120.
9782856298077

**Vol. 369 - 370: Bost, J.-B. / Boyer, A. / Genestier, L. /
Lafforgue, S. / Lysenko, S. / Morel, B. / Ngo, C. (eds.):**
**De la géométrie algébrique
aux formes automorphes, (I) - (II)**

(Une collection d'articles

en l'honneur du sixantième anniversaire de Gerard Laumon)

This volume gathers the second part of the proceedings of the conference held at Paris-Sud university, Orsay, from June 25 to June 29, 2012 to celebrate Gerard Laumon's sixtieth birthday.

The range of subjects covered reflects the diversity and richness of the works and interests of Gerard Laumon: étale cohomology of schemes and stacks, p -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 374 pp. 18,900.
9782856298053

Vol. 370: June 2015 305 pp. 22,260.
9782856298060

Memoires de la Société Mathématique de France,

Numero 140 - 141: Ayoub, J.:
Motifs des variétés analytiques rigides

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.

The second chapter deals with Voevodsky's approach based on transfers. One finds there the construction of the triangulated category of rigid analytic motives, and an extension to rigid analytic geometry of a large number of Voevodsky's fundamental results such as his theory of homotopy invariants presheaves with transfers.

Aug. 2015 386 pp.
9782856298114

Société Mathématique de France

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Wiley Series in Discrete Mathematics and Optimization

Alon, N. / Spencer, H. / Erdos, P.:
The Probabilistic Method, 4th ed.

Maintaining a standard of excellence that establishes The Probabilistic Method as the leading reference on probabilistic methods in combinatorics, the Fourth Edition continues to feature a clear writing style, illustrative examples, and illuminating exercises. The new edition includes numerous updates to reflect the most recent developments and advances in mathematics and the connections to other areas in mathematics, theoretical computer science, and statistical physics.

Dec. 2015 416 pp.
 9781119061953 21,500.

Wiley Series in Probability and Statistics

Myers, R. / Montgomery, D. / Anderson-Cook, C.:
**Response Surface Methodology:
 Process and Product Optimization Using
 Designed Experiments, 4th ed.**

This new edition maintains its accessible approach to RSM, with coverage of classical and modern response surface designs.

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Feb. 2016 784 pp.
 9781118916018 28,050.

Palma, W.:
Time Series Analysis

Featuring an organized and self-contained guide, Time Series Analysis provides a broad introduction to the most fundamental methodologies and techniques of time series analysis.

The book focuses on the treatment of univariate time series by illustrating a number of well-known models such as ARMA and ARIMA. Providing contemporary coverage, the book features several useful and newly-developed techniques such as weak and strong dependence, Bayesian methods, non-Gaussian data, local stationarity, missing values and outliers, and threshold models.

Oct. 2015 608 pp.
 9781118634325 25,240.

Rosenberger, W. / Lachin, J.:
**Randomization in Clinical Trials:
 Theory and Practice, 2nd ed.**

This Second Edition features a unique overview that melds the concepts of conditional probability and stochastic processes into real-life applications.

By combining the applied aspects of randomization in clinical trials with a nonparametric approach to inference, the book has become a 'must have' for biostatisticians and pharmaceutical industry statisticians. The book also focuses on the linear rank test under a randomization model, with added discussion on likelihood-based inference as it relates to sufficiency and ancillarity.

Jan. 2016 320 pp.
 9781118742242 23,370.

Wiley

Yurinsha Book News

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.

We begin with the linear theory, then give the definition of symplectic manifolds and some basic examples, review advanced calculus, discuss Hamiltonian systems, tour rapidly group and the basics of contact geometry, and solve problems in chapter 8.

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 140 pp.
9789814696708 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.

The major topics covered set theory and recursion theory, with particular emphasis on forcing, inner model theory and Turing degrees, offering a wide overview of ideas and techniques introduced in contemporary research in the field of mathematical logic.

Oct. 2015 184 pp.
9789814699945 13,950.

Mathematical Olympiad Series,

Vol. 12: Leng, G. /Liu, Y.: 497-023/024
Geometric 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 elaborates on Geometric Inequality problems such as inequality for the inscribed quadrilateral, the area inequality for special polygons, linear geometric inequalities, etc.

Feb. 2016 150 pp.
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 272 pp.
9789814704120/696456 10,230./6,510. (Paper ed.)

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302pp	Oct 2015	
978-1-78326-664-7	US\$88	£58

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