

Yurinsha Book News

Springer Monographs in Mathematics

Fuchs, L.:

495-071

Abelian Groups

Written by one of the subject's foremost experts, this book focuses on the central developments and modern methods of the advanced theory of abelian groups, while remaining accessible, as an introduction and reference, to the non-specialist.

It provides a coherent source for results scattered throughout the research literature with lots of new proofs.

The presentation highlights major trends that have radically changed the modern character of the subject, in particular, the use of homological methods in the structure theory of various classes of abelian groups, and the use of advanced set-theoretical methods in the study of undecidability problems.

The treatment of the latter trend includes Shelah's seminal work on the undecidability in ZFC of Whitehead's Problem; while the treatment of the former trend includes an extensive (but non-exhaustive) study of p -groups, torsion-free groups, mixed groups and important classes of groups arising from ring theory.

To prepare the reader to tackle these topics, the book reviews the fundamentals of abelian group theory and provides some background material from category theory, set theory, topology and homological algebra.

Sep. 2015
9783319194219

740 pp.

28,560.

Springer

<http://www.yurinsha.com>

ホームページは毎月25日更新予定です

No. 496 July - Aug. 2015

敬理科学 友隣社 洋書専門

Yurinsha Book News

Student Mathematical Library,

Vol. 74: Elhamdadi, M. / Nelson, S.:

Quandles:

An Introduction to the Algebra of Knots

From prehistory to the present, knots have been used for purposes both artistic and practical. The modern science of Knot Theory has ramifications for biochemistry and mathematical physics and is a rich source of research projects for undergraduate and graduate students and professionals alike. Quandles are essentially knots translated into algebra.

This book provides an accessible introduction to quandle theory for readers with a background in linear algebra. Important concepts from topology and abstract algebra motivated by quandle theory are introduced along the way. With elementary self-contained treatments of topics such as group theory, cohomology, knotted surfaces and more, this book is perfect for a transition course, an upper-division mathematics elective, preparation for research in knot theory, and any reader interested in knots.

Aug. 2015

248 pp.

9781470422134

8,950.

Contemporary Mathematics,

Vol. 64.3: Pantev, T. / Simpson, C. / Toen, B. /

Vaquie, M. / Vezzosi, G. (eds.):

**Stacks and Categories in Geometry,
Topology, and Algebra**

This volume contains the proceedings of the CATS4 Conference on Higher Categorical Structures and their Interactions with Algebraic Geometry, Algebraic Topology and Algebra, 2012, at CIRM. Over the past several years, the CATS conference series has brought together top level researchers from around the world interested in relative and higher category theory and its applications to classical mathematical domains.

Included in this volume is a collection of articles covering the applications of categories and stacks to geometry, topology and algebra. Techniques such as localization, model categories, simplicial objects, sheaves of categories, mapping stacks, dg structures, hereditary categories, and derived stacks, are applied to give new insight on cluster algebra, Lagrangians, trace theories, loop spaces, structured surfaces, stability, ind-coherent complexes and 1-affineness showing up in geometric Langlands, branching out to many related topics along the way.

July 2015

323 pp.

9781470415570

19,170.

Vol. 642: Lahyane, M. / Martinez-Moro, E. (eds.):

Algebra for

Secure and Reliable Communication Modeling

This volume contains the proceedings of the CIMPA Research School and Conference on Algebra for Secure and Reliable Communication Modeling, in Morelia, State of Michoacan, Mexico.

The papers cover several aspects of the theory of coding theory and are gathered into three categories: general theory of linear codes, algebraic geometry and coding theory, and constacyclic codes over rings. The aim of this volume is to fill the gap between the theoretical part of algebraic geometry and the applications to problem solving and computational modeling in engineering, signal processing and information theory.

July 2015

240 pp.

9781470410186

19,170.

A. M. S.

Page 1

Yurinsha Book News

Contemporary Mathematics,

**Vol. 641: Bastera, M. / Bauer, K. / Hess, K. / Johnson, B. (eds.):
Women in Topology:
Collaborations in Homotopy Theory**

The Women in Topology workshop was devoted primarily to active collaboration by teams of five to seven participants, each including senior and junior researchers, as well as graduate students.

This volume contains papers based on the results obtained by team projects in homotopy theory, including A -infinity structures, equivariant homotopy theory, functor calculus, model categories, orbispaces, and topological Hochschild homology.

June 2015 166 pp.
9781470410131 19,170.

**Vol. 640: Eskin, G. / Friedlander, L. / Garnett, J. (eds.):
Spectral Theory and
Partial Differential Equations**

Papers in this volume cover important topics in spectral theory and partial differential equations such as inverse problems, both analytical and algebraic; minimal partitions and Pleijel's Theorem; spectral theory for a model in Quantum Field Theory; and beams on Zoll manifolds.

June 2015 197 pp.
9781470409890 19,170.

Mathematical Surveys and Monographs,

**Vol. 204: Buchstaber, V. / Panov, T.:
Toric Topology**

This book is about toric topology, a new area of mathematics that emerged at the end of the 1990s on the border of equivariant topology, algebraic and symplectic geometry, combinatorics, and commutative algebra.

It has quickly grown into a very active area with many links to other areas of mathematics, and continues to attract experts from different fields.

The key players in toric topology are moment-angle manifolds, a class of manifolds with torus actions defined in combinatorial terms. Construction of moment-angle manifolds relates to combinatorial geometry and algebraic geometry of toric varieties via the notion of a quasitoric manifold.

Discovery of remarkable geometric structures on moment-angle manifolds led to important connections with classical and modern areas of symplectic, Lagrangian, and non-Kaehler complex geometry.

July 2015 523 pp.
9781470422141 20,090.

**Vol. 203: Yau, D. / Johnson, M.:
A Foundation for PROPs, Algebras, and Modules**

PROPs and their variants are extremely general and powerful machines that encode operations with multiple inputs and multiple outputs.

In this respect PROPs can be viewed as generalizations of operads that would allow only a single output. Variants of PROPs are important in several mathematical fields, including string topology, topological conformal field theory, homotopical algebra, deformation theory, Poisson geometry, and graph cohomology.

The purpose of this monograph is to develop, in full technical detail, a unifying object called a generalized PROP.

July 2015 311 pp.
9781470421977 20,090.

A. M. S.

*Atlantis Briefs in Differential Equations,***Vol. *: Rachunkova,I./Tomecek,J.:** 496-157**State-Dependent Impulses:****Boundary Value Problems on Compact Intervals**

This book offers the reader a new approach to the solvability of boundary value problems with state-dependent impulses and provides recently obtained existence results for state dependent impulsive problems with general linear boundary conditions.

It covers fixed-time impulsive boundary value problems both regular and singular and deals with higher order differential equations or with systems that are subject to general linear boundary conditions.

We treat state-dependent impulsive boundary value problems, including a new approach giving effective conditions for the solvability of the Dirichlet problem with one state-dependent impulse condition and we show that the depicted approach can be extended to problems with a finite number of state-dependent impulses.

We investigate the Sturm-Liouville boundary value problem for a more general right-hand side of a differential equation.

Finally, we offer generalizations to higher order differential equations or differential systems subject to general linear boundary conditions.

Dec. 2015

180 pp.

9789462391260

10,200.

Vol. 5: Cabada,A./Tojo,A./Adrian,F.:**Differential Equations with Involutions**

Feb. 2016 150 pp. 9789462391208 10,200.

*Atlantis Studies in Probability and Statistics,***Vol. 7: Ahsanullah,M.:**

496-191

**Characterizations of
Univariate Probability Distributions**

Provides in an organized manner characterizations of univariate probability distributions with many new results published in this area since the 1978 work of Golambos & Kotz "Characterizations of Probability Distributions" (Springer), together with applications of the theory in model fitting and predictions.

Aug. 2016

....

9789462391383

14,270.

Vol. 6: Ahsanullah,M./Nevzorov,V.:

496-192

Records Via Probability Theory

A lot of statisticians, actuarial mathematicians, reliability engineers, meteorologists, hydrologists, economists.

Business and sport analysts deal with records which play important roles in various fields of statistics and its application. This book enables a reader to check his/her level of understanding of the theory of record values.

We give basic formulae which are more important in the theory and present a lot of examples which illustrate the theoretical statements.

For a beginner in record statistics, as well as for graduate students the study of our book needs the basic knowledge of the subject.

A more advanced reader can use our book to polish his/her knowledge.

An upgraded list of bibliography which will help a reader to enrich his/her theoretical knowledge and widen the experience of dealing with ordered observations, is also given in the book.

Aug. 2015

320 pp.

9789462391352

17,340.

Atlantis

Yurinsha Book News

Science Networks, Historical Studies,

Vol. 51: Risi, V.:

496-028

**Leibniz on the Parallel Postulate and
the Foundations of Geometry**

This book offers a general introduction to the geometrical studies of Gottfried Wilhelm Leibniz (1646-1716) and his mathematical epistemology. In particular, it focuses on his theory of parallel lines and his attempts to prove the famous Parallel Postulate.

The book provides new material on the history of non-Euclidean geometry, stressing the previously neglected role of Leibniz in these developments.

Nov. 2015

9783319198620

....

16,660.

Advanced Courses in Mathematics - CRM Barcelona

Hacking, P. / Laza, R. / Oprea, D. / Bini, G. / Lahoz, M. /
Macri, E. / Stellari, P. (eds.):

496-072

Compactifying Moduli Spaces

This book focusses on a large class of objects in moduli theory and provides different perspectives from which compactifications of moduli spaces may be investigated.

Jan. 2016

9783034809207

150 pp.

4,900.

Alexeev, V.:

496-045

Moduli of Weighted Hyperplane Arrangements

This book focuses on a large class of geometric objects in moduli theory and provides explicit computations to investigate their families.

Concrete examples are developed that take advantage of the intricate interplay between Algebraic Geometry and Combinatorics.

Compactifications of moduli spaces play a crucial role in Number Theory, String Theory, and Quantum Field Theory - to mention just a few.

In particular, the notion of compactification of moduli spaces has been crucial for solving various open problems and long-standing conjectures.

June 2015

9783034809146

117 pp.

5,100.

Contemporary Mathematicians,

Gesztesy, F. / Godefroy, G. / Grafakos, L. / Verbitsky, I. (eds.):
Nigel J. Kalton Selecta, Vol. 1

496-016

This book is the first part of a two volume anthology comprising a selection of 49 articles that illustrate the depth, breadth and scope of Nigel Kalton's research.

Each article is accompanied by comments from an expert on the respective topic, which serves to situate the article in its proper context, to successfully link past, present and hopefully future developments of the theory, and to help readers grasp the extent of Kalton's accomplishments. Kalton's work represents a bridge to the mathematics of tomorrow, and this book will help readers to cross it.

Sep. 2015

9783319187952

809 pp.

27,440.

Gesztesy, F. / Godefroy, G. / Grafakos, L. / Verbitsky, I. (eds.):
Nigel J. Kalton Selecta, Vol. 2

496-017

Sep. 2015

9783319187983

806 pp.

27,440.

Birkhauser

Yurinsha Book News

London Mathematical Society Lecture Note Series,

*Vol. ***: Stanic, Z.:*

496-097

Inequalities for Graph Eigenvalues

Written for mathematicians working with the theory of graph spectra, this book explores more than 400 inequalities for eigenvalues of the six matrices associated with finite simple graphs: the adjacency matrix, Laplacian matrix, signless Laplacian matrix, normalized Laplacian matrix, Seidel matrix, and distance matrix.

The book begins with a brief survey of the main results and selected applications to related topics, including chemistry, physics, biology, computer science, and control theory.

Sep. 2015

310 pp.

9781107545977

13,120.

*Vol. ***: Czumaj, A. /Georgakopoulos, A.:*

496-064

Surveys in Combinatorics 2015

This volume contains nine survey articles based on the invited lectures given at the 25th British Combinatorial Conference, held at the University of Warwick in July 2015.

This biennial conference is a well-established international event, with speakers from around the world.

The volume provides an up-to-date overview of current research in several areas of combinatorics, including graph theory, Ramsey theory, combinatorial geometry and curves over finite fields.

Each article is clearly written and assumes little prior knowledge on the part of the reader.

Jan. 2016

328 pp.

9781107462502

14,760.

Cambridge Studies in Advanced Mathematics,

*Vol. ***: Garcia, S.:*

496-128

Introduction to Model Spaces and Their Operators

The study of model spaces, the closed invariant subspaces of the backward shift operator, is a vast area of research with connections to complex analysis, operator theory and functional analysis.

This self-contained text is the ideal introduction for newcomers to the field.

It sets out the basic ideas and quickly takes the reader through the history of the subject before ending up at the frontier of mathematical analysis.

Open questions point to potential areas of future research, offering plenty of inspiration to graduate students wishing to advance further.

Apr. 2016

335 pp.

9781107108745

13,120.

*Vol. ***: Viana, M. /Oliveira, K.:*

496-163

Foundations of Ergodic Theory

Rich with examples and applications, this textbook provides a coherent and self-contained introduction to ergodic theory, suitable for a variety of one- or two-semester courses.

The authors' clear and fluent exposition helps the reader to grasp quickly the most important ideas of the theory, and their use of concrete examples illustrates these ideas and puts the results into perspective.

The book requires few prerequisites, with background material supplied in the appendix.

Jan. 2016

625 pp.

9781107126961

19,680.

Cambridge

Page 5

Yurinsha Book News

Proceedings of the International Congress of 496-029
Mathematicians, Seoul 2014 4 Vols. Set
Feb. 2015 4806 pp.
9781000023213 74,000 (本体価格)

2014 Seoul ICM, Vol. I Feb. 2015 890 pp.
*Opening Ceremony *Closing Ceremony
*Laudations for Prize winners in ICM 2014
*Prize winners Lectures *Special Lectures *Plenary Lectures
2014 Seoul ICM, Vol. II Aug. 2014 1344 pp.
2014 Seoul ICM, Vol. III Aug. 2014 1268 pp.
2014 Seoul ICM, Vol. IV Aug. 2014 1304 pp.

Kyung Moon

Documents mathematiques,

Vol. 14: Colmez,P./Serre,J.-P. (eds.):
Correspondance Serre-Tate:
Vol. II (1973-2000) 496-059

These two volumes(13 & 14) reproduce, with notes and comments, the correspondence between Jean-Pierre Serre and John Tate from 1956 to 2000. They also contain a choice of e-mails post-2000. The texts are reproduced in their original language: in English or in French. Most of them are from the 20 years 1956-1976. They treat questions like the write-up of Bourbaki's Elements, Galois cohomology, rigid geometry, Tate's conjectures on algebraic cycles, formal and p-divisible groups, complex multiplication, and modular forms: congruence properties, weight 1 forms, Galois representations.

July 2015 521 pp.
9782856298039 24,480.

Vol. 13: Colmez,P./Serre,J.-P. (eds.): 496-060
Correspondance Serre-Tate: Vol. I (1956-1973)
July 2015 448 pp. 9782856298022 24,480.

Asterisque,

Vol. 367 - Vol. 368: Bourbaki,N.:
Seminaire Bourbaki, Volume 2013/ 2014:
Exposes 1074-1088 496-050

This 66th volume of the Bourbaki Seminar contains the texts of the fifteen survey lectures done during the year 2013/2014: four lectures on topology and differential geometry, four lectures about partial differential equations, one lecture on the structure of approximate groups, one lecture about functional analysis, one lecture on the algebraic geometry of K3 surfaces, one lecture about the gaps between prime numbers, one lecture on probability theory and two lectures concerning foundations of mathematics and formal proofs.

Oct. 2015 486 pp.
9782856298046 22,440.

Vol. 369 - 370: Bost,J.-B./Boyer,A./Genestier,L./
Lafforgue,S./Lysenko,S./Morel,B./Ngo,C. (eds.):
De la geometrie algebrique aux formes automorphes (I) - (ii)
Aug. 2015 375 pp./305 pp. 9782856298053 / 9782856298060 価格未定

Societe Mathematique de France

Vol. 2148: Haddar,H. /Hiptmair,R. /Monk,P. /Rodriguez,R.:
Computational Electromagnetism: 496-137
Cetraro, Italy 2014

Presenting topics that have not previously been contained in a single volume, this book offers an up-to-date review of computational methods in electromagnetism, with a focus on recent results in the numerical simulation of real-life electromagnetic problems and on theoretical results that are useful in devising and analyzing approximation algorithms. Based on four courses delivered in Cetraro in June 2014, the material covered includes the spatial discretization of Maxwell's equations in a bounded domain, the numerical approximation of the eddy current model in harmonic regime, the time domain integral equation method (with an emphasis on the electric-field integral equation) and an overview of qualitative methods for inverse electromagnetic scattering problems.

Oct. 2015 230 pp. 9,180.
 9783319193052

Vol. 2147: Hackney,P. /Robertson,M. /Yau,D.: 496-175
Infinity Properads and
Infinity Wheeled Properads

The topic of this book sits at the interface of the theory of higher categories (in the guise of (finitary,1)-categories) and the theory of properads. Properads are devices more general than operads and enable one to encode bialgebraic, rather than just (co)algebraic, structures. The text extends both the Joyal-Lurie approach to higher categories and the Cisinski-Moerdijk-Weiss approach to higher operads, and provides a foundation for a broad study of the homotopy theory of properads. This work also serves as a complete guide to the generalised graphs which are pervasive in the study of operads and properads. A preliminary list of potential applications and extensions comprises the final chapter.

This book is written for mathematicians in the fields of topology, algebra, category theory, and related areas. It is written roughly at the second year graduate level, and assumes a basic knowledge of category theory.

Aug. 2015 14,270.
 9783319205465

Vol. 2146: Besse,C. /Garreau,J.-C. (eds.): 496-111
Nonlinear Optical and Atomic Systems:
At the Interface of Physics and Mathematics

Focusing on the interface between mathematics and physics, this book offers an introduction to the physics, the mathematics, and the numerical simulation of nonlinear systems in optics and atomic physics.

The text covers a wide spectrum of current research on the subject, which is an extremely active field in physics and mathematical physics, with a very broad range of implications, both for fundamental science and technological applications: light propagation in microstructured optical fibers, Bose-Einstein condensates, disordered systems, and the newly emerging field of nonlinear quantum mechanics.

Accessible to PhD students, this book will also be of interest to post-doctoral researchers and seasoned academics.

Sep. 2015 330 pp. 14,280.
 9783319190143

Springer

Yurinsha Book News

Lecture Notes in Mathematics,

**Vol. 2144: Bovier, A. / Brydges, D. / Coja-Oghlan, A. / Ioffe, D. /
Lawler, G. / Biskup, M. / Cerny, J. / Kotecky, R. (eds.):
Random Walks, 496-196**

Random Fields, and Disordered Systems

The common ground of these subjects is perhaps best described by the three terms in the title: Random Walks, Random Fields and Disordered Systems. The specific topics covered include a study of Branching Brownian Motion from the perspective of disordered (spin-glass) systems, a detailed analysis of weakly self-avoiding random walks in four spatial dimensions via methods of field theory and the renormalization group, a study of phase transitions in disordered discrete structures using a rigorous version of the cavity method, a survey of recent work on interacting polymers in the ballistic regime and, finally, a treatise on two-dimensional loop-soup models and their connection to conformally invariant systems and the Gaussian Free Field.

Oct. 2015

230 pp.

9783319193380

9,180.

Vol. 2138: Yengui, I.:

**Constructive Commutative Algebra: 496-102
Projective Modules Over**

Polynomial Rings and Dynamical Grobner Bases

The main goal of this book is to find the constructive content hidden in abstract proofs of concrete theorems in Commutative Algebra, especially in well-known theorems concerning projective modules over polynomial rings (mainly the Quillen-Suslin theorem) and syzygies of multivariate polynomials with coefficients in a valuation ring.

Simple and constructive proofs of some results in the theory of projective modules over polynomial rings are also given, and light is cast upon recent progress on the Hermite ring and Grobner ring conjectures.

New conjectures on unimodular completion arising from our constructive approach to the unimodular completion problem are presented.

Constructive algebra can be understood as a first preprocessing step for computer algebra that leads to the discovery of general algorithms, even if they are sometimes not efficient.

Oct. 2015

256 pp.

9783319194936

9,180.

Vol. 2136: Capraro, V. / Lupini, M.:

**Introduction to Sofic and Hyperlinear Groups and
Connes' Embedding Conjecture 496-054**

This monograph presents some cornerstone results in the study of sofic and hyperlinear groups and the closely related Connes' embedding conjecture. These notions, as well as the proofs of many results, are presented in the framework of model theory for metric structures.

Sofic and hyperlinear groups are countable discrete groups that can be suitably approximated by finite symmetric groups and groups of unitary matrices.

These deep and fruitful notions, introduced by Gromov and Radulescu, respectively, in the late 1990s, stimulated an impressive amount of research in the last 15 years, touching several seemingly distant areas of mathematics including geometric group theory, operator algebras, dynamical systems, graph theory, and quantum information theory.

Oct. 2015

143 pp.

9783319193328

7,140.

Springer

Silverman, J. / Tate, J.:

496-096

Rational Points on Elliptic Curves, 2nd ed.

The theory of elliptic curves involves a pleasing blend of algebra, geometry, analysis, and number theory.

This volume stresses this interplay as it develops the basic theory, thereby providing an opportunity for advanced undergraduates to appreciate the unity of modern mathematics.

At the same time, every effort has been made to use only methods and results commonly included in the undergraduate curriculum.

This accessibility, the informal writing style, and a wealth of exercises make *Rational Points on Elliptic Curves* an ideal introduction for students at all levels who are interested in learning about Diophantine equations and arithmetic geometry.

Most concretely, an elliptic curve is the set of zeroes of a cubic polynomial in two variables. If the polynomial has rational coefficients, then one can ask for a description of those zeroes whose coordinates are either integers or rational numbers.

July 2015

340 pp.

9783319185873

9,180.

Laczkovich, M. / Sos, V.:

496-144

Real Analysis:**Foundations and Functions of One Variable**

Based on courses given at Eotvos Lorand University (Hungary) over the past 30 years, this introductory textbook develops the central concepts of the analysis of functions of one variable --- systematically, with many examples and illustrations, and in a manner that builds upon, and sharpens, the student's mathematical intuition.

The book provides a solid grounding in the basics of logic and proofs, sets, and real numbers, in preparation for a study of the main topics: limits, continuity, rational functions and transcendental functions, differentiation, and integration.

Numerous applications to other areas of mathematics, and to physics, are given, thereby demonstrating the practical scope and power of the theoretical concepts treated.

Sep. 2015

490 pp.

9781493927654

9,180.

Logan, D.:

496-146

A First Course in Differential Equations, 3rd ed.

The third edition of this concise, popular textbook on elementary differential equations gives instructors an alternative to the many voluminous texts on the market.

It presents a thorough treatment of the standard topics in an accessible, easy-to-read, format. The overarching perspective of the text conveys that differential equations are about applications.

This book illuminates the mathematical theory in the text with a wide variety of applications that will appeal to students in physics, engineering, the biosciences, economics and mathematics. Instructors are likely to find that the first four or five chapters are suitable for a first course in the subject. This edition contains a healthy increase over earlier editions in the number of worked examples and exercises, particularly those routine in nature.

Aug. 2015

369 pp.

9783319178516

9,180.

Springer

Yurinsha Book News

Undergraduate Texts in Mathematics

Cox,D. /Little,J. /O'Shea,D.: 496-039
Ideals, Varieties, and Algorithms:
An Introduction to Computational Algebraic Geometry and
Commutative Algebra, 4th ed.

This text covers topics in algebraic geometry and commutative algebra with a strong perspective toward practical and computational aspects. The first four chapters form the core of the book. A comprehensive chart in the Preface illustrates a variety of ways to proceed with the material once these chapters are covered. In addition to the fundamentals of algebraic geometry - the elimination theorem, the extension theorem, the closure theorem and the Nullstellensatz - this new edition incorporates several substantial changes, all of which are listed in the Preface. The largest revision incorporates a new Chapter (ten), which presents some of the essentials of progress made over the last decades in computing Grobner bases. The book also includes current computer algebra material in Appendix C and updated independent projects (Appendix D).

Apr. 2015 641 pp. 9,180.
9783319167206

Beck,M. /Robins,S.: 496-047
Computing the Continuous Discretely:
Integer-Point Enumeration in Polyhedra, 2nd ed.

This richly illustrated textbook explores the amazing interaction between combinatorics, geometry, number theory, and analysis which arises in the interplay between polyhedra and lattices. Highly accessible to advanced undergraduates, as well as beginning graduate students, this second edition is perfect for a capstone course, and adds two new chapters, many new exercises, and updated open problems. For scientists, this text can be utilized as a self-contained tooling device. The topics include a friendly invitation to Ehrhart's theory of counting lattice points in polytopes, finite Fourier analysis, the Frobenius coin-exchange problem, Dedekind sums, solid angles, Euler-Maclaurin summation for polytopes, computational geometry, magic squares, zonotopes, and more.

Sep. 2015 285 pp. 9,180.
9781493929689

Pugh,C.: 496-156
Real Mathematical Analysis, 2nd ed.

Based on an honors course taught by the author at UC Berkeley, this introduction to undergraduate real analysis gives a different emphasis by stressing the importance of pictures and hard problems. Topics include: a natural construction of the real numbers, four-dimensional visualization, basic point-set topology, function spaces, multivariable calculus via differential forms (leading to a simple proof of the Brouwer Fixed Point Theorem), and a pictorial treatment of Lebesgue theory. Over 150 detailed illustrations elucidate abstract concepts and salient points in proofs. The exposition is informal and relaxed, with many helpful asides, examples, some jokes, and occasional comments from mathematicians, such as Littlewood, Dieudonne, and Osserman.

July 2015 448 pp. 9,180.
9783319177700

Springer

Probability Theory and Stochastic Modelling,

Vol. 75: Carpentier,P. /Chancelier,J.-P. / 496-199
Cohen,G. /DE LARA,M.:

**Stochastic Multi-Stage Optimization:
At the Crossroads between**

Discrete Time Stochastic Control & Stochastic Programming

The focus of the present volume is stochastic optimization of dynamical systems in discrete time where - by concentrating on the role of information regarding optimization problems - it discusses the related discretization issues.

There is a growing need to tackle uncertainty in applications of optimization. This book lays out basic and advanced tools to handle and numerically solve such problems and thereby is building a bridge between Stochastic Programming and Stochastic Control.

June 2015 358 pp. 19,380.
9783319181370

Vol. 74: Haeusler,E. /Luschgy,H.: 496-214
Stable Convergence and Stable Limit Theorems

The authors present a concise but complete exposition of the mathematical theory of stable convergence and give various applications in different areas of probability theory and mathematical statistics to illustrate the usefulness of this concept.

Stable convergence holds in many limit theorems of probability theory and statistics - such as the classical central limit theorem - which are usually formulated in terms of convergence in distribution.

May 2015 228 pp. 14,280.
9783319183282

Vol. 73: Mandrekar,V. /Rudiger,B.: 496-226
**Stochastic Integration in Banach Spaces:
Theory and Applications**

Considering Poisson random measures as the driving sources for stochastic (partial) differential equations allows us to incorporate jumps and to model sudden, unexpected phenomena.

By using such equations the present book introduces a new method for modeling the states of complex systems perturbed by random sources over time, such as interest rates in financial markets or temperature distributions in a specific region.

Mar. 2015 211 pp. 14,280.
9783319128528

Pseudo-Differential Operators,

Vol. 11: Unterberger,A.: 496-099
**Pseudodifferential Operators with
Automorphic Symbols**

The starting point is a notion of modular distribution in the plane, which will be new to most readers and relates under the Radon transformation to the classical one of modular form of the non-holomorphic type.

Modular forms of the holomorphic type are addressed too in a more concise way, within a general scheme dealing with quantization theory and elementary, but novel, representation-theoretic concepts.

July 2015 202 pp. 13,260.
9783319186566

Springer

Yurinsha Book News

Universitext

Underwood, R.:

496-098

Fundamentals of Hopf Algebras

This text aims to provide graduate students with a self-contained introduction to topics that are at the forefront of modern algebra, namely, coalgebras, bialgebras and Hopf algebras.

The last chapter (Chapter 4) discusses several applications of Hopf algebras, some of which are further developed in the author's 2011 publication, *An Introduction to Hopf Algebras*.

The book may be used as the main text or as a supplementary text for a graduate algebra course.

Prerequisites for this text include standard material on groups, rings, modules, algebraic extension fields, finite fields and linearly recursive sequences.

The book consists of four chapters.

Chapter 1 introduces algebras and coalgebras over a field K ; Chapter 2 treats bialgebras; Chapter 3 discusses Hopf algebras and Chapter 4 consists of three applications of Hopf algebras.

Aug. 2015

180 pp.

9783319189901

10,200.

Coornaert, M.:

496-121

Topological Dimension and Dynamical Systems

Translated from the popular French edition, the goal of the book is to provide a self-contained introduction to mean topological dimension, an invariant of dynamical systems introduced in 1999 by Misha Gromov.

The book examines how this invariant was successfully used by Elon Lindenstrauss and Benjamin Weiss to answer a long-standing open question about embeddings of minimal dynamical systems into shifts.

A large number of revisions and additions have been made to the original text.

Chapter 5 contains an entirely new section devoted to the Sorgenfrey line.

Two chapters have also been added: Chapter 9 on amenable groups and Chapter 10 on mean topological dimension for continuous actions of countable amenable groups. These new chapters contain material that have never before appeared in textbook form.

The chapter on amenable groups is based on Folner's characterization of amenability and may be read independently from the rest of the book.

July 2015

....

10,200.

9783319197937

Debicki, K. / Mandjes, M.:

496-206

Queues and Levy Fluctuation Theory

The book provides an extensive introduction to queueing models driven by Levy-processes as well as a systematic account of the literature on Levy-driven queues.

The objective is to make the reader familiar with the wide set of probabilistic techniques that have been developed over the past decades, including transform-based techniques, martingales, rate-conservation arguments, change-of-measure, importance sampling, and large deviations.

On the application side, it demonstrates how Levy traffic models arise when modelling current queueing-type systems (as communication networks) and includes applications to finance.

Sep. 2015

276 pp.

9783319206929

9,180.

Springer

Developments in Mathematics,

Umarov, S.: Introduction to 496-161
Fractional and Pseudo-Differential Equations
 with Singular Symbols

The book systematically presents the theories of pseudo-differential operators with symbols singular in dual variables, fractional order derivatives, distributed and variable order fractional derivatives, random walk approximants, and applications of these theories to various initial and multi-point boundary value problems for pseudo-differential equations. Fractional Fokker-Planck-Kolmogorov equations associated with a large class of stochastic processes are presented.

A complex version of the theory of pseudo-differential operators with meromorphic symbols based on the recently introduced complex Fourier transform is developed and applied for initial and boundary value problems for systems of complex differential and pseudo-differential equations.

Sep. 2015 434 pp.
 9783319207704 19,380.

Abel Symposia,

Vol. 10: Fornass, J. / Erik, I. / Marius, W. / Erlend, F. (eds.):
Complex Geometry and Dynamics: 496-069
 The Abel Symposium 2013

This book focuses on complex geometry and covers highly active topics centered around geometric problems in several complex variables and complex dynamics, written by some of the world's leading experts in their respective fields.

This book features research and expository contributions from the 2013 Abel Symposium, held at the Norwegian University of Science and Technology Trondheim on July 2-5, 2013.

The purpose of the symposium was to present the state of the art on the topics, and to discuss future research directions.

Aug. 2015
 9783319203362 20,400.

Fields Institute Monographs,

Vol. 34: Laza, R. / Schutt, M. / Yui Noriko (eds.):
Calabi-Yau Varieties: 496-080
 Arithmetic, Geometry and Physics:

Lecture Notes on Concentrated Graduate Courses

This volume presents a lively introduction to the rapidly developing and vast research areas surrounding Calabi-Yau varieties and string theory. With its coverage of the various perspectives of a wide area of topics such as Hodge theory, Gross-Siebert program, moduli problems, toric approach, and arithmetic aspects, the book gives a comprehensive overview of the current streams of mathematical research in the area.

The contributions in this book are based on lectures that took place during workshops with the following thematic titles: "Modular Forms Around String Theory," "Enumerative Geometry and Calabi-Yau Varieties," "Physics Around Mirror Symmetry," "Hodge Theory in String Theory."

The book is ideal for graduate students and researchers learning about Calabi-Yau varieties as well as physics students and string theorists who wish to learn the mathematics behind these varieties.

July 2015 498 pp.
 9781493928293 22,440.

Springer

Yurinsha Book News

Wiley Series in Probability and Statistics

Choudhary, P. /Nagaraja, H.: 496-201

**Measuring Agreement:
Methodology and Applications**

This book successfully blends the currently available statistical methodologies for agreement evaluation in a unified, coherent, and lucid manner. This up-to-date and comprehensive book describes the theoretical underpinnings of the methodologies and presents case studies using several real data sets to illustrate the application of the methodologies.

July 2015 352 pp. 21,040.
9781118078587

Harron, K. /Goldstein, H.: 496-218

Methodological Developments in Data Linkage

This book brings together a collection of contributions from members of the international data linkage community, covering cutting edge methodology in this field.

It presents opportunities and challenges provided by linkage of large and often complex datasets, including analysis problems, legal and security aspects, models for data access and the development of novel research areas. New methods for handling uncertainty in analysis of linked data, solutions for anonymised linkage and alternative models for data collection are also discussed.

Nov. 2015 296 pp. 19,020.
781118745878

Rohatgi, V. /Ehsanes Saleh, A.: 496-234

**An Introduction to
Probability and Statistics, 3rd ed.**

Featuring a comprehensive update, *An Introduction to Probability and Statistics, Third Edition* remains a solid overview to probability theory and mathematical statistics.

Divided into three parts, the Third Edition begins by presenting the fundamentals and foundations of probability.

The second part addresses statistical inference, and the remaining chapters focus on special topics.

This Third Edition is an ideal reference and resource for scientists and engineers in the fields of statistics, mathematics, physics, industrial management, and engineering.

Aug. 2015 688 pp. 24,700.
9781118799642

Balakrishnan, N. /Koutras, M. /Konstantinos, P.:

**Introduction to Probability:
Multivariate Models and Applications.**

Topical coverage includes: bivariate discrete random, continuous random, and stochastic independence-multivariate random variables; transformations of random variables; covariance-correlation; multivariate distributions; the Central Limit Theorem; stochastic processes; and more. The book is ideal for a second course in probability and for researchers and professionals.

Sep. 2015 560 pp. 23,790.
9781118123348

Balakrishnan, N.: 3rd Revised ed.

Continuous Univariate Distributions.

Aug. 2015 704 pp. 9780471752899 22,870. 496-193

Wiley

Yurinsha Book News

Series in Contemporary Applied Mathematics,

Vol. 9: Bai,Z. /Gao,W. /Su,Y. (ed.): 496-239

Matrix Functions and Matrix Equations

Matrix functions and matrix equations are widely used in science, engineering and social sciences due to the succinct and insightful way in which they allow problems to be formulated and solutions to be expressed. This book covers materials relevant to advanced undergraduate and graduate courses in numerical linear algebra and scientific computing. It is also well-suited for self-study.

The broad content makes it convenient as a general reference to the subjects.

Aug. 2015

148 pp.

9789814675765

13,720.

Bordag,L.: 496-195

Geometrical Properties of Differential Equations

This textbook is a short comprehensive and intuitive introduction to Lie group analysis of ordinary and partial differential equations. This practical-oriented material contains a large number of examples and problems accompanied by detailed solutions and figures.

In comparison with the known beginner guides to Lie group analysis, the book is oriented toward students who are interested in financial mathematics, mathematical finance and economics.

July 2015

325 pp.

9789814667241

14,270.

Pankov,M.: 496-089

**Geometry of Semilinear Embeddings:
Relations to Graphs and Codes**

This volume covers semilinear embeddings of vector spaces over division rings and the associated mappings of Grassmannians. In contrast to classical books, we consider a more general class of semilinear mappings and show that this class is important.

A large portion of the material will be formulated in terms of graph theory, that is, Grassmann graphs, graph embeddings, and isometric embeddings. In addition, some relations to linear codes will be described.

Graduate students and researchers will find this volume to be self-contained with many examples.

Aug. 2015

180 pp.

9789814651073

12,440.

Gio,B. /Pu,X.: 496-132

**Fractional Partial Differential Equations and
Their Numerical Solutions**

This book aims to introduce some new trends and results on the study of the fractional differential equations, and to provide a good understanding of this field to beginners who are interested in this field, which is the authors' beautiful hope.

This book describes theoretical and numerical aspects of the fractional partial differential equations, including the authors' researches in this field, such as the fractional Nonlinear Schrodinger equations, fractional Landau-Lifshitz equations and fractional Ginzburg-Landau equations.

It also covers enough fundamental knowledge on the fractional derivatives and fractional integrals, and enough background of the fractional PDEs.

May 2015

348 pp.

9789814667043

17,940.

World Scientific Publishing

Vol. 19: Fasshauer, G. / McCourt, M.: 496-126
Kernel-Based Approximation Methods
Using MATLAB

In an attempt to introduce application scientists and graduate students to the exciting topic of positive definite kernels and radial basis functions, this book presents modern theoretical results on kernel-based approximation methods and demonstrates their implementation in a variety of fields of application.

With the aim of providing researchers involved in function approximation, boundary value problems, spatial statistics and machine learning with the flexible and high-order tools developed using kernels, the authors explore their historical context and explain recent advances as strategies to address long-standing problems. Examples are drawn from fields as diverse as function approximation, spatial statistics, boundary value problems, machine learning, surrogate modeling and finance.

Contents: *Positive Definite Kernels and Radial Basis Functions *Reproducing Kernel Hilbert Spaces *Kriging, Green's Kernels *Generalized Sobolev Spaces *Alternate and Stable Interpolation Bases *Kernel Optimization *Examples in: Scattered Data Fitting, Surrogate Modeling, Spatial Statistics, Machine

*Learning, Boundary Value Problems, Finance

Sep. 2015

400 pp.

9789814630139

15,550.

Yekutieli, A.: 496-101
Nonabelian Multiplicative Integration on Surfaces

Nonabelian multiplicative integration on curves is a classical theory.

This volume is about the 2-dimensional case, which is much more difficult.

In our construction, the setup is a Lie crossed module: there is a Lie group H , together with an action on it by another Lie group G .

The multiplicative integral is an element of H , and it is the limit of Riemann products.

Each Riemann product involves a fractal decomposition of the surface into kites (triangles with strings connecting them to the base point).

There a twisting of the integrand, that comes from a 1-dimensional multiplicative integral along the strings, with values in the group G .

The main result of this work is the 3-dimensional nonabelian Stokes theorem.

Dec. 2015

200 pp.

9789814663847

10,610.

Sen, S. / Gupta, K.: 496-189
Many-Body Physics, Topology and Geometry

The book explains concepts and ideas of mathematics and physics that are relevant for advanced students and researchers of condensed matter physics.

With this aim, a brief intuitive introduction to many-body theory is given as a powerful qualitative tool for understanding complex systems.

The important emergent concept of a quasiparticle is then introduced as a way to reduce a many-body problem to a single particle quantum problem.

Examples of quasiparticles in graphene, superconductors, superfluids and in a topological insulator on a superconductor are discussed.

The mathematical idea of self-adjoint extension, which allows short distance information to be included in an effective long distance theory through boundary conditions, is introduced through simple examples and then applied extensively to analyse and predict new physical consequences for graphene.

Sep. 2015

250 pp.

9789814678162

10,610.

World Scientific Publishing

Vol. 67: Ambrosio, L. / 496-105
Giga Yoshikazu /Rybka, P. /Tonegawa Yoshihiro :
Variational Methods for Evolving Objects
 June 2015 310 pp.
 9784864970280 6,204.

Vol. 66: Blanloeil, V. /Saeki Osamu : 496-172
Singularities in Geometry and Topology
 This volume collects original or survey papers on Singularities in Geometry and Topology, which resulted from the 6th Franco-Japanese Symposium on Singularities, held in Fukuoka, during September 5-10, 2011. This followed the 5th Franco-Japanese Symposium held in Strasbourg in 2009. Though singularity theory was born in the XIXth century, this field of research became more popular in Franco after Prof. Heisuke Hironaka came to Paris. Then, a lot of collaborations between Japanese and French mathematicians started and the conferences on Singularities in Geometry and Topology continue to develop this collaboration between France and Japan. We note that all the papers in this volume have been carefully refereed.
 May 2015 298 pp.
 9784864970266 6,482.

Vol. 65: Che, J. /Chen, M. /Kawamata Yujiro /Keum, J.-H.: 496-055
Algebraic Geometry in
East Asia —Taipei 2011
 Algebraic Geometry has long tradition and remains an active research field in Mathematics. The recent development of algebraic geometry in East Asia area, such as China, Japan, Korea, Singapore, Taiwan, and Vietnam, are remarkable. It is thus natural and important for mathematicians in the nearby fields from nearby countries to exchange ideas. The purpose of the conference series "Algebraic Geometry in East Asia" is to provide a platform for algebraic geometers in East Asia to get together and to seek for possible future collaboration.
 Apr. 2015 242 pp.
 9784864970242 5,371.

Vol. 64: Ei Shin-Ichiro /Kawashima Shuichi /
Kimura Masato /Mizumachi Tetsu : 496-124
Nonlinear Dynamics in
Partial Differential Equations
 This volume grew out from the 4th MSJ-SI international conference "NONLINEAR DYNAMICS IN PARTIAL DIFFERENTIAL EQUATIONS" held at Kyushu University, Kyushu, Japan, September 12th - 21st, 2011 with more than two hundred participants. It consists of peer reviewed articles which are survey and research papers by participants of the conference. In the conference, we focused on the nonlinear dynamics of solutions for PDEs arising in fields including dissipative systems, variational problems, pattern formation problems, viscosity solutions, dynamical systems, fluid dynamics, dispersive systems and wave equations. Please refer the attached program of the conference in the final section.
 Apr. 2015 562 pp.
 9784864970228 12,965.

Mathematical Society of Japan



visit us at: <http://www.worldscientific.com>

Advanced Series on Statistical Science and Applied Probability - Volume 21

Change of Time and Change of Measure

(2nd Edition)

by Ole E Barndorff-Nielsen (*Aarhus University, Denmark*),
Albert Shiryaev (*Steklov Mathematical Institute, Russia & Moscow State University, Russia*)

This book provides a comprehensive account of two topics that are of particular significance in both theoretical and applied stochastics: random change of time and change of probability law.

Readership: Mathematical researchers, graduate students and practitioners interested in application of probabilistic theories & stochastic processes to economics, finance, and turbulence.

344pp Jul 2015
978-981-4678-58-2

Complex Analysis (2nd Edition)

An Invitation

by Murali Rao (*University of Florida, USA*), Henrik Stetkær,
Søren Fournais & Jacob Schach Møller (*Aarhus University, Denmark*)

"... covers an unusually large amount of material in a relatively few pages, and does so in a way that provides an excellent survey of the results and techniques of function theory ... the presentation often provides excellent insights into the subject."

Mathematical Reviews

Readership: Advanced undergraduates and graduate students of mathematics including mathematicians interested in Loewner theory.

424pp Mar 2015
978-981-4579-58-2
978-981-4579-59-9(pbk)

Building Proofs

A Practical Guide

by Suelly Oliveira & David Stewart (*The University of Iowa, USA*)

This book introduces the art and craft of writing proofs, beginning with basics of writing proofs and logic, then continuing on with more in-depth issues and examples of creating proofs in different parts of mathematics, and introducing proofs-of-correctness for algorithms.

Readership: Undergraduates, graduates, teachers, high school students and general readers studying or interested in mathematical proofs.

180pp Aug 2015
978-981-4641-29-6
978-981-4641-30-2(pbk)

World Scientific Publishing Co. Pte. Ltd.

5 Toh Tuck Link, World Scientific Building, SINGAPORE 596224
Fax: 65 6467 7667 Tel: 65 6466 5775 E-mail: sales@wspc.com.sg

New Jersey • London • Singapore • Beijing • Shanghai • Tianjin • Sydney • Hong Kong • Taipei • Chennai



PRINCETON UNIVERSITY PRESS

◆近刊のご案内◆

Nicholas J. Higham (ed.)

The Princeton Companion to Applied Mathematics

Sept. 2015 1040 p. 9780691150390 Hardback ¥13,330

This is the most authoritative and accessible single-volume reference book on applied mathematics. Featuring numerous entries by leading experts and organized thematically, it introduces readers to applied mathematics and its uses; explains key concepts; describes important equations, laws, and functions; looks at exciting areas of research; covers modeling and simulation; explores areas of application; and more.

Modeled on the popular *Princeton Companion to Mathematics*, this volume is an indispensable resource for undergraduate and graduate students, researchers, and practitioners in other disciplines seeking a user-friendly reference book on applied mathematics.



Brian Conrad & Gopal Prasad

Classification of Pseudo-reductive Groups

Annals of Mathematics Studies, 191

Jan. 2016 272 p. 9780691167923 Hardback ¥22,100

9780691167930 Paperback ¥10,040

In the earlier monograph *Pseudo-reductive Groups*, Brian Conrad, Ofer Gabber, and Gopal Prasad explored the general structure of pseudo-reductive groups. In this new book, *Classification of Pseudo-reductive Groups*, Conrad and Prasad go further to study the classification over an arbitrary field. An isomorphism theorem proved here determines the automorphism schemes of these groups. The book also gives a Tits-Witt type classification of isotropic groups and displays a cohomological obstruction to the existence of pseudo-split forms. Constructions based on regular degenerate quadratic forms and new techniques with central extensions provide insight into new phenomena in characteristic 2, which also leads to simplifications of the earlier work. A generalized standard construction is shown to account for all possibilities up to mild central extensions.

The results and methods developed in *Classification of Pseudo-reductive Groups* will interest mathematicians and graduate students who work with algebraic groups in number theory and algebraic geometry in positive characteristic.