Yurinsha Book News

Graduate Studies in Mathematics,

503-082

Vol. 174: Kirillov, Jr, A.: Quiver Representations and Quiver Varieties

This book is an introduction to the theory of quiver representations and quiver varieties, starting with basic definitions and ending with Nakajima's work on quiver varieties and the geometric realization of KacMoody Lie algebras.

The first part of the book is devoted to the classical theory of quivers of finite type. Here the exposition is mostly self-contained and all important proofs are presented in detail. The second part contains the more recent topics of quiver theory that are related to quivers of infinite type: Coxeter functor, tame and wild quivers, McKay correspondence, and representations of Euclidean quivers.

In the third part, topics related to geometric aspects of quiver theory are discussed, such as quiver varieties, Hilbert schemes, and the geometric realization of Kac-Moody algebras.

Here some of the more technical proofs are omitted; instead only the statements and some ideas of the proofs are given, and the reader is referred to original papers for details.

The exposition in the book requires only a basic knowledge of algebraic geometry, differential geometry, and the theory of Lie groups and Lie algebras.

Oct. 2016 295 pp.

9781470423070 14,010.

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. 503 Sep.-Oct. 2016

数理科学 友 隣 社 洋書専門

Hersh, P. /Lam, T. /Pylyavskyy, P. /Reiner, V. (eds.): The Mathematical Legacy of Richard P. Stanley

Richard Stanley's work in combinatorics revolutionized & reshaped the subject. His lectures, papers, and books inspired a generation of researchers. In this volume, these researchers explain how Stanley's vision and insights influenced and guided their own perspectives on the subject. As a valuable bonus, this book contains a collection of Stanley's short comments on each of his papers.

No. 503-076

Oct. 2016 352 pp.
9781470427245 9,260.

Collected Works,

No. 503-075

Vol. 25: Hersh, P. /Lam, T. / Pylyavskyy, P. /Reiner, V. (eds.): Selected Works of Richard P.Stanley

Richard Stanley's work in combinatorics revolutionized & reshaped the subject. Many of his hallmark ideas and techniques imported from other areas of mathematics have become mainstays in the framework of modern combinatorics. In addition to collecting several of Stanley's most influential papers, this volume also includes his own short reminiscences on his early years, and on his celebrated proof of The Upper Bound Theorem.

Oct. 2016 783 pp
9781470416829 25,120.

Mathematical Surveys and Monographs,

No. 503-068

Vol. 213: Diamond, H. /Zhang, W.-B.: Beurling Generalized Numbers

"Generalized numbers" is a multiplicative structure introduced by A. Beurling to study how independent prime number theory is from the additivity of the natural numbers. The results and techniques of this theory apply to other systems having the character of prime numbers and integers; for example, it is used in the study of the prime number theorem (PNT) for ideals of algebraic number fields. Using both analytic and elementary methods, this book presents many old and new theorems, including several of the authors' results, and many examples of extremal behavior of g-number systems.

Oct. 2016 244 pp.
9781470430450 17,320.

Contemporary Mathematics

No. 503-127

Vol. 671: Doran, R. /Park, E. (ed.): Operator Algebras and Their Applications: A Tribute to Richard Kadison

Richard V. Kadison has been a towering figure in the study of operator algebras for more than 65 years. His research and leadership in the field have been fundamental in the development of the subject, and his influence continues to be felt though his work and the work of his many students, collaborators, and mentees. Among the topics addressed in this volume are the Kadison-Kaplanksy conjecture, classification of C*-algebras, connections between operator spaces and parabolic induction, spectral flow, C*-algebra actions, von Neumann algebras, and applications to mathematical physics.

Sep. 2016 267 pp.
9781470419486 16,960.

A. M. S.

Contemporary Mathematics

Vol. 670: Gongopadhyay, K. /Mishra, R. t al. (eds.): Knot Theory and Its Applications.

No. 503-157

The meeting focused on the broad area of knot theory and its interaction with other disciplines of theoretical science.
The program was divided into two parts. The first part was a week-long advanced school which consisted of minicourses. The second part was a discussion meeting that was meant to connect the school to the modern research areas. This volume consists of lecture notes on the topics of the advanced school, as well as surveys and research papers on current topics that connect the lecture notes with cutting-edge research in the broad area of knot theory.

Oct. 2016 357 pp.
9781470422578 21,730.

Vol. 668: Budzban, G. /Randolph Hughes, H. /Schurz, H.: Probability on Algebraic and Geometric Structures

No. 503-023

"Probability on Algebraic and Geometric Structures", 2014, at Southern Illinois University, Carbondale, IL, celebrating the careers of Philip Feinsilver, Salah-Eldin A. Mohammed, and Arunava Mukherjea.
These proceedings include survey papers and new research on a variety of topics such as probability measures and the behavior of stochastic processes on groups, semigroups, and Clifford algebras; algebraic methods for analyzing Markov chains and products of random matrices; stochastic integrals and stochastic ordinary, partial, and functional differential equations.

June 2016 221 pp.
9781470419455 17,010.

Vol. 666: Radulescu, V. /Sequeira, A. /Solonnikov, V.: Recent Advances in Partial Differential Equations and Applications

No. 503-157

The conference brought together leading experts and researchers in nonlinear partial differential equations to promote research and to stimulate interactions among the participants.
The workshop program testified to the wide-ranging influence of Hugo Beirao da Veiga on the field of partial differential equations, in particular those related to fluid dynamics.

June 2016 404 pp.
9781470415211 17,010.

Pure and Applied Undergraduate Texts,

Vol. 26: Lakins, T.: The Tools of Mathematical Reasoning

No. 503-023

This accessible textbook gives beginning undergraduate mathematics students a first exposure to introductory logic, proofs, sets, functions, number theory, relations, finite and infinite sets, and the foundations of analysis.
The book provides students with a quick path to writing proofs and a practical collection of tools that they can use in later mathematics courses such as abstract algebra and analysis.
The importance of the logical structure of a mathematical statement as a framework for finding a proof of that statement, and the proper use of variables, is an early and consistent theme used throughout the book.

Oct. 2016 217 pp.
9781470428990 10,830.

A. M. S.

No. 503-001

Abell, M. /Braselton, J.:
Differential Equations with Mathematica, 4th ed.

This book is a supplementing reference which uses the fundamental concepts of the popular platform to solve (analytically, numerically, and/or graphically) differential equations of interest to students, instructors, and scientists.
Mathematica's diversity makes it particularly well suited to performing calculations encountered when solving many ordinary and partial differential equations.
In some cases, Mathematica's built-in functions can immediately solve a differential equation by providing an explicit, implicit, or numerical solution.

Sep. 2016 900 pp.
9780128047767 20,410.

Bashirov, A.:
Mathematical Analysis Fundamentals

No. 503-113

The author's goal is a rigorous presentation of the fundamentals of analysis, starting from elementary level and moving to the advanced coursework.
The curriculum of all mathematics (pure or applied) and physics programs include a compulsory course in mathematical analysis.
This book will serve as can serve a main textbook of such (one semester) courses.
The book can also serve as additional reading for such courses as real analysis, functional analysis, harmonic analysis etc.

June 2016 ....
9780128102695 24,020.

Feckan, M. /Pospisil, M.:
Poincare-Andronov-Melnikov Analysis for Non-Smooth Systems

No. 503-131

This book is devoted to the study of bifurcations of periodic solutions for general n-dimensional discontinuous systems.
The authors study these systems under assumptions of transversal intersections with discontinuity-switching boundaries.
Furthermore, bifurcations of periodic sliding solutions are studied from sliding periodic solutions of unperturbed discontinuous equations, and bifurcations of forced periodic solutions are also investigated for impact systems from single periodic solutions of unperturbed impact equations.
In addition, the book presents studies for weakly coupled discontinuous systems, and also the local asymptotic properties of derived perturbed periodic solutions.

May 2016 260 pp.
9780128042946 15,690.

Massopust, P.:
Fractal Functions, Fractal Surfaces, and Wavelets, 2nd ed.

No. 503-149

This book is the first systematic exposition of the theory of local iterated function systems, local fractal functions and fractal surfaces, and their connections to wavelets and wavelet sets.
The book is based on Massopust's work on and contributions to the theory of fractal interpolation, and the author uses a number of tools-- including analysis, topology, algebra, and probability theory-- to introduce readers to this excitingsubject.

Sep. 2016 400 pp.
9780128044087 15,690.

Academic Press

Alpay, D.: No. 503-100

A Complex Analysis Problem Book, 2nd ed.

This second edition presents a collection of exercises on the theory of analytic functions, including completed and detailed solutions.
It introduces students to various applications and aspects of the theory of analytic functions not always touched on in a first course, while also addressing topics of interest to electrical engineering students (e.g. the realization of rational functions and its connections to the theory of linear systems and state space representations of such systems).

Feb. 2017 620 pp.
9783319421797 14,000.

Compact Textbooks in Mathematics

Roman, S.: No. 503-054

An Introduction to the Language of Category Theory

This textbook provides an introduction to elementary category theory, with the aim of making what can be a confusing and sometimes overwhelming subject more accessible. In writing about this challenging subject, the author has brought to bear all of the experience he has gained in authoring over 30 books in university-level mathematics.
The goal of this book is to present the five major ideas of category theory: categories, functors, natural transformations, universality, and adjoints in asfriendly and relaxed a manner as possible while at the same time not sacrificing rigor.

Sep. 2016 117 pp.
9783319419169 7,000.

ANHA: Applied and Numerical Harmonic Analysis

Prestini, E.: No. 503-154

The Evolution of Applied Harmonic Analysis: Models of the Real World

A sweeping exploration of essential concepts and applications in modern mathematics and science through the unifying framework of Fourier analysis! This unique, extensively illustrated monograph describes the evolution of harmonic analysis, integrating theory and applications in a way that requires only some general mathematical sophistication and knowledge of calculus in certainsections.

Jan. 2017 389 pp.
9781489979872 17,500.

Progress in Mathematics,

Vol. 319: Ballman, W. /Blohmann, C. /Faltings, G. / Teichner, P. /Zagier, D. (eds.): No. 503-057

Arbeitstagung Bonn 2013: In Memory of Friedrich Hirzebruch

This ensured that the talks would be on the latest developments in mathematics and that many important results were presented at the conference for the first time. Written by leading mathematicians, the papers in this volume cover various topics from algebraic geometry, topology, analysis, operator theory, and representation theory and display the breadth and depth of pure mathematics that has always been characteristic of the Arbeitstagung.

Nov. 2016 420 pp.
9783319436463 17,500.

Birkhauser

Cambridge Studies in Advanced Mathematics,

Vol. 162: Bishop, C. /Peres, Y.: No. 503-212

Fractal Sets in Probability and Analysis

This is a mathematically rigorous introduction to fractals which emphasizes examples and fundamental ideas.
Building up from basic techniques of geometric measure theory and probability, central topics such as Hausdorff dimension, self-similar sets and Brownian motion are introduced, as are more specialized topics, including Kakeya sets, capacity, percolation on trees and the traveling salesman theorem.
The broad range of techniques presented enables key ideas to be highlighted, without the distraction of excessive technicalities.
The authors incorporate some novel proofs which are simpler than those available elsewhere.
Where possible, chapters are designed to be read independently so the book can be used to teach a variety of courses, with the clear structure offering students an accessible route into the topic.

Dec. 2016 418 pp.
9781107134119 12,600.

Vol. 161: Webb, P.: No. 503-098

A Course in Finite Group Representation Theory

This graduate-level text provides a thorough grounding in the representation theory of finite groups over fields and rings.
The book provides a balanced and comprehensive account of the subject, detailing the methods needed to analyze representations that arise in many areas of mathematics.
Key topics include the construction and use of character tables, the role of induction and restriction, projective and simple modules for group algebras, indecomposable representations, Brauer characters, and block theory.
This classroom-tested text provides motivation through a large number of worked examples, with exercises at the end of each chapter that test the reader's knowledge, provide further examples and practice, and include results not proven in the text.
Prerequisites include a graduate course in abstract algebra, and familiarity with the properties of groups, rings, field extensions, and linear algebra.

Aug. 2016 328 pp.
9781107162396 11,810.

Cambridge Series in Statistical and Probabilistic Mathematics,

van der Hofstad, R.: No. 503-247

Random Graphs and Complex Networks, Vol. 1

This rigorous introduction to network science presents random graphs as models for real-world networks. Such networks have distinctive empirical properties and a wealth of new models have emerged to capture them. Classroom tested for over ten years, this text places recent advances in a unified framework to enable systematic study.
Designed for a master's-level course, where students may only have a basic background in probability, the text covers such important preliminaries as convergence of random variables, probabilistic bounds, coupling, martingales, and branching processes.

Nov. 2016 500 pp.
9781107172876 18,900.

Cambridge

Cours Specialises - Collection SMF,

Vol. 10: **Voisin, C.:** *Reimpression 2016/a Nouveau Disponible*

Theorie de Hodge et Geometrie Algebrique Complexe No. 503-097

The first part of the book presents the fundamental results of Hodge theory, including a few preliminary chapters on Kahler geometry and sheaf cohomology. It is concluded with the development of the notion of Hodge structure and the study of its variation with respect to the complex structure.
The second part, which stands at a more advanced level, presents the applications of Hodge theory to complex algebraic geometry.
Its starts with a study of the topology of families of algebraic varieties, both from aclassical and modern point of view, and then focuses on the applications of the theory of infinitesimal variations of Hodge structure. The last chapters are devoted to the presenaion of the relations between Hodge theory and lgeraic cycles, whose conjectural part is the famous Bloch-Beilinson conjecture.
They will find here on one hand a complete didactic exposition and on the other hand an up-to-date presentation of the field, initiated by Griffiths, of applications of Hodge theory to the study of algebraic cycles.

Aug. 2002 **595 pp.**
9782856291290 **4,900.**

Memoires de la Societe Mathematique de France,

Numero 146: **Karaliolios, N.:** No. 503-144

Global Aspects of the Reducibility of Quasiperiodic Cocycles in Semisimple Compact Lie groups

In this memoire we study quasiperiodic cocycles in semi-simple compact Lie groups. For the greatest part of our study, we will focus ourselves to one-frequency cocyles. We will prove that C^-reducible cocycles are dense in the C^ topology, for a full measure set of frequencies.
Moreover, we will show that every cocycle is almost torus-reducible.
In the course of the proof we will firstly define two invariants of the dynamics, which we will call energy and degree and which give a preliminary distinction between (almost-)reducible and non-reducible cocycles.
We will then take up the proof of the density theorem. We will show that an algorithm of renormalization converges to perturbations of simple models, indexed by the degree. Finally, we will analyze these perturbations using methods inspired by K. A. M. theory.

2016 **200 pp.**
9782856298329 **9,620.**

Asterisque,

Vol. 380: **Bourbaki, N.:** No. 503-068

Seminaire Bourbaki, Volume 2014/ 2015, Exposes 1089-1103

This 67th volume of the Bourbaki Seminar contains the texts of the fifteen survey lectures done during the year 2014/2015: combinatorics, category theory, higher topos theory, geometric measure theory, partial differential equations, spectral theory, differential geometry, ergodic theory, geometric group theory, algebraic geometry, Galois representations, and rational points.

2016 **497 pp.**
9782856298367 **16,890.**

Societe Mathematique de France

Grundlehren der mathematischen wissenschaften,

Vol. 325: **Dafermos, C.:** No. 503-125

Hyperbolic Conservation Laws in Continuum Physics, 4th ed.

This new edition places increased emphasis on hyperbolic systems of balance laws with dissipative source, modeling relaxation phenomena.
It also presents an account of recent developments on the Euler equations of compressible gas dynamics.
Furthermore, the presentation of a number of topics in the previous edition has been revised, expanded and brought up to date, and has been enriched with new applications to elasticity and differential geometry.
The bibliography, also expanded and updated, now comprises close to two thousand titles.
From the reviews of the 3rd edition:"This is the third edition of the famous book by C.M. Dafermos. His masterly written book is, surely, the most complete exposition in the subject." Evgeniy Panov, Zentralblatt MATH

July 2016 826 pp.
9783662494493 26,400.

Lecture Notes in Mathematics,

Vol. 2166: **Boileau, M. /Besson, G. /Sinestrari, C. /Tian, G.:**

Ricci Flow and Geometric Applications:

Cetraro, Italy 2010 No. 503-117

Presenting some impressive recent achievements in differential geometry and topology, this volume focuses on results obtained using techniques based on Ricci flow. These ideas are at the core of the study of differentiable manifolds.
Several very important open problems and conjectures come from this area and the techniques described herein are used to face and solve some of them.
The book's four chapters are based on lectures given by leading researchers in the field of geometric analysis and low-dimensional geometry/topology, respectively offering an introduction to:
the differentiable sphere theorem (G. Besson),
the geometrization of 3-manifolds (M. Boileau),
the singularities of 3-dimensional Ricci flows (C. Sinestrari), and
Kahler-Ricci flow (G. Tian).
The lectures will be particularly valuable to young researchers interested in differential manifolds.

Sep. 2016 138 pp.
9783319423500 6,120.

Vol. 2164: **Hasselblatt, B. (ed.):** No. 503-137

Ergodic Theory and Negative Curvature

These lectures center on ergodicity of the (Weil-Petersson) geodesic flow on a nonpositively curved space whose points are negatively curved metrics on surfaces.
The subject matter is anchored by a self-contained introduction to hyperbolic dynamics and ergodic theory and complemented by lectures that show the deep connections of geodesic flows in negative curvature with on one hand Diophantine approximation and on the other hand with the ergodic theory of horocycle flows.

Feb. 2017 250 pp.
9783319430584 7,870.

Springer

Lecture Notes in Mathematics,

Vol. 2162: **Opescu-Pampu, P.:** No. 503-030

What Is the Genus?

Exploring several of the evolutionary branches of the mathematical notion of genus, this book traces the idea from its prehistory in problems of integration, through algebraic curves and their associated Riemann surfaces, into algebraic surfaces, and finally into higher dimensions.
Its importance in analysis, algebraic geometry, number theory and topology isemphasized through many theorems. Almost every chapter is organized aroundexcerpts from a research paper in which a new perspective was brought on the genus or on one of the objects to which this notion applies.
The author was motivated by the belief that a subject may best be understood and communicated by studying its broad lines of development, feeling the way one arrives at the definitions of its fundamental notions, and appreciating the amount of effort spent in order to explore its phenomena.

Sep. 2016 184 pp.
9783319423111 7,870.

Vol. 2161: **Buffa, A. /Sangalli, G. (eds.):** No. 503-260

Isogeometric Analysis:

A New Paradigm in the Numerical Approximation of PDEs: Cetraro, Italy 2012

Providing an introduction to isogeometric methods with a focus on their mathematical foundations, this book is composed of four chapters, each devoted to a topic of special interests for isogeometric methods and their theoretical understanding. It contains a tutorial on splines and generalizations that are used in CAD parametrizations, and gives an overview of geometric modeling techniques that can be used within the isogeometric approach, with a focus on non-tensor product splines. Finally, it presents the mathematical properties of isogeometric spaces and spline spaces for vector field approximations, and treats in detail an application of fundamental importance: the isogeometric simulation of a viscous incompressible flow.
The contributions were written by Carla Manni and Hendrik Speleers, Vibeke Skytt and Tor Dokken, Lourenco Beirao da Veiga, Annalisa Buffa, Giancarlo Sangalli and Rafael Vazquez, and finally by John Evans and Thomas J.R. Hughes.

Sep. 2016 170 pp.
9783319423081 6,120.

Springer Monographs in Mathematics

Lapidus, M. /Radunovic, G. /Zubrinic, D.: No. 503-084

Fractal Zeta Functions and Fractal Drums:

Higher-Dimensional Theory of Complex Dimensions

This monograph gives a state-of-the-art and accessible treatment of a new general higher-dimensional theory of complex dimensions, valid for arbitrary bounded subsets of Euclidean spaces, as well as for their natural generalization, relative fractal drums. It provides a significant extension of the existing theory of zeta functions for fractal strings to fractal sets and arbitrary bounded sets in Euclidean spaces of any dimension.
Two new classes of fractal zeta functions are introduced, namely, the distance & tube zeta functions of bounded sets, and their key properties are investigated.

Oct. 2016 643 pp.
9783319447049 21,190.

Springer

Universitext

Steinberg, B.: No. 503-094

Representation Theory of Finite Monoids

This first text on the subject provides a comprehensive introduction to the representation theory of finite monoids.
Carefully worked examples and exercises provide the bells and whistles for graduate accessibility, bringing a broad range of advanced readers to the forefront of research in the area.
Highlights of the text include applicationsto probability theory, symbolic dynamics and automata theory.
Comfort with module theory, a familiarity with ordinary group representation theory, and the basics of Wedderburn theory, are prerequisites for advanced graduate level study.
Researchers in algebra, algebraic combinatorics, automata theory, and probability theory, will find this text enriching with its thorough presentation of applications of the theory to these fields.

Dec. 2016 328 pp.
9783319439303 11,720.

Coudene, Y.: No. 503-124

Ergodic Theory and Dynamical Systems

This textbook is a self-contained and easy-to-read introduction to ergodic theory and the theory of dynamical systems, with a particular emphasis on chaotic dynamics.
This book contains a broad selection of topics and explores the fundamental ideas of the subject.
Starting with basic notions such as ergodicity, mixing, and isomorphisms of dynamical systems, the book then focuses on several chaotic transformations with hyperbolic dynamics, before moving on to topics such as entropy,
information theory, ergodic decomposition and measurable partitions.
Detailed explanations are accompanied by numerous examples, including interval maps, Bernoulli shifts, toral endomorphisms, geodesic flow on negatively curved manifolds, Morse-Smale systems, rational maps on the Riemann sphere and strange attractors.

Sep. 2016 198 pp.
9781447172857 9,970.

Farenick, D.:

Fundamentals of Functional Analysis

This book provides a unique path for graduate or advanced undergraduate students to begin studying the rich subject of functional analysis with fewer prerequisites than is normally required. No. 503-130
The text begins with a self-contained and highly efficient introduction to topology and measure theory, which focuses on the essential notions required for the study of functional analysis, and which are often buried within full-length overviews of the subjects.
This is particularly useful for those in applied mathematics, engineering, or physics who need to have a firm grasp of functional analysis,
but not necessarily some of the more abstruse aspects of topology and measure theory normally encountered.

Nov. 2016 436 pp.
9783319456317 7,870.

Springer

Wiley Series in Probability and Statistics

Shevlyakov, G. /Oja, H.: No. 503-241

Robust Correlation:
Theory and Applications

This bookpresents material on both the analysis of the classical concepts of correlation and on the development of their robust versions, as well as discussing the related concepts of correlation matrices, partial correlation, canonical correlation, rank correlations, with the corresponding robust and non-robust estimation procedures.
Every chapter contains a set of examples with simulated and real-life data.
Key features: Makes modern and robust correlation methods readily available and understandable to practitioners, specialists, and consultants working in various fields. *Focuses on implementation of methodology and application of robust correlation with R. *Introduces the main approaches in robust statistics, such as Huber's minimax approach and Hampel's approach based on influence functions.

Sep. 2016 344 pp.
9781118493458 16,480.

Steyer, R. /Nagel, W.: No. 503-243

Probability and Conditional Expectation:
Fundamentals for the Empirical Sciences

Probability and Conditional Expectations bridges the gap between books on probability theory and statistics by providing the probabilistic concepts estimated and tested in analysis of variance, regression analysis, factor analysis, structural equation modeling, hierarchical linear models and analysis of qualitative data.
The authors emphasize the theory of conditional expectations that is also fundamental to conditional independence and conditional distributions.
Probability and Conditional Expectations:
*Presents a rigorous and detailed mathematical treatment of probability theory focusing on concepts that are fundamental to understand what we are estimating in applied statistics.
*Explores the basics of random variables along with extensive coverage of mesurable functions and integration.
*Extensively treats conditional expectations also with respect to a conditional probability measure and the concept of conditional effect functions, which are crucial in the analysis of causal effects.

Nov. 2016 544 pp.
9781119243526 18,840.

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de Finetti, B.: No. 503-246

Theory of Probability

De Finetti's theory of probability is one of the foundations of Bayesian theory.
De Finetti stated that probability is nothing but a subjective analysis of the likelihood that something will happen and that that probability does not exist outside the mind.
It is the rate at which a person is willing to bet on something happening.
This view is directly opposed to the classicist/ frequentist view of the likelihood of a particular outcome of an event, which assumes that the same event could be identically repeated many times over, and the 'probability' of a particular outcome has to do with the fraction of the time that outcome results from the repeated trials.

Jan. 2017 616 pp.
9781119286370 20,090.

Wiley

Series on Number Theory and Its Applications,

Hata Masayoshi :
Problems and Solutions in Real Analysis, 2nd ed.

This second edition introduces an additional set of new mathematical problems with their detailed solutions in real analysis.
It also provides numerous improved solutions to the existing problems from the previous edition, and includes very useful tips and skills for the readers to master successfully.
There are three more chapters that expand further on the topics of Bernoulli numbers, differential equations and metric spaces.
Each chapter has a summary of basic points, in which some fundamental definitions and results are prepared.

Dec. 2016 356 pp.
9789813142817/9789813142824 13,820./7,540. (Paper ed.)

Hiramatsu Toyokazu /Saito Seiken :
An Introduction to Non-Abelian Class Field Theory:
Automorphic Forms of Weight 1 and 2-Dimensional Galois Representations

This monograph provides a brief exposition of automorphic forms of weight 1 and their applications to arithmetic, especially to Galois representations.
One of the outstanding problems in arithmetic is a generalization of class field theory to non-abelian Galois extension of number fields.
In this volume, we discuss some relations between this problem and cusp forms of weight 1.

Jan. 2017 188 pp.
9789813142268 15,390.

Yang, D.:
Trigonometric Functions and Complex Numbers

Trigonometric Functions and Complex Numbers covers the followings areas in the International Mathematical Olympiad (IMO) and other mathematical competitions.
Trigonometric identity, graphs and properties of trigonometric equations, inverse trigonometric functions and trigonometric equations, solutions of triangles, trigonometric substitution and trigonometric inequality;
The concept and operation of complex number, trigonometric form of a complex number, complex number and equation.
The contents are essential for the IMO.
It could be a good help for students who want to improve in these areas.

Dec. 2016 300 pp.
9781938134869 5,490.

Weaver, N.:
Lipschitz Algebras, 2nd ed.

This is the standard reference on algebras of Lipschitz functions, written by the leading figure in the field.
The second edition includes new chapters on nonlinear Banach space geometry, differentiability in metric measure spaces, and quantum metrics.
This latest material reflects the importance of spaces of Lipschitz functions in a diverse range of current research directions.
Every functional analyst should have some knowledge of this subject.

Feb. 2017 340 pp.
9789814740630 18,530.

World Scientific Pub.

Hu, Y.: No. 503-142

Analysis on Gaussian Spaces

Analysis of functions on the finite dimensional Euclidean space with respect to the Lebesgue measure is fundamental in mathematics.
The extension to infinite dimension is a great challenge due to the lack of Lebesgue measure on infinite dimensional space.
Instead the most popular measure used in infinite dimensional space is the Gaussian measure, which has been unified under the terminology of "abstract Wiener space".

Dec. 2016 480 pp.
9789813142176 23,240.

Evans, K. /Jacob, N.: No. 503-128/129

A Course in Analysis: Vol. II:
Differentiation and Integration of Functions of Several Variables, Vector Calculus

This is the second volume of 鄭 Course in Analysis • and it is devoted to the study of mappings between subsets of Euclidean spaces. The metric, hence the topological structure is discussed as well as the continuity of mappings.
This is followed by introducing partial derivatives of real-valued functions and the differential of mappings. Many chapters deal with applications, in particlar to geometry (parametric curves and surfaces, convexity), but topics such as extreme values and Lagrange multipliers, or curvilinear coordinates are considered too.
On the more abstract side results such as the Stone - Weierstrass theorem or theArzela-Ascoli theorem are proved in detail.

Sep. 2016 780 pp.
9789813140950/9789813140967 23,240./12,250. (Paper ed.)

Urakawa Hajime : No. 503-161

Spectral Geometry of the Laplacian:
Spectral Analysis and Differential Geometry of the Laplacian

The totality of the eigenvalues of the Laplacian of a compact Riemannian manifold is called the spectrum. We describe how the spectrum determines a Riemannian manifold. The continuity of the eigenvalue of the Laplacian, Cheeger and Yau's estimate of the first eigenvalue, the Lichnerowicz - Obata's theorem on the first eigenvalue, the Cheng's estimates of the kth eigenvalues, and Payne - Polya - Weinberger's inequality of the Dirichlet eigenvalue of the Laplacian are also described.
Then, the theorem of Colin de Verdier, that is, the spectrum determines the totality of all the lengths of closed geodesics is described.

Nov. 2016 350 pp.
9789813109087 18,530.

Umehara Masaaki /Yamada Kotaro : No. 503-200/201

Differential Geometry of Curves and Surfaces

This engrossing volume on curve and surface theories is the result of many years of experience the authors have had with teaching the most essential aspects of this subject.
The first half of the text is suitable for a university-level course, without the need for referencing other texts, as it is completely self-contained.
More advanced material in the second half of the book, including appendices, also serves more experienced students well.

Dec. 2016 300 pp.
9789814740234/9789814740241 13,820./7,060.(Paper ed.)

World Scientific Pub.

de Gruyter Textbook

Arutyunov, A. /Obukhovskii, V.: No. 503-105
Convex and Set-Valued Analysis

This textbook is devoted to a compressed and self-contained exposition of two important parts of contemporary mathematics: convex and set-valued analysis. In the first part, properties of convex sets, the theory of separation, convex fun tions, and properties of convex cones in infinite-dimensional spaces are discussed. The second part covers set-valued analysis, describes the properties of the Haudorff metric and set-valued maps.

Aug. 2016 250 pp.
9783110460285 8,740.

Mandrekar, V.: No. 503-148
Weak Convergence of Stochastic Processes:
With Applications to Statistical Limit Theorems

The purpose of this book is to present results on the subject of weak convergence to study invariance principles in statistical applications. Different techniques, formerly only available in a broad range of literature, are forthe first time presented in a self-contained fashion.

Sep. 2016 200 pp.
9783110475425 10,490.

Abramovich, H.: No. 503-249
Intelligent Materials and Structures

This book provides insight into designing intelligent materials and structures for special application in engineering.
The book discusses simulation and experimental determination of physical material properties, such as piezoelectric effects, shape memory, electro-rheology, and distributed control for vibrations minimization.

Sep. 2016 350 pp.
9783110338010 12,240.

de Gruyter Expositions in Mathematics,

*Vol. ***: **de Soares, L. /Jorge, H.:** No. 503-170
Variational Problems for
Hypersurfaces in Riemannian Manifolds

Geometric Analysis is one of the most active research fields nowadays.
The interplay between geometric and analytic techniques is at the core of recent remarkable advances in Differential Geometry and Topology.
However, the majority of the monographs and books on the subject focus on intrinsic Riemannian Geometry techniques and applications.
A systematic treatment of problems involving the extrinsic curvature of submanifolds is still missing in the literature.
In particular, up to our knowledge, there are no references joining the geometric and analytic aspects of the theory of hypersurfaces which are solutions of variational problems as it is the case of prescribed mean curvature hypersurfaces.
These problems arise naturally in the context of geometric functionals in General Relativity and elasticity theory.
This book is aimed to be a comprehensive introduction of the basic geometric factsand PDEs tools as well as to some current research topics on hypersurfaces with prescribed mean curvature in Riemannian manifolds.

July 2017 290 pp.
9783110359862 20,990.

de Gruyter

Stahl, S. /Johnson, P.: Reprint ed. 2007

Mathematics Old and New

This introductory treatment provides insightful expositions of specific applications as well as elements of mathematical history and culture. The in-depth coverage of key mathematical topics is presented in clear terms and at an informal level that relates classic concepts to readers's everyday lives. Some knowledge of high school algebra would be useful for a full appreciation of the book, which is suitable for advanced high school students and college undergraduates in all fields as well as readers with an interest in mathematics and its history.

No. 503-039

Sep. 2016 480 pp.
9780486807386 3,930.

Natanson, I.: Reprint ed. 1955-1961

Theory of Functions of A Real Variable

Originally published in two volumes, this long out-of-print work by a prominent Soviet mathematician presents a thorough examination of the theory of functions of a real variable.
Intended for advanced undergraduates and graduate students of mathematics, the treatment offers a clear account of integration theory and a practical introduction to functional analysis.
Prerequisites include a background in the foundations of elementary analysis and some familiarity with the theory of irrational numbers, the theory of limits, continuous functions, Riemann integrals, and infinite series.

Aug. 2016 560 pp. No. 503-150
9780486806433 3,930.

Asmar, N.: Reprint ed. 2004

Partial Differential Equations with Fourier Series and Boundary Value Problems

This text provides an introduction to partial differential equations and boundary value problems, including Fourier series.
The treatment offers students a smooth transition from a course in elementary ordinary differential equations to more advanced topics in a first course in partial differential equations.
This widely adopted and successful book also serves as a valuable reference for engineers and other professionals.

No. 503-106

Sep. 2016 816 pp.
9780486807379 6,290.

Gordon Webster, A.: Reprint ed. 1933

Partial Differential Equations of Mathematical Physics, 2nd ed.

A classic treatise on partial differential equations, this comprehensive work by one of America's greatest early mathematical physicists covers the basic method, theory, and application of partial differential equations.
In addition to its value as an introductory and supplementary text for students, this volume constitutes a fine reference for mathematicians, physicists, and research engineers.
Detailed coverage includes Fourier series; integral and elliptic equations; spherical, cylindrical, and ellipsoidal harmonics; Cauchy's method; boundary problems; the Riemann-Volterra method; and many other basic topics.

June 2016 464 pp. No. 503-134
9780486805153 3,930.

Dover

Dover Books on Mathematics

Stein, S.: Reprint ed. 2001

Adventures in Mathematical Reasoning

Equally appealing to beginners and to the mathematically adept, this book bridges the humanities and sciences to explore applications behind computers, cell phones, measurement of astronomical distance, cell growth, and other areas. Eight fascinating examples show how understanding certain topics in advanced mathematics requires nothing more than arithmetic and common sense.

No. 503-044

Sep. 2016 **192 pp.**
9780486806440 **2,350.**

Scharf, G.: Reprint ed. 2001 3rd ed.

Gauge Field Theories:
Spin One and Spin Two

One of the main problems of theoretical physics concerns the unification of gravity with quantum theory. This monograph examines unification by means of the appropriate formulation of quantum gauge invariance. Suitable for advanced undergraduates and graduate students of physics, the treatment requires a basic knowledge of quantum mechanics. Opening chapters introduce the free quantum fields and prepare the field for the gauge structure, describing the inductive construction of the time-ordered products by causal perturbation theory.

No. 503-321

July 2016 **304 pp.**
9780486805245 **3,610.**

Dover Books on Physics

Stehle, P.: Reprint ed. 1994

From Classical to Quantum Physics

Suitable for lay readers as well as students, this absorbing survey explores the twentieth-century transition from classical to quantum physics. Author Philip Stehle traces the shift in the scientific worldview from the work of Galileo, Newton, and Darwin to the modern-day achievements of Max Planck, Albert Einstein, Ernest Rutherford, Niels Bohr, and others of their generation. His insightful overview examines not only the history of quantum physics but alsothe ways that progress in the discipline changed our understanding of the physical world and forces of nature.

No. 503-324

Aug. 2016 **336 pp.**
9780486806679 **3,610.**

Deo, N.: Reprint ed. 1974

Graph Theory with Applications to
Engineering and Computer Science

This outstanding introductory treatment of graph theory and its applications has had a long life in the instruction of advanced undergraduates and graduate students in all areas that require knowledge of this subject. The first nine chapters constitute an excellent overall introduction, requiring only some knowledge of set theory and matrix algebra. Topics include paths and circuits, trees and fundamental circuits, planar and dual graphs, vector and matrix representation of graphs, and related subjects.

Aug. 2016 **496 pp.** **No. 503-067**
9780486807935 **3,930.**

Dover

Thas, K. (ed.): Absolute Arithmetic and \mathbb F_1 -Geometry

No. 503-095

It has been known for some time that geometries over finite fields, their automorphism groups and certain counting formulae involving these geometries have interesting guises when one lets the size of the field go to 1. On the other hand, the nonexistent field with one element, \mathbb F_1, presents itself as a ghost candidate for an absolute basis in Algebraic Geometry to perform the Deninger-Manin program, which aims at solving the classical Riemann Hypothesis.
This book, which is the first of its kind in the \mathbb F_1-world, covers several areas in \mathbb F_1-theory, and is divided into four main parts --- Combinatorial Theory, Homological Algebra, Algebraic Geometry and Absolute Arithmetic.

July 2016 397 pp.
9783037191576 11,900.

Munster Lectures in Mathematics

Voiculescu, D.-V. /Stammeier, N. /Weber, M. (eds.): Free Probability and Operator Algebras

Free probability is a probability theory dealing with variables having the highest degree of noncommutativity, an aspect found in many areas (quantum mechanics, free group algebras, random matrices etc).
Thirty years after its foundation, it is a well-established and very active field of mathematics.
Originating from Voiculescu's attempt to solve the free group factor problem in operator algebras, free probability has important connections with random matrix theory, combinatorics, harmonic analysis, representation theory of large groups, and wireless communication.
These lecture notes arose from a masterclass in Munster, Germany and present the state of free probability from an operator algebraic perspective.

No. 503-096

July 2016 148 pp.
9783037191651 5,600.

EMS Series of Lectures in Mathematics,

Vol. 24: Barilari, D. /Boscain, U. /Sigalotti, M. (eds.): Geometry, Analysis and Dynamics on Sub-Riemannian Manifolds

No. 503-109

Sub-Riemannian manifolds model media with constrained dynamics: motion at any point is only allowed along a limited set of directions, which are prescribed by the physical problem.
From the theoretical point of view, sub-Riemannian geometry is the geometry underlying the theory of hypoelliptic operators and degenerate diffusions on manifolds.
In the last twenty years, sub-Riemannian geometry has emerged as an independent research domain, with extremely rich motivations and ramifications in several parts of pure and applied mathematics, such as geometric analysis, geometric measure theory, stochastic calculus and evolution equations together with applications in mechanics, optimal control and biology. The aim of the lectures collected here is to present sub-Riemannian structures for the use of both researchers and graduate students.

June 2016 332 pp.
9783037191620 7,700.

Europeam Mathematical Society

MSJ Memoirs,

Vol. 33: **Maruyama Masaki :** No. 503-086
Moduli Spaces of Stable Sheaves on Schemes

The notion of stability for algebraic vector bundles on curves was originally introduced by Mumford, and moduli spaces of semi-stable vector bundles were studied intensively by Indian mathematicians.
The notion of stability for algebraic sheaves was generalized to higher dimensional varieties.
The study of moduli spaces of algebraic sheaves not only on curves but also on higher dimensional algebraic varieties has attracted much interest for decades and its importance has been increasing not only in algebraic geometry but also in related fields as differential geometry, mathematical physics.
Masaki Maruyama is one of the pioneers in the theory of algebraic vector bundles on higher dimensional algebraic varieties.

June 2016 154 pp.
9784864970341 2,378.

Advanced Studies in Pure Mathematics,

Vol. 69: **Fujino Osamu /Kondo Shigeyuki / Moriwaki Atsushi /Saito Masa-Hiko / Yoshioka Kota (eds.):** No. 503-017
Development of Moduli Theory - Kyoto 2013

The conference was in honor of Professor Shigeru Mukai for his sixtieth birthday.
On behalf of the participants, we are pleased to dedicate this volume of Advanced Studies in Pure Mathematics to Professor Shigeru Mukai on the occasion of his sixtieth birthday.
We love his friendly character and his mathematical style based on classical and modern algebraic geometry, both of which inspire us very much.
The organizing committee members were Osamu Fujino (Kyoto University), Shigeyuki Kondo (chair, Nagoya University), Atsushi Moriwaki (Kyoto University), Shigeru Mukai (Kyoto University), Noboru Nakayama (Kyoto University) , Masa-Hiko Saito (Kobe University) , Kota Yoshioka (Kobe University).

July 2016 564 pp.
9784864970327 17,130.

Vol. 68: **dos Santos, R. /Perez, V. /Saeki Osamu / Nishimura Takashi (eds.):** No. 503-050
School on Real and Complex Singularities in Sao Carlos, 2012

Nicolas Dutertre - Topology and geometry of real singularities
David Mond - Singularities of mappings and the vanishing ho mology of images and discriminants
Le Dung Trang - Notes on non-isolated singularities
Hans Schonemann - Algorithms for primary decomposition in Singular
Toru Ohmoto - Singularities of maps and characteristic classes
Valery G. Romanovski and Douglas S. Shafer - Centers and limit cycles in polynomial systems of ordinary differential equations

July 2016 390 pp.
9784864970303 12,593.

Mathematical Society of Japan