賀 正

Yurinsha Book News

Oxford Graduate Texts in Mathematics

Vol. 23: Taubes, C.: 451-188/189

Differential Geometry:

Bundles, Connections, Metrics and Curvature

This book will supply a graduate student in mathematics or theoretical physics with the fundamentals of these objects. Many of the tools used in differential topology are introduced and the basic results about differentiable manifolds, smooth maps, differential forms, vector fields, Lie groups, and Grassmanians are all presented here.
Other material covered includes the basic theorems about geodesics and Jacobi fields, the classification theorem for flat connections, the definition of characteristic classes, and also an introduction to complex and Kahler geometry.

Mar. 2011 240 pp.
9780199605880/9780199605873 11,050./5,520. (Paper ed.)

Vol. 22: Donaldson, S.: 詳報掲載 Page 6

Riemann Surfaces

This graduate text on Riemann surface theory proves the fundamental analytical results on the existence of meromorphic functions and the Uniformisation Theorem.

Mar. 2011 *304 pp.* *9780198526391/9780199606740* *11,050./5,530. (Paper ed.)*

Vol. 21: Oxley, J.: 詳報掲載 Page 6

Matroids Theory, 2nd ed.

Feb. 2011 *704 pp.* *9780198566946/9780199603398* *18,360./8,160. (Paper ed.)*

Oxford University Press

http://www.yurinsha.com

ホームページは毎月２５日更新予定です

No. 451 Jan. 2011

数理科学 友 隣 社 洋書専門

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東京都文京区本郷 5-28-1 サトーヒル 3F
〒113-0033 Tel 03(3814)0275/Fax 03(3814)1156
メールオーダは　order@yurinsha.com
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Student Mathematical Library,

Vol. 58: Lozano-Robledo, A.: 451-089

Elliptic Curves, Modular Forms, and their L-Functions

This book is an introduction to some of these problems, and an overview of the theories used nowadays to attack them, presented so that the number theory is always at the forefront of the discussion.
Lozano-Robledo gives an introductory survey of elliptic curves, modular forms, and L-functions.
His main goal is to provide the reader with the big picture of the surprising connections among these three families of mathematical objects and their meaning for number theory.
As a case in point, Lozano-Robledo explains the modularity theorem and its famous consequence, Fermat's Last Theorem.

Mar. 2011 193 pp.
9780821852422 4,590.

Vol. 57: Grinstead, C. /Peterson, W. /Snell, L.:

Probability Tales

詳報通報 No. 208

Apr. 2011 *246 pp.* *9780821852613* *5,210.*

Graduate Studies in Mathematics,

Vol. 122: Crespo, T. /Hajto, Z.: 451-069

Algebraic Groups and Differential Galois Theory

This book intends to introduce the reader to this subject by presenting Picard-Vessiot theory, i.e. Galois theory of linear differential equations, in a self-contained way. The needed prerequisites from algebraic geometry and algebraic groups are contained in the first two parts of the book.
The third part includes Picard-Vessiot extensions, the fundamental theorem of Picard-Vessiot theory, solvability by quadratures, Fuchsian equations, monodromy group and Kovacic's algorithm.
This book is suitable for a graduate course in differential Galois theory.
The last chapter contains several suggestions for further reading encouraging the reader to enter more deeply into different topics of differential Galois theory or related fields.

Apr. 2011 232 pp.
9780821853184 6,570.

Vol. 120: Qing Han : 451-151

A Basic Course in Partial Differential Equations

This is a textbook for an introductory graduate course on partial differential equations. Han focuses on linear equations of first and second order.
An important feature of his treatment is that the majority of the techniques are applicable more generally.
In particular, Han emphasizes a priori estimates throughout the text, even for those equations that can be solved explicitly.
Such estimates are indispensable tools for proving the existence and uniqueness of solutions to PDEs, being especially important for nonlinear equations.
The estimates are also crucial to establishing properties of the solutions, such as the continuous dependence on parameters.
Han's book is suitable for students interested in the mathematical theory of partial differential equations, either as an overview of the subject or as an introduction leading to further study.

Mar. 2011 297 pp.
9780821852552 7,810.

A. M. S.

Contemporary Mathematics,

Vol. 535: **Braverman, M. /Friedlander, L. /Kappeler, T. / Kuchment, P. /Topalov, P. /Weitsman, J. (eds.):** 451-115

Spectral Theory and Geometric Analysis

This volume contains the proceedings of the conference on Spectral Theory and Geometric Analysis, held at Northeastern University, Boston, 2009, which honored Mikhail Shubin on his 65th birthday.
The papers in this volume cover important topics in spectral theory and geometric analysis such as resolutions of smooth group actions, spectral asymptotics, solutions of the Ginzburg-Landau equation, scattering theory, Riemann surfaces of infinite genus, tropical mathematics and geometric methods in the analysis of flows in porous media, and artificial black holes.

Mar. 2011 216 pp.
9780821849484 9,800.

Vol. 534: **Ara, P. Lledo, F. /Perera, F. (eds.):** 451-108

Aspects of Operator Algebras and Applications

This volume contains survey papers on the theory of operator algebras based on lectures given at the "Lluis Santalo" Summer School of the Real Sociedad Matematica Espanola, held in July 2008 at the Universidad Internacional Menendez Pelayo, in Santander (Spain).
Topics in this volume cover current fundamental aspects of the theory of operator algebras, which have important applications such as:
*** K-Theory, the Cuntz semigroup, and Classification for Ċ^ -algebras**
*** Modular Theory for von Neumann algebras and applications to Quantum Field Theory**
*** Amenability, Hyperbolic Groups, and Operator Algebras.**
The theory of operator algebras, introduced in the thirties by J. von Neumann and F.J. Murray, was developed in close relationship with fundamental aspects of functional analysis, ergodic theory, harmonic analysis, and quantum physics.

Feb. 2011 168 pp.
9780821849057 8,560.

Vol. 533: **Babinkostova, L. /Caicedo, A. /Geschke, S. / Scheepers, M. (eds.):** 451-037

Set Theory and Its Applications

This book consists of several survey and research papers covering a wide range of topics in active areas of set theory and set theoretic topology. Some of the articles present, for the first time in print, knowledge that has been around for several years and known intimately to only a few experts.
The surveys bring the reader up to date on the latest information in several areas that have been surveyed a decade or more ago.
Topics covered in the volume include combinatorial and descriptive set theory, determinacy, iterated forcing, Ramsey theory, selection principles, set-theoretic topology, and universality, among others.
Graduate students and researchers in logic, especially set theory, descriptive set theory, and set-theoretic topology, will find this book to be a very valuable reference.

Feb. 2011 307 pp.
9780821848128 13,020.

Vol. 536: **Mahdavi, K. /KOslover, D. /Brown, III, L. (eds.):** [redacted] No. 271

Cross Disciplinary Advances in Quantum Computing

Mar. 2011 152 pp. 9780821849750 7,320.

A. M. S.

AIMS Library of Mathematical Sciences,

Vol. 3: Kopp, E.: 451-145

From Measures to Ito Integrals

From Measures to Ito Integrals gives a clear account of measure theory, leading via L2-theory to Brownian motion, Ito integrals and a brief look at martingale calculus.
Modern probability theory and the applications of stochastic processes rely heavily on an understanding of basic measure theory.
This text is ideal preparation for graduate-level courses in mathematical finance and perfect for any reader seeking a basic understanding of the mathematics underpinning the various applications of Ito calculus.

Apr. 2011 ....
9781107400863 2,910.

Encyclopedia of Mathematics and its Applications,

Vol. 141: Paris, R.: 451-149

Hadamard Expansions and Hyperasymptotic Evaluation:
An Extension of the Method of Steepest Descents

The author describes the recently developed theory of Hadamard expansions applied to the high-precision (hyperasymptotic) evaluation of Laplace and Laplace-type integrals.
This brand new method builds on the well-known asymptotic method of steepest descents, of which the opening chapter gives a detailed account illustrated by a series of examples of increasing complexity.
A discussion of uniformity problems associated with various coalescence phenomena, the Stokes phenomenon and hyperasymptotics of Laplace-type integrals follows.
The remaining chapters deal with the Hadamard expansion of Laplace integrals, with and without saddle points.
Problems of different types of saddle coalescence are also discussed.
The text is illustrated with many numerical examples, which help the reader to understand the level of accuracy achievable.

May 2011 230 pp.
9781107002586 8,960.

New Mathematical Monographs,

Vol. 19: Simpson, C.: 451-187

Homotopy Theory of Higher Categories

In this highly readable book, Carlos Simpson develops a full set of homotopical algebra techniques and proposes a working theory of higher categories. Starting with a cohesive overview of the many different approaches currently used by researchers, the author proceeds with a detailed exposition of one of the most widely used techniques: the construction of a Cartesian Quillen model structure for higher categories.
The fully iterative construction applies to enrichment over any Cartesian model category, and yields model categories for weakly associative n-categories and Segal n-categories. A corollary is the construction of higher functor categories which fit together to form the (n+1)-category of n-categories. The approach uses Tamsamani's definition based on Segal's ideas, iterated as in Pelissier's thesis using modern techniques due to Barwick, Bergner, Lurie and others.

July 2011 600 pp.
9780521516952 13,020.

Cambridge

Heath, T. (ed.): 451-017

Euclid in Greek, Vol. I

This 1920 volume contains book one of Euclid's Elements in Greek, together with an introduction and notes written in English.
It was created to provide young students with a contextual understanding of geometry and the development of geometrical principles, one which was increasingly neglected in the standard school textbooks of the time.

Dec. 2010 249 pp.
9780521183475 2,570.

Strang, G.: 451-155

Calculus, 2nd ed.

This textbook is a well-organized treatise on calculus. The author intuitively provides detailed and intensive explanations fulfilling beginner's needs.
The book is both useful as a reference and a self-taught manual of calculus.
Gilbert Strang's Calculus textbook is ideal both as a course companion and for self study. The author has a direct style.
His book presents detailed and intensive explanations.
Many diagrams and examples are used to aid understanding, as well as the application of calculus to physics and engineering and economics. —
This text refers to an alternate Hardcover edition.

Nov. 2010 600 pp.
9780980232745 9,800.

Kobayashi, H. /Mark, B. /TurinW.: 451-218

Probability, Random Processes, and Statistical Analysis:
Applications to Communications, Signal Processing, Queueing Theory and Mathematical Finance

Together with the fundamentals of probability, random processes and statistical analysis, this insightful book also presents a broad range of advanced topics and applications.
There is extensive coverage of complex-valued Gaussian variables and processes, time series and spectral representation, the Chernoff bound and large deviation approximation, martingales, maximum-likelihood estimation and the expectation-maximization (EM) algorithm, semi-Markov and renewal processes, geometric Brownian motion and Ito process.
Applications such as Wiener and Kalman filters, queueing and loss networks, hidden Markov models (HMM), the Black-Scholes differential equation for option pricing and the Viterbi, BCJR and Baum-Welch algorithms are treated in detail.

May 2011 700 pp.
9780521895446 10,080.

Cambridge Library Collection - Mathematics

Willis, R.: 451-314

Principles of Mechanism (Print on Demand)

Designed for the Use of Students in the Universities, and for Engineering Students Generally First published in 1841, Principles of Mechanism was a key work for engineering and science students for a generation.
Willis's classification and nomenclature was adopted by English, French and German engineers for thirty years, and his work, both theoretical and practical, helped shape the academic discipline of engineering.

Dec. 2010 482 pp.
9781108023092 4,030.

Cambridge

Alpay, D.: 451-106

A Complex Analysis Problem Book

This is a collection of exercises in the theory of analytic functions, with completed and detailed solutions.
We wish to introduce the student to applications and aspects of the theory of analytic functions not always touched upon in a first course.
Using appropriate exercises we wish to show to the students some aspects of what lies beyond a first course in complex variables.
We also discuss topics of interest for electrical engineering students (for instance, the realization of rational functions and its connections to the theory of linear systems and state space representations of such systems).
Examples of important Hilbert spaces of analytic functions (in particular the Hardy space and the Fock space) are given.
The book also includes a part where relevant facts from topology, functional analysis and Lebesgue integration are reviewed.

Aug. 2011 480 pp.
9783034800778 10,370.

Richter-Gebert, J.: 451-033

Perspectives on Projective Geometry: A Guided Tour through Real and Complex Geometry

Projective geometry is one of the most fundamental and at the same time most beautiful branches of geometry. It can be considered the common foundation of many other geometric disciplines like Euclidean geometry, hyperbolic and elliptic geometry or even relativistic space-time geometry.
This book offers a comprehensive introduction to this fascinating field and its applications. In particular, it explains how metric concepts may be best understood in projective terms. One of the major themes that appears throughout this book is the beauty of the interplay between geometry, algebra and combinatorics.
This book can especially be used as a guide that explains how geometric objects and operations may be most elegantly expressed in algebraic terms, making it a valuable resource for mathematicians, as well as for computer scientists and physicists.

Feb. 2011 573 pp.
9783642172854 11,240.

Universitext

Badiale, M. /Serra, E.: 451-002

Semilinear Elliptic Equations for Beginners: Existence Results via the Variational Approach

This book is an introduction to variational methods and their applications to semilinear elliptic problems. Providing a comprehensive overview on the subject, this book will support both student and teacher engaged in a first course in nonlinear elliptic equations.
The material is introduced gradually, and in some cases redundancy is added to stress the fundamental steps in theory-building.
Topics include differential calculus for functionals, linear theory, and existence theorems by minimization techniques and min-max procedures.
Requiring a basic knowledge of Analysis, Functional Analysis and the most common function spaces, such as Lebesgue and Sobolev spaces, this book will be of primary use to graduate students based in the field of nonlinear partial differential equations.

Jan. 2011 193 pp.
9780857292261 6,830.

Springer

Gasaneo, G. /Ancarani, L.: 451-132
Multivariate Hypergeometric Functions Related to the Coulomb Problem

This work deals with several aspects of the Coulomb problem as well as with a large number of related multivariable hypergeometric functions.
Intended for atomic physicists and mathematicians, it builds a bridge of understanding between both the Physical and Mathematical sciences.
After a basic introduction on the Coulomb problem, it is divided into two parts.
First, an original study of the two- and three-body Coulomb problem is presented with emphasis on related mathematical issues.
Most of the aspects of this part have the common point that they involve a significant number of multivariable hypergeometric functions.
These are studied in the second, mathematical, part of the book where emphasis is put on the relevant expressions for physical applications.

June 2011 350 pp.
9783709104477 17,290.

Springer Series in Statistics

Sutradhar, B.: 451-238
Dynamic Mixed Models for Familial Longitudinal Data

This book provides a theoretical foundation for the analysis of discrete data such as count and binary data in the longitudinal setup.
Unlike the existing books, this book uses a class of auto-correlation structures to model the longitudinal correlations for the repeated discrete data that accommodates all possible Gaussian type auto-correlation models as special cases including the equi-correlation models.
This new dynamic modelling approach is utilized to develop theoretically sound inference techniques such as the generalized quasi-likelihood (GQL) technique for consistent and efficient estimation of the underlying regression effects involved in the model, whereas the existing 'working' correlations based GEE (generalizedestimating equations) approach has serious theoretical limitations both for consistent and efficient estimation, and the existing random effects based correlations approach is not suitable to model the longitudinal correlations.

Mar. 2011 488 pp.
9781441983411 11,850.

Springer Handbooks of Computational Statistics

Duan, J.-C. /Hardle, W. /Gentle, J. (eds,): 451-009
Handbook of Computational Finance

Anything that is openly traded has a market price that may be more or less than its "fair" price. For shares of corporate stock, the fair price is likely to be some complicated function of the intrinsic current value (or "gbook" value) of identifiable assets owned by the company, the expected rate of growth, future dividends, and other factors.
Some of these factors that affect the price can be measured at the time of a stock transaction, or at least within a relatively narrow time window that includes the time of the transaction.
Most factors, however, relate to expectations about the future and to subjective issues, such as current management and corporate policies, that could affect the future financial performance of the corporation.

Jan. 2011 850 pp.
9783642172533 42,580.

Springer

Wiley Series in Probability and Statistics

Kroese, D. /Taimre, T. /Botev, Z.: 451-221

Handbook of Monte Carlo Methods

The purpose of this handbook is to provide an accessible and comprehensive compendium of Monte Carlo techniques and related topics.
It contains a mix of theory (summarized), algorithms (pseudo and actual), and applications.
Since the audience is broad, the theory is kept to a minimum, this without sacrificing rigor.
The book is intended to be used as an essential guide to Monte Carlo methods to quickly look up ideas, procedures, formulas, pictures, etc., rather than purely a monograph for researchers or a textbook for students.
As the popularity of these methods continues to grow, and new methods are developed in rapid succession, the staggering number of related techniques, ideas, concepts and algorithms makes it difficult to maintain an overall picture of the Monte Carlo approach.

Feb. 2011 768 pp.
9780470177938 18,120.

Natvig, B.: 451-224

Multistate Systems Reliability Theory with Applications

Most books in reliability theory are dealing with a description of component and system states as binary: functioning or failed.
However, many systems are composed of multi-state components with different performance levels and several failure modes.
There is a great need in a series of applications to have a more refined description of these states, for instance, the amount of power generated by an electrical power generation system or the amount of gas that can be delivered through an offshore gas pipeline network.

Mar. 2011 264 pp.
9780470697504 12,490.

Wiley Handbooks in Survey Methodology

de Waal, T. /Pannekoek, J. /Scholtus, S.: 451-242

Handbook of Statistical Data Editing and Imputation

The authors begin with an introduction to the problem of errors and missing values in survey data and then go on to explore the methods for correcting systematic errors, identifying random errors, and error localization in numerical and categorical data.
Next, an intricate discussion of selective editing outlines various mechanisms for identifying the appropriate resources for treating data errors.
A basic framework for imputation is provided in the next chapter with a breakdown of key methods and models along with a comparison of imputation with the weighting approach to correct missing values.
The remaining chapters delve into more advanced topics in imputation methodology as well as new developments on imputation under edit constraints and benchmarking.
Each chapter organizes the presented information in uniform components, with an introduction, outline of key theory and formulae, illustration of algorithms, a concise summary of key points, and a reference section listing additional resources on the topic.

Feb. 2011 448 pp.
9780470542804 18,750.

Wiley

Mathematical Olympiad,

Vol. 4: **Holton, D.:** 451-018

A Second Step to
Mathematical Olympiad Problems

The International Mathematical Olympiad is an annual int'l mathematics competition held for pre-collegiate students. It is also the oldest of the int' l science olympiads, and competition for places is particularly fierce. This book is an amalgamation of the booklets originally produced to guide students intending to contend for placement on their country's IMO team. See also "A First Step to Mathematical Olympiad Problems" which was published in 2009.

Sep. 2011 300 pp.
9789814327879 4,710.

Futorny, V. /Ovsienko, S. .: 451-074

Galois Algebras and Their Representations

This book provides a comprehensive overview of the theory of Galois algebras and their representations developed by the authors. It gives a unique treatment of the theory of Gelfand-Tsetlin modules for finite W-algebras, including the universal enveloping algebra of gl(n), a new treatment of an analog of the Gelfand-Kirillov Conjecture for finite W-algebras, and a description of important new theory of Galois algebras.

Apr. 2011 200 pp.
9789814299220 8,500.

Chen, B.-Y.: 451-167

Pseudo-Riemannian Submanifolds, [delta]-Invariants and Applications

The first part of this book provides a self-contained and accessible introduction to the subject in the general setting of pseudo-Riemannian manifolds and their non-degenerate submanifolds, only assuming from the reader some basic knowledge about manifold theory. A number of recent results on pseudo-Riemannian submanifolds are also included. The second part of this book is on invariants, which was introduced in the early 1990s by the author. The famous Nash embedding theorem published in 1956 was aimed for, in the hope that if Riemannian manifolds could be regarded as Riemannian submanifolds, this would then yield the opportunity to use extrinsic help.

June 2011 400 pp.
9789814329637 13,750.

Galdi, G. /Robertson, A.: 451-300

Mathematical Modeling of
Non-Newtonian Fluids with Applications

The objective of this book is several-fold. Firstly, it collects and describes the most significant experiments that do not find explanation in the classical Newtonian (Navier-Stokes) theory. Then, it introduces some of the most commonly used models of non-Newtonian fluid, including Reiner-Rivlin, power law, simple fluid, and Oldroyd-B models. These models are explored through an updated mathematical investigation, with particular regard to the well-posedness of the corresponding boundary and initial-boundary value problems. Finally, it presents a rigorous mathematical explanation of the relevant experiments.

June 2011 400 pp.
9789812838032 12,250.

World Scientific Pub.

Lecture Notes in Mathematics,

Vol. 2017: Diening, L. /Harjulehto, P. / Hasto, P. /Ruzicka, M.: 451-126
Lebesgue and Sobolev Spaces with Variable Exponents

The field of variable exponent function spaces has witnessed an explosive growth in recent years.
The standard reference article for basic properties is already 20 years old.
Thus this self-contained monograph collecting all the basic properties of variable exponent Lebesgue and Sobolev spaces is timely and provides a much-needed accessible reference work utilizing consistent notation and terminology. Many results are also provided with new and improved proofs.
The book also presents a number of applications to PDE and fluid dynamics.

Mar. 2011 502 pp.
9783642183621 15,380.

Vol. 2016: Lang, J. /Edmunds, D.: 451-146
Eigenvalues, Embeddings and Generalised Trigonometric Functions

The main theme of the book is the study, from the standpoint of s-numbers, of integral operators of Hardy type and related Sobolev embeddings.
In the theory of s-numbers the idea is to attach to every bounded linear map between Banach spaces a monotone decreasing sequence of non-negative numbers with a view to the classification of operators according to the way in which these numbers approach a limit: approximation numbers provide an especially important example of such numbers.
The asymptotic behavior of the s-numbers of Hardy operators acting between Lebesgue spaces is determined here in a wide variety of cases.
The proof methods involve the geometry of Banach spaces and generalized trigonometric functions; there are connections with the theory of the p-Laplacian.

Mar. 2011 ....
9783642182679 7,690.

Vol. 2015: Flandoli, F.: 451-130
Random Perturbation of PDEs and Fluid Dynamic Models: Random Perturbation of PDEs

This volume deals with the random perturbation of PDEs which lack well-posedness, mainly because of their non-uniqueness, in some cases because of blow-up. The aim is to show that noise may restore uniqueness or prevent blow-up.
This is not a general or easy-to-apply rule, and the theory presented in the book is in fact a series of examples with a few unifying ideas.
The role of additive and bilinear multiplicative noise is described and a variety of examples are included, from abstract parabolic evolution equations with non-Lipschitz nonlinearities to particular fluid dynamic models, like the dyadic model, linear transport equations and motion of point vortices.

Mar. 2011 140 pp.
9783642182303 5,980.

Vol. 2011: Andrews, B. /Hopper, C.: 詳報掲載 No. 160
The Ricci Flow in Riemannian Geometry: A Complete Proof of the Differentiable 1/4-Pinching Sphere Theorem
Dec. 2010 276 pp. 9783642162855 7,690.

Springer