Yurinsha Book News

Mathematical Surveys and Monographs,

441-124

Vol. 163: **Chow, B. /Chu, S.-C. / Glickenstein, D. /Guenther, C. / Isenberg, J. /Ivey, T. /Knopf, D. / Lu, P. /Luo, F. /Ni, L.:**

The Ricci Flow:

Techniques and Applications, Part III:

Geometric-Analytic Aspects

The Ricci flow uses methods from analysis to study the geometry and topology of manifolds. With the third part of their volume on techniques and applications of the theory, the authors give a presentation of Hamilton's Ricci flow for graduate students and mathematicians interested in working in the subject, with an emphasis on the geometric and analytic aspects.

The topics include Perelman's entropy functional, point picking methods, aspects of Perelman's theory of \kappa-solutions including the \kappa-gap theorem, compactness theorem and derivative estimates, Perelman's pseudolocality theorem, and aspects of the heat equation with respect to static and evolving metrics related to Ricci flow.

In the appendices, we review metric and Riemannian geometry including the space of points at infinity and Sharafutdinov retraction for complete noncompact manifolds with nonnegative sectional curvature.

June 2010 525 pp.

9780821846612 15,590.

A.M.S.

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ホームページは毎月25日更新予定です

No. 441 Mar. 2010

数理科学 友 隣 社 洋書専門

Graduate Studies in Mathematics,

Vol. 114: **Rotman, J.:** 441-076

Advanced Modern Algebra, 2nd ed.

This book is designed as a text for the first year of graduate algebra, but it can also serve as a reference since it contains more advanced topics as well. This second edition has a different organization than the first. It begins with a discussion of the cubic and quartic equations, which leads into permutations, group theory, and Galois theory. The study of groups continues with finite abelian groups (finitely generated groups are discussed later, in the context of module theory), Sylow theorems, simplicity of projective unimodular groups, free groups and presentations, and the Nielsen-Schreier theorem (subgroups of free groups are free). The study of commutative rings continues with prime and maximal ideals, unique factorization, noetherian rings, Zorn's lemma and applications, varieties, and Grobner bases. Next, noncommutative rings and modules are discussed, treating tensor product, projective, injective, and flat modules, categories, functors, and natural transformations, categorical constructions, and adjoint functors.

Aug. 2010 1015 pp.
9780821847411 13,660.

Contemporary Mathematics,

Vol. 512: **Fathi, A. /Oh, Y.-G. /Viterbo, C. (eds.):** 441-096

Symplectic Topology and Measure Preserving Dynamical Systems

The papers in this volume were presented at the AMS-IMS-SIAM Joint Summer Research Conference on Symplectic Topology and Measure Preserving Dynamical Systems held in Snowbird, Utah in July 2007. The aim of the conference was to bring together specialists of symplectic topology and of measure preserving dynamics to try to connect these two subjects. One of the motivating conjectures at the interface of these two fields is the question of whether the group of area preserving homeomorphisms of the 2-disc is or is not simple. For diffeomorphisms it was known that the kernel of the Calabi invariant is a normal proper subgroup, so the group of area preserving diffeomorphisms is not simple. Most articles are related to understanding these and related questions in the framework of modern symplectic topology.

May 2010 177 pp.
9780821848920 9,520.

Vol. 511: **Kappe, L.-C. /Magidin, A. /Morse, R. (eds.):**

Computational Group Theory and the Theory of Groups, II

This volume consists of contributions by researchers who were invited to the Harlaxton Conference on Computational Group Theory and Cohomology, held in August of 2008, and to the AMS Special Session on Computational Group Theory, held in October 2008. This volume showcases examples of how Computational Group Theory can be applied to a wide range of theoretical aspects of group theory. Among the problems studied in this book are classification of p-groups, covers of Lie groups, resolutions of Bieberbach groups, and the study of the lower central series of free groups.

May 2010 200 pp. 441-061
9780821848050 9,520.

A. M. S.

Williams, K. /March, L. /Wassell, S. (eds.): 441-034

The Mathematical Works of Leon Battista Alberti

Leon Battista Alberti was an outstanding polymath of the fifteenth century, alongside Piero della Francesca and before Leonardo da Vinci.
While his contributions to architecture and the visual arts are well known and available in good English editions, and much of his literary and social writings are also available in English, his mathematical works are not well represented in readily available, accessible English editions have remained accessible only to specialists.
The four treatises included here - Ludi matematici, De Componendis Cifris, Elementi di pittura and De lunularum quadratura - are extremely valuable in rounding out the portrait of this multitalented thinker.
The treatises are presented in modern English translations, with commentary that is intended to make evident the depths of Alberti's knowledge as well as address the treatises' mathematical, historical and cultural context, their classical Greek roots, and their relationship to later works by Renaissance thinkers such as Andrea Palladio, Daniele Barbaro, Silvio Belli, Snellius, and Leonardo.

July 2010 160 pp.
9783034604734 15,830.

Oberwolfach Seminars,

Vol. 43: **Hacon, C. /Kovacs, S.:** 441-059

Higher Dimensional Algebraic Geometry

The first part gives a detailed account of recent results in the minimal model program.
In particular, it contains a complete proof of the theorems on the existence of flips, on the existence of minimal models for varieties of log general type and of the finite generation of the canonical ring.
The second part is an introduction to the theory of moduli spaces.
It includes topics such as representing and moduli functors, Hilbert schemes, the boundedness, local closedness and separatedness of moduli spaces and the boundedness for varieties of general type.

Apr. 2010 200 pp.
9783034602891 4,940.

Modern Birkhauser Classics

Triebel, H.:

Theory of Function Spaces 2nd Printing 2010

June 2010 290 pp. 441-117
9783034604154 6,920.

Triebel, H.: 441-118

Theory of Function Spaces II 2nd Printing 2010

These two scales os spaces cover many well-known function spaces such as Holder-Zygmund spaces, (fractional) Sobolev spaces, Besov spaces, inhomogeneous Hardy spaces, spaces of BMO-type and local approximation spaces which are closely connected with Morrey-Campanato spaces.
"Theory of Function Spaces II" is self-contained, although it may be considered an update of the author's earlier book of the same title.
The book's seven chapters start with a historical survey of the subject, and then analyze the theory of function spaces in Rn and in domains, applications to (exotic) pseudo-differential operators, and function spaces on Riemannian manifolds.

June 2010 380 pp.
9783034604185 6,920.

Birkhauser

Encyclopedia of Mathematics and its Applications,

Vol. 134: Crama, Y. /Hammer, P. (eds.): 441-037
Boolean Functions, Vol. 2: Applications

This collection of papers presents a series of in-depth examinations of a variety of advanced topics related to Boolean functions and expressions. The chapters are written by some of the most prominent experts in their respective fields and cover topics ranging from algebra and propositional logic to learning theory, cryptography, computational complexity, electrical engineering, and reliability theory.
Beyond the diversity of the questions raised and investigated in different chapters, a remarkable feature of the collection is the common thread created by the fundamental language, concepts, models, and tools provided by Boolean theory.
Many readers will be surprised to discover the countless links between seemingly remote topics discussed in various chapters of the book.

May 2010 748 pp.
9780521847520 17,160.

Cambridge Studies in Advanced Mathematics,

Vol. 124: Lux, K. /Pahlings, H.: 441-066
Representations of Groups: A Computational Approach

This is the first book to provide an introduction to the ordinary and modular representation theory of finite groups with special emphasis on the computational aspects of the subject.
Evolving from courses taught at Aachen University, this well-paced text is ideal for graduate-level study.
The authors provide over 200 exercises, both theoretical and computational, and include worked examples using the computer algebra system GAP. These make the abstract theory tangible and engage students in real hands-on work.
GAP is freely available from www.gap-system.org and readers can download source code and solutions to selected exercises from the book's web page.

Aug. 2010 220 pp.
9780521768078 9,900.

Vol. 122: Kalikow, S. /McCutcheon, R.: 441-102
An Outline of Ergodic Theory

This informal introduction provides a fresh perspective on isomorphism theory, which is the branch of ergodic theory that explores the conditions under which two measure preserving systems are essentially equivalent.
It contains a primer in basic measure theory, proofs of fundamental ergodic theorems, and material on entropy, martingales, Bernoulli processes, and various varieties of mixing.
Original proofs of classic theorems - including the Shannon - McMillan - Breiman theorem, the Krieger finite generator theorem, and the Ornstein isomorphism theorem - are presented by degrees, together with helpful hints that encourage the reader to develop the proofs on their own.
Hundreds of exercises and open problems are also included, making this an ideal text for graduate courses.
Professionals needing a quick review, or seeking a different perspective on the subject, will also value this book.

Apr. 2010 230 pp.
9780521194402 7,790.

Cambridge

London Mathematical Society Lecture Note Series,

Vol. 374: **Alinhac, S.:** 441-081
Geometric Analysis of Hyperbolic Differential Equations
Its self-contained presentation and 'do-it-yourself' approach make this the perfect guide for graduate students and researchers wishing to access recent literature in the field of nonlinear wave equations and general relativity. It introduces all of the key tools and concepts from Lorentzian geometry (metrics, null frames, deformation tensors, etc.) and provides complete elementary proofs.
May 2010 135 pp.
9780521128223 6,600.

Vol. 372: **Lepowsky, J. /McKay, J. /Tuite, M. (eds.).):**
Moonshine - The First Quarter Century & Beyond:
Proceedings of a Workshop on 441-064
the Moonshine Conjectures and Vertex Algebras.
In 1979, John Conway and Simon Norton's famous paper, 'Monstrous Moonshine', outlined the remarkable connection between the monster group M and the theory of modular functions. The search for an explanation of this phenomenon involved the development and application of diverse areas of mathematics, including (generalized) Kac-Moody algebras, vertex (operator) algebras, automorphic forms and elliptic cohomology, together with string and conformal field theory from theoretical physics.
Apr. 2010 360 pp.
9780521106641 11,880.

Vol. 370: **Albeverio, A. /Khrennikov, Yu. /Shelkovich, V.:**
The Theory of p-Adic Distributions:
Linear and Nonlinear Models 441-080
This is the first book devoted to the theory of p-adic wavelets and pseudo-differential equations in the framework of distribution theory. This relatively recent theory has become increasingly important in the last decade with exciting applications in a variety of fields, including biology, image analysis, psychology, and information science. p-Adic mathematical physics also plays an important role in quantum mechanics and quantum field theory, the theory of strings, quantum gravity and cosmology, and solid state physics.
Mar. 2010 350 pp.
9780521148566 9,240.

Vol. 360: **Zilber, B.:** 441-138
Zariski Geometries:
Geometryfrom the Logician's Point of View
This book presents methods and results from the theory of Zariski structures and discusses their applications in geometry as well as various other mathematical fields. Its logical approach helps us understand why algebraic geometry is so fundamental throughout mathematics and why the extension to noncommutative geometry, which has been forced by recent developments in quantum physics, is both natural and necessary. Beginning with a crash course in model theory, this book will suit not only model theorists but also readers with a more classical geometric background.
Feb. 2010 230 pp.
9780521735605 7,920.

Cambridge

Oxford Mathematical Monographs

Scott, S.: 441-114

Traces and Determinants of Elliptic Pseudodifferential Operators

Trace and determinant functionals on operator algebras provide a means of constructing invariants in analysis, topology, differential geometry, analytic number theory, and quantum field theory.
The consequent developments around such invariants have led to significant advances both in pure mathematics and theoretical physics.
As the fundamental tools of trace theory have become well understood and clear general structures have emerged, so the need for specialist texts which explain the basic theoretical principles and computational techniques has become increasingly urgent.
Providing a broad account of the theory of traces and determinants on algebras of differential and pseudodifferential operators over compact manifolds, this text is the first to deal with trace theory in general, encompassing a number of the principle applications and backed up by specific computations which set out in detail the nuts-and-bolts of the basic theory. 441-107
Both the microanalytic approach to traces and determinants via pseudodifferential operator theory and the more computational approach directed by applications in geometric analysis, are developed in a general framework that will be of interest to mathematicians and physicists in a number of different fields.

May 2010 << Oct. 2009 **656pp.** << 256 pp.
9780198568360 **17,020.**

Ignaczak, J. /Ostoja-Starzewski, M.:

Thermoelasticity with Finite Wave Speeds

Sep. 2009 *413 pp.* *9780199541645* *15,890.*

Penrose, R.: 441-026

Roger Penrose: Collected Works

Six Volume Set

Professor Sir Roger Penrose is one of the truly original thinkers of our time and has made several remarkable contributions to science from quantum physics and theories of human consciousness to relativity theory and observations on the structure of the universe in over 240 scientific publications.
Here his works, spanning 50 years of science and including his previously unpublished theses, have been collected and arranged chronologically over six volumes, each with an introduction from the author.

July 2010 **4500 pp.**
9780199219445 **136,200.**

Williamson, J.: 441-175

In Defence of Objective Bayesianism

Objective Bayesianism has been challenged on a number of different fronts. For example, some claim it is poorly motivated, or fails to handle qualitative evidence, or yields counter-intuitive degrees of belief after updating, or suffers from a failure to learn from experience.
It has also been accused of being computationally intractable, susceptible to paradox, language dependent, and of not being objective enough.

Apr. 2010 **192 pp.**
9780199228003 **10,200.**

Oxford University

Ergebnisse der Mathematik und ihrer Grenzgebiete 3 Folge

Band 53: **Araujo, V. /Pacifico, M.:** 441-082

Three-Dimensional Flows

- first comprehensive treatment of this subject in book form - ease of reference to the main results in the theory with complete proofs and precise statements - very recent results (published mostly from 1998 onwards) providing an extension of the theory of uniform hyperbolicity to flows with attractors having singularities accumulated by regular orbits inside the attractor - complete proofs of several results which are spread throughout many different papers with a unified notation and approach

Table of contents: 1 Introduction.- 2 Preliminary Definitions and Results.- 3 Robust Singular Attractors.- 4 Robustness on the Whole Ambient Space.- 5 Robust Transitivity.- 6 Singular-Hyperbolicity and Robustness.- 7 Expansiveness and Physical Measure.- 8 Singular-Hyperbolicity and Volume.- 9 Global Dynamics of Generic 3 - Flows. - 10 Recent Developments.- A Lyapunov Stability on Generic Vector Fields.- B A Perturbation Lemma for Flows.- C Robustness of Dominated Decomposition.- References.

June 2010 **355 pp.**
9783642114137 **27,710.**

Springer Monographs in Mathematics

Chueshov, I. /Lasiecka, I.: 441-088

von Karman Evolution Equations: Well-posedness and Long Time Dynamics

The main goal of this book is to discuss and present results on well-posedness, regularity and long-time behavior of non-linear dynamic plate (shell) models described by von Karman evolutions.
While many of the results presented here are the outgrowth of very recent studies by the authors, including a number of new original results here in print for the first time - authors have provided a comprehensive and reasonably self-contained exposition of the general topic outlined above. This includes supplying all the functional analytic framework along with the function space theory as pertinent in the study of nonlinear plate models. While von Karman evolutions are the object under considerations, the methods developed transcendent this specific model and may be applied to many other equations, systems which exhibit similar hyperbolic or ultra-hyperbolic behavior (e.g. Berger's plate equations, Mindlin-Timoschenko systems, Kirchhoff-Boussinesq equations etc.

May 2010 **778 pp.**
9780387877112 **27,710.**

Applied Mathematical Sciences,

Vol. 171: **Younes, L.:** 441-119

Shapes and Diffeomorphisms

This volume provides the background that is required for this purpose, including different approaches that can be used to model shapes, and a lgorithms that are available to analyze them.
It explores, in particular, the interesting connections between shapes and the objects that naturally act on them, diffeomorphisms.
The book is, as far as possible, self-contained, with an appendix that describes a series of classical topics in mathematics (Hilbert spaces, differential equations, Riemannian manifolds) and sections that represent the state of the art in the analysis of shapes and their deformations.

Mar. 2010 **438 pp.**
9783642120541 **12,520.**

Springer

Lecture Notes in Mathematics,

Vol. 1993: **Dodos, P.:** 441-039

Banach Spaces and Descriptive Set Theory: Selected Topics

This volume deals with problems in the structure theory of separable infinite-dimensional Banach spaces, with a central focus on universality problems.
This topic goes back to the beginnings of the field and appears in Banach's classical monograph.
The novelty of the approach lies in the fact that the answers to a number of basic questions are based on techniques from Descriptive Set Theory. Although the book is oriented on proofs of several structural theorems, in the main text readers will also find a detailed exposition of numerous "gintermediate" results which are interesting in their own right and have proven to be useful in other areas of Functional Analysis. Moreover, several well-known results in the geometry of Banach spaces are presented from a modern perspective.
Table of contents: 1. Basic concepts.- 2. The space of separable Banach spaces.- 3. The l2 Baire sum.- 4. Amalgamated spaces.- 5. Zippin's embedding Theorem.- 6. The Bourgain-Pisier construction.- 7. Strongly bounded classes.

May 2010 **160 pp.**
9783642121524 **6,920.**

Vol. 1992: **Parmeggiani, S.:** 441-109

Spectral Theory of Non-Commutative Harmonic Oscillators: An Introduction

This volume describes the spectral theory of the Weyl quantization of systems of polynomials in phase-space variables, modelled after the harmonic oscillator.
The main technique used is pseudodifferential calculus, including global and semiclassical variants. The main results concern the meromorphic continuation of the spectral zeta function associated with the spectrum, and the localization (and the multiplicity) of the eigenvalues of such systems, described in terms of "classical" invariants (such as the periods of the periodic trajectories of the bicharacteristic flow associated with the eiganvalues of the symbol).

Apr. 2010 **260 pp.**
9783642119217 **8,900.**

Vol. 1294: **Queffelec, M.:** 441-075

Substitution Dynamical Systems - Spectral Analysis, 2nd ed.

This volume mainly deals with the dynamics of finitely valued sequences, and more specifically, of sequences generated by substitutions and automata. Those sequences demonstrate fairly simple combinatorical and arithmetical properties and naturally appear in various domains.
As the title suggests, the aim of the initial version of this book was the spectral study of the associated dynamical systems: the first chapters consisted in a detailed introduction to the mathematical notions involved, and the description of the spectral invariants followed in the closing chapters. This approach, combined with new material added to the new edition, results in a nearly self-contained book on the subject.

Feb. 2010 **332 pp.** **<< 246 pp.**
9783642112119 **13,850.**

Springer

Grundlehren der mathematischen wissenschaften,

Band 339: **Dierkes, U. /Hildebrandt, S. /Tromba, A.: Minimal Surfaces, Part I, 2nd ed.**

The first volume begins with an exposition of basic ideas of the theory of surfaces in three-dimensional Euclidean space, followed by an introduction of minimal surfaces as stationary points of area, or equivalently, as surfacesof zero mean curvature.

Apr. 2010 **680 pp.** 441-089
9783642116971 **9,790.**

Band 340: **Dierkes, U. /Hildebrandt, S. /Tromba, A.: Regularity of Minimal Surfaces, 2nd ed.**

Following this, the basic results concerning the boundary behaviour of minimal surfaces and H-surfaceswith fixed or free boundaries are studied. In particular, the asymptotic expansions at interior and boundary branch points are derived, leading to general Gauss-Bonnet formulas.

Apr. 2010 **575 pp.** 441-090
9783642116995 **19,890.**

Band 341: **Dierkes, U. /Hildebrandt, S. /Tromba, A.: Global Analysis of Minimal Surfaces, 2nd ed.**

Part I of the present book can be viewed as an extension of these results. For instance, the first two chapters deal with existence, regularity and uniqueness theorems for minimal surfaces with partially free boundaries. Here one of the main features is the possibility of "edge-crawling" along free parts of the boundary.
The third chapter deals with a priori estimates for minimal surfaces in higher dimensions and for minimizers of singular integrals related to the area functional. In particular, far reaching Bernstein theorems are derived.

Apr. 2010 **560 pp.** 441-091
9783642117053 **19,890.**

Lecture Notes in Physics,

Vol. 806: **Grigoriev, Yu. / Ibragimov, N. /Kovalev, V. /Meleshko, S.: Symmetries of Integro-Differential Equations: With Applications in Mechanics and Plasma Physics** 441-099

This book aims to coherently present applications of group analysis to integro-differential equations in an accessible way.
The book will be useful to both physicists and mathematicians interested in general methods to investigate nonlinear problems using symmetries. Differential and integro-differential equations, especially nonlinear, present the most effective way for describing complex processes. Therefore, methods to obtain exact solutions of differential equations play an important role in physics, applied mathematics and mechanics.
This book provides an easy to follow, but comprehensive, description of the application of group analysis to integro-differential equations.
The book is primarily designed to present both fundamental theoretical and algorithmic aspects of these methods.
It introduces new applications and extensions of the group analysis method. The authors have designed a flexible text for postgraduate courses spanning a variety of topics.

June 2010 **330 pp.**
9789048137961 **23,750.**

Springer

Wiley Series in Probability and Statistics

Bendat, J. /Piersol, A.: 441-142

Random Data:
Analysis and Measurement Procedures, 4th ed.

Random Data provides first-rate, practical tools for dynamic data and statistical methods for engineering problems.
This revised bestseller presents the latest developed procedures and a complete rewrite of the Fast Fourier Transforms of applied fields.
Plus, this resource includes a new chapter on frequency domain techniques.
The updated book explores novel techniques on modern digital data storage, oversampling, and temporal moments.

Feb. 2010 640 pp.
9780470248775 19,320.

Agresti, A.:

Analysis of Ordinal Categorical Data, 2nd ed.

Statistical science's first coordinated manual of methods for analyzing ordered categorical data, now fully revised and updated, continues to present applications and case studies in fields as diverse as sociology, public health, ecology, marketing, and pharmacy. 441-139
Analysis of Ordinal Categorical Data, Second Edition provides an introduction to basic descriptive and inferential methods for categorical data, giving thorough coverage of new developments and recent methods. Special emphasis is placed on interpretation and application of methods including an integrated comparison of the available strategies for analyzing ordinal data.

May 2010 418 pp.
9780470082898 15,180.

Myers, R. /Montgomery, D. /Vining, G. /Robinson, T.:

Generalized Linear Models:
With Applications in Engineering and the Sciences, 2nd ed.

Maintaining the same nontechnical approach as its acclaimed predecessor, this second edition of Generalized Linear Models is now thoroughly extended to include the latest developments in the field, the most relevant computational approaches, and the most relevant examples from the fields of engineering and physical sciences. 441-160
This new edition is more tutorial in nature with added examples, exercises, and step-by-step analyses that can be easily worked using the SAS, Minitab, JMP, and R software packages.

Mar. 2010 520 pp.
9780470454633 15,870.

Pesarin, F. /Salmaso, L.: 441-165

Permutation Tests for Complex Data:
Theory, Applications and Software

Complex multivariate testing problems are frequently encountered in many scientific disciplines, such as engineering, medicine and the social sciences. As a result, modern statistics needs permutation testing for complex data with low sample size and many variables, especially in observational studies. The Authors give a general overview on permutation tests with a focus on recent theoretical advances within univariate and multivariate complex permutation testing problems, this book brings the reader completely up to date with today's current thinking.

May 2010 456 pp.
9780470516416 17,940.

Wiley

Statistical Science and Applied Probability

Asmussen, S. /AlbrecherH.: 441-141
Ruin Probabilities, 2nd ed.

The book gives a comprehensive treatment of the classical and modern ruin probability theory.
Some of the topics are Lundberg's inequality, the Cramer-Lundberg approximation, exact solutions, other approximations (e.g., for heavy-tailed claim size distributions), finite horizon ruin probabilities, extensions of the classical compound Poisson model to allow for reserve-dependent premiums, Markov-modulation, periodicity, change of measure techniques, phase-type distributions as a computational vehicle and the connection to other applied probability areas, like queueing theory.
In this substantially updated and extended second version, new topics include stochastic control, fluctuation theory for Levy processes, Gerber-Shiu functions and dependence.

Nov. 2010 **550 pp.**
9789814282529 **13,520.**

Tsinghua Report and Review in Physics,

***Vol. 1:* Chen, N. (ed.):** 441-228
Mobius Inversion in Physics:
With Many Unexpected and Useful Applications

This book attempts to bridge the gap between the principles of pure mathematics and the applications in physical science.
After the Mobius inversion formula had been considered as purely academic, or beyond what was useful in the physics community for more than 150 years, the apparently obscure result in classical mathematics suddenly appears to be connected to a variety of important inverse problems in physical science.
This book only requires readers to have some background in elementary calculus and general physics, and prerequisite knowledge of number theory is not needed.
It will be attractive to our multidisciplinary readers interested in the Mobius technique, which is a tiny but important part of the number-theoretic methods. It will inspire many students and researchers in both physics and mathematics.
In a practical problem, continuity and discreteness are often correlated, and few textbook have given attention to this wide and important field as this book.

June 2010 **320 pp.**
9789814291620 **11,730.**

Mckellar, B. /Amos, K. (eds.): 441-023
In Celebration of K C Hines

This book presents a comprehensive review of a diverse range of subjects in physics written by physicists who have all been taught by or are associated with K C Hines.
Ken Hines was a great mentor with far-reaching influence on his students who later went on to make outstanding contributions to physics in their careers.
The papers provide significant insights into statistical physics, plasma physics from fluorescent lighting to quantum pair plasmas, cosmic ray physics, nuclear reactions, and many other fields.

Jan. 2010 **230 pp.**
9789814293655 **9,940.**

World Scientific Pub.

de Gruyter Studies in Mathematics, Vol. 18

Vol. 18: **Turaev, V. G.:** 441-136
Quantum Invariants of Knots and 3-Manifods, 2nd Revised ed.

This monograph, now in its second revised edition, provides a systematic treatment of topological quantum field theories (TQFT's) in three dimensions, inspired by the discovery of the Jones polynomial of knots, the Witten-Chern-Simons field theory, and the theory of quantum groups. The author, one of the leading experts in the subject, gives a rigorous and self-contained exposition of new fundamental algebraic and topological concepts that emerged in this theory.
The book is divided into three parts: Part I presents a construction of 3-dimensional TQFT's and 2-dimensional modular functors from so-called modular categories.
This gives new knot and 3-manifold invariants as well as linear representations of the mapping class groups of surfaces.
In Part II the machinery of 6j-symbols is used to define state sum invariants of 3-manifolds. Their relation to the TQFT's constructed in Part I is established via the theory of shadows.
Part III provides constructions of modular categories, based on quantum groups and Kauffman's skein modules.
This book is accessible to graduate students in mathematics and physics with a knowledge of basic algebra and topology.

Apr. 2010 ....
9783110221831 **23,750.**

de Gruyter Expositions in Mathematics,

*Vol. **:* **Enochs, E. /Jenda, O.:**
Relative Homological Algebra, Vol. 1., 2nd ed.

This book provides a self-contained systematic treatment of the subject of relative homological algebra.
It is designed for graduate students as well as researchers and specialists.
It contains twelve chapters with abundant supply of important results with complete proofs covering material that is essential to understanding topics in algebra, algebraic geometry, and algebraic topology.
The text also contains results that are in book form for the first time and thus provides essential reading for researchers and specialists.
At the end of each section of each chapter, there are exercises that provide practice problems for students as well as additional important results for specialists.
The book can be used as a text for graduate students and as 441-054
a handbook for researchers and specialists.
The material in the first three chapters constitute notes from lectures of the authors at their respective universities and is suitable for an introductory course in module and ring theory.
The following chapters are suitable for a course in relative homological algebra and its applications to commutative and non-commutative algebra.
The last three chapters give applications to ring theory.

May 2010 **350 pp.**
9783110215205 **19,790.**

*Vol. **:* **Enochs, E. /Jenda, O.:** 441-055
Relative Homological Algebra, Vol. 2

May 2010 ....
9783110215229 **19,790.**

de Gruyter

MSJ Memoirs,

Vol. 22: Ruzhansky, M. /Smith, J.: 441-112

Dispersive and Strichartz estimates for hyperbolic equations with constant coefficients

from Preface: In this work dispersive and Strichartz estimates for solutions to general strictly hyperbolic partial differential equations with constant coefficients are considered.
The global time decay estimates of L^p - L^q norms of propagators are analysed in detail and it is described how the time decay rates depend on the geometry of the problem.
For these purposes, the frequency space is separated in several zones each giving a certain decay rate.
Geometric conditions on characteristics responsible for the particular decay are presented.
Thus, a comprehensive analysis is carried out for strictly hyperbolic equations of high orders with lower order terms of a general form.
Most of the analysis also applies to equations with are pseudo-differential in the space variables.
We also show how the obtained estimates apply to solutions to hyperbolic systems with constant coefficients.
The applications of the obtained results include the time decay estimates for the solutions to the Fokker-Planck equation and for the solutions of semilinear hyperbolic equations.

Feb. 2010 186 pp.
9784931469570 2,353

Vol. 21: Bhowmik, G. / 441-049
Matsumoto Kohji /Tsumura Hirofumi :

Algebraic and Analytic Aspects of Zete Functions and L-functions:

Lectures at the French-Japanese Winter School (Miura, 2008)

from Preface: This volume contains lectures presented at the French-Japanese Winter School on Zeta and *L*-functions, held at the Hotel Maholova Minds Miura, Kanagawa Prefectue, Japan, during January 8 - 11, 2008. This Winter School was one of the activities of "Studies on multiple zeta-functions with applications", a French-Japanese joint research project sponsored by the CNRS and the JSPS for the period from April 2006 through March 2008.
The total number of the participants was 48, including four French mathematicians and many young Japanese researchers.
Maholova Minds Miura is a seaside hotel in Miura peninsula and the friendly atmosphere of the hotel with beautiful surroundings helped mathematician freely exchange their ideas.
The main aim of the School was to study various aspects of zeta and *L*-functions with Special emphasis on recent developments.
A series of detailed lectures were given by experts in these fields.
In addition some related short talks were presented by younger mathematician Zeta and *L*-functions occur in many diverse areas of mathematics and physics and we have treated some examples in detail.
Among these are height zeta-functions that occur in algebraic geometry, spherical functions and Igusa zeta-functions in *p*-adic theory, multiple zeta values and multiple zeta-functions, classes of Euler products of zeta-functions, *L*-functions associated with modular forms, etc.

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