Yurinsha Book News

Grundlehren der mathematischen wissenschaften,

Vol. 342: **Maz'ya, V.:** 2nd, augmented ed., 2010

Sobolev Spaces: 447-148

With Applications to Elliptic Partial Differential Equations

(Originally published under
Vladimir G. Maz'ja in Springer Series of Soviet Mathematics)

The book includes basics on Sobolev spaces, approximation and extension theorems, embedding and compactness theorems, their relations with isoperimetric and isocapacitary inequalities, capacities with applications to spectral theory of elliptic differential operators as well as pointwise inequalities for derivatives.
The selection of topics is mainly influenced by the author's involvement in their study, a considerable part of the text is a report on his work in the field.
Part of this book first appeared in German as three booklets of Teubner-Texte zur Mathematik (1979,1980).
In the Springer volume "Sobolev Spaces", published in English in 1985, the material was expanded and revised.
The present 2nd edition is enhanced by many recent results. New historical comments, five new chapters and the significantly augmented list of references aim to create a broader and modern view of the area. New applications to linear and nonlinear partial differential equations are also included.

Nov. 2010 **840 pp.**
9783642155635 **22,090.**

Springer

http://www.yurinsha.com
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No. 447 Sep. 2010
数理科学 友隣社 洋書専門

Student Mathematical Library,

Vol. 54: **Kasman, A.:** 447-085

Glimpses of Soliton Theory:
The Algebra and Geometry of Nonlinear PDEs

Glimpses of Soliton Theory addresses some of the hidden mathematical connections in soliton theory which have been revealed over the last half-century. It aims to convince the reader that, like the mirrors and hidden pockets used by magicians, the underlying algebro-geometric structure of soliton equations provides an elegant and surprisingly simple explanation of something seemingly miraculous.

Assuming only multivariable calculus and linear algebra as prerequisites, this book introduces the reader to the KdV Equation and its multisoliton solutions, elliptic curves and Weierstrass \wp-functions, the algebra of differential operators, Lax Pairs and their use in discovering other soliton equations, wedge products and decomposability, the KP Equation and Sato's theory relating the Bilinear KP Equation to the geometry of Grassmannians.

Dec. 2010 310 pp.
9780821852453 6,120.

University Lecture Series,

Vol. 56: **Helemskii, Ya.:** 447-123

Quantum Functional Analysis:
Non-Coordinate Approach

This book contains a systematic presentation of quantum functional analysis, a mathematical subject also known as operator space theory.

Created in the 1980s, it nowadays is one of the most prominent areas of functional analysis, both as a field of active research and as a source of numerous important applications.

The approach taken in this book differs significantly from the standard approach used in studying operator space theory.

Instead of viewing "quantized coefficients" as matrices in a fixed basis, in this book they are interpreted as finite rank operators in a fixed Hilbert space. This allows the author to replace matrix computations with algebraic techniques of module theory and tensor products, thus achieving a more invariant approach to the subject.

Dec. 2010 257 pp.
9780821852545 6,780.

Proceedings of Symposia in Pure Mathematics,

Vol. 81: **Doran, R. /Friedman, G. /Rosenberg, J. (eds.):**

Superstrings, Geometry, Topology, and C*-Algebras

447-073

This volume contains the proceedings of an NSF-CBMS Conference held at Texas Christian University in Fort Worth, Texas, May 18-22, 2009.

Topics examined are highly interdisciplinary and include, among many other things, recent results on D-brane charges in K-homology and twisted K-homology, Yang-Mills gauge theory and connections with non-commutative geometry, Landau-Ginzburg models, C*-algebraic non-commutative geometry and ties to quantum physics and topology, the rational homotopy type of the group of unitary elements in an Azumaya algebra, and functoriality properties in the theory of C*-crossed products and fixed point algebras for proper actions.

Nov. 2010 249 pp.
9780821848876 8,380.

A. M. S.

Contemporary Mathematics,

Vol. 525: **Contreras, M. /Diaz-Madrigal, S. (eds.):**
Five Lectures in Complex Analysis 447-113

This volume contains state-of-the-art survey papers in complex analysis based on lectures given at the Second Winter School on Complex Analysis and Operator Theory held in February 2008 at the University of Sevilla, Sevilla, Spain.
This book collects the latest advances in five significant areas of rapid development in complex analysis.
The papers are: Local holomorphic dynamics of diffeomorphisms in dimension one, by F. Bracci, Nonpositive curvature and complex analysis, by S. M. Buckley, Virasoro algebra and dynamics in the space of univalent functions, by I. Markina and A.Vasil'ev, Composition operators \heartsuit Toeplitz operators, by J. H. Shapiro, and Two applications of the Bergman spaces techniques, by S. Shimorin.

Oct. 2010 **161 pp.**
9780821848098 **7,850.**

Vol. 524: **Lewis, M. /Navarro, G. /Passman, D. /**
Wolf, T. (eds.): 447-090
Character Theory of Finite Groups

This volume contains a collection of papers from the Conference on Character Theory of Finite Groups, held at the Universitat de Valencia, Spain, on June 3-5, 2009, in honor of I.Martin Isaacs.
The topics include permutation groups, character theory, p-groups, and group rings.
The research articles feature new results on large normal abelian subgroups of p-groups, construction of certain wreath products, computing idempotents in group algebras of finite groups, and using dual pairs to study representations of cross characteristic in classical groups.
The expository articles present results on vertex subgroups, measuring theorems in permutation groups, the development of super character theory, and open problems in character theory.

Oct. 2010 **179 pp.**
9780821848272 **9,180.**

AMS Translations Series 2,

Vol. 230: **Nakanishi, K. et al.:** 447-030
Selected Papers on
Analysis and Differential Equations

This volume contains translations of papers that originally appeared in the Japanese journal Sugaku.
These papers range over a variety of topics in ordinary and partial differential equations, and in analysis. Many of them are survey papers presenting new results obtained in the last few years.
Table of Contents: *K. Nakanishi -- Asymptotic analysis of nonlinear dispersive equations *N. Hayashi -- Asymptotics of nonlinear dispersive-type evolution equations *K. Takemura -- Heun's differential equation *H. Isozaki -- Scattering theory and inverse problems *Y. Komori -- Nondoubling measure and harmonic analysis *S. Saitoh -- Theory of reproducing kernels *H. Izeki and S. Nayatani -- An approach to superrigidity and fixed-point theorems via harmonic maps *H. Sumi -- Rational semigroups, random complex dynamics and singular functions on the complex plane *K. Oguiso -- Salem polynomials and the bimeromorphic automorphism group of a hyperkahler manifold *S. Yamagami -- Tensor categories in operator algebras

Nov. 2010 **248 pp.**
9780821848814 **15,830.**

A.M.S.

Progress in Mathematics,

Vol. 203: Blair, D.: 447-173

Riemannian Geometry of Contact and Symplectic Manifolds, 2nd ed.

This 2nd edition, presents a comprehensive treatment of contact and symplectic manifolds from the Riemannian point of view.
The monograph examines the basic ideas in detail and provides many illustrative examples for the reader.
Riemannian Geometry of Contact and Symplectic Manifolds, Second Edition provides new material in most chapters, but a particular emphasis remains on contact manifolds.
New principal topics include a complex geodesic flow and the accompanying geometry of the projectivized holomorphic tangent bundle and a complex version of the special directions discussed in Chapter 11 for the real case. Both of these topics make use of Étienne Ghys's attractive

Aug. 2010 344 pp.
9780817649586 11,030.

Science Networks, Historical Studies,

Vol. 41: Meskens, A.: 447-029

Travelling Mathematics - The Fato of Diophantos' Arithmetic

In this book the author presents a comprehensive study of Diophantos' monumental work known as Arithmetika. a highly acclaimed and unique set of books within the known Greek mathematical corpus.
Its author, Diophantos, is an enigmatic figure of whom we know virtually nothing. Starting with Egyptian, Babylonian and early Greek mathematics the author paints a picture of the sources the Arithmetika may have had. Life in Alexandria, where Diophantos lived, is described and, on the basis of the limited available evidence, his biography is outlined. Of Arithmetika's 13 books only 6 survive in Greek. It was not until 1971 that these were complemented by the discovery of 4 other books in an Arab translation. This allows us to describe the structure, the contents and the mathematics of the Arithmetika in detail. Furthermore it is shown that Diophantos had a remarkable skill to solve higher degree equations.
In the second part, the author draws our attention to the survival of Diophantos' work in both Arab and European mathematical cultures. Once Xylander's critical 1575 edition reached its European public, the fame of the Arithmetika grew. It was studied, translated and modified by such authors as Bombelli, Stevin and Viete. It reached its pinnacle of fame in 1621 with the publication of Bachet's translation into Latin.

Sep. 2010 208 pp.
9783034606424 .....

Kubrusly, C.: 447-132

Elements of Operator Theory, 2nd ed.

This second edition of Elements of Operator Theory is a concept-driven textbook including asignificant expansion of the problems and solutions used to illustrate the principles of operator theory.
Written in a user-friendly, motivating style intended to avoid the formula-computational approach, fundamental topics are presented in a systematic fashion, i.e., set theory, algebraic structures, topological structures, Banach spaces, and Hilbert spaces, culminating with the Spectral Theorem.

Dec. 2010 400 pp.
9780817649975 11,880.

Birkhauser

Encyclopedia of Mathematics and its Applications,

Vol. 138: Courcelle, B.: 447-053
Graph Structure and Monadic Second-Order Logic

The study of graph structure has advanced in recent years with great strides: finite graphs can be described algebraically, enabling them to be constructed out of more basic elements. Separately the properties of graphs can be studied in a logical language called monadic second-order logic. In this book, these two features of graph structure are brought together for the first time in a presentation that unifies and synthesizes research over the last 25 years.
The author not only provides a thorough description of the theory, but also details its applications, on the one hand to the construction of graph algorithms, and, on the other to the extension of formal language theory to finite graphs.

Feb. 2011 700 pp.
9780521898331 21,210.

Cambridge Studies in Advanced Mathematics,

Vol. 129: Goldfeld, D. /Hundley, J.: 447-079
Automorphic Representation and L-Functions for the General Linear Group

This graduate-level textbook provides an elementary exposition of the theory of automorphic representations and L-functions for the general linear group in an adelic setting.
The authors keep definitions to a minimum and repeat them when reintroduced so that the book is accessible from any entry point, and with no prior knowledge of representation theory.
They also include concrete examples of both global and local representations of GL(n), and present their associated L-functions.
The theory is developed from first principles for GL(1), then carefully extended to GL(2) with complete detailed proofs of key theorems.
Several of the proofs are here presented for the first time, including Jacquet's simple and elegant proof of the tensor product theorem.
Finally, the higher rank situation of GL(n) is given a detailed treatment.
Containing numerous exercises, this book will motivate students and researchers to begin working in this fertile field of research.

Feb. 2011 550 pp.
9780521474238 15,840.

London Mathematical Society Lecture Note Series,

Vol. 381: Levi, D. /Olver, P. /Thomova, Z. /Winternitz, P.: 447-141
Symmetries and Integrability of Difference Equations

This book shows how Lie group and integrability techniques, originally developed for differential equations, have been adapted to the case of difference ones.
Each of the eleven chapters is a self-contained treatment of a topic, containing introductory material as well as the latest research results.
The book will be welcomed by graduate students and researchers seeking an introduction to the field. As a survey of the current state of the art it will also serve as a valuable reference.

Mar. 2011 350 pp.
9780521136587 10,560.

Cambridge

Cambridge Tracts in Mathematics,

Vol. 186: **Robinson, J.:** 447-157

Dimensions, Embeddings, and Attractors

This accessible research monograph investigates how 'finite-dimensional' sets can be embedded into finite-dimensional Euclidean spaces.
The first part brings together a number of abstract embedding results, and provides a unified treatment of four definitions of dimension that arise in disparate fields: Lebesgue covering dimension (from classical 'dimension theory'), Hausdorff dimension (from geometric measure theory), upper box-counting dimension (from dynamical systems), and Assouad dimension (from the theory of metric spaces).
These abstract embedding results are applied in the second part of the book to the finite-dimensional global attractors that arise in certain infinite-dimensional dynamical systems, deducing practical consequences from the existence of such attractors: a version of the Takens time-delay embedding theorem valid in spatially extended systems, and a result on parametrisation by point values.

Jan. 2011 **220 pp.**
9780521898058 **11,220.**

Cambridge

Advanced Lectures in Mathematics,

Vol. 14: **Ji, L. /Li, P. /Schoen, R. /Simon, L. (eds.):** 447-128

Handbook of Geometric Analysis, Number 3

Geometric Analysis combines differential equations and differential geometry. An important aspect is to solve geometric problems by studying differential equations.
Besides some known linear differential operators such as the Laplace operator, many differential equations arising from differential geometry are nonlinear. A particularly important example is the Monge-Ampere equation. Applications to geometric problems have also motivated new methods and techniques in differential equations. The field of geometric analysis is broad and has had many striking applications.

Aug. 2010 **472 pp.**
9781571462053 **8,640.**

Vol. 13: **Ji, L. /Li, P. /Schoen, R. /Simon, L. (eds.):**
Handbook of Geometric Analysis, Number 2
Aug. 2010 *431 pp.* *9781571462046* *8,640.*

Coates, J. /Yau, S.-T.: 447-069

Elliptic Curves, Modular Forms and Fermat's Last theorem, 2nd ed. 2010 Re-Issue

The conference, held at the Chinese University of Hong Kong, on which these proceedings are based was organized in response to Andrew Wiles' conjecture that every elliptic curve over Q is modular. The final difficulties in the proof of the conjectural upper bound for the order of the Selmer group attached to the symmetric square of a modular form, have since been overcome by Wiles with the assistance of R.Taylor. The proof that every semi-stable elliptic curve over Q is modular is not only significant in the study of elliptic curves, but also due to the earlier work of Frey, Ribet, and others, completes a proof of Fermat's last theorem.
New paperback re-issue of the revised second edition.

Mar. 2010 **344 pp.**
9781571461858 **3,860.**

International Press

Tata institute of Fundamental Research Lectures on Mathematics and Physics,

Vol. 16: Srinivas, V. (ed.): 447-097

Cycles, Motives, Shimura Varieties

This is the proceedings of the International Colloquium organized by the Tata Institute of Fundamental Research in January 2008, one of a series of colloquia going back to 1956.
It covers a wide spectrum of mathematics, ranging over algebraic geometry, topology, automorphic forms, and number theory.Algebraic cycles form the basis for the construction of motives, and conjectures about motives depend ultimately on important problems related to algebraic cycles, such as the Hodge and the Tate conjectures. Shimura varieties provide interesting, nontrivial instances of these fundamental problems.
On the other hand, the motives of Shimura varieties are of great interest in automorphic forms and number theory.

Aug. 2010 540 pp.
9788184870855 6,650.

Texts and Readings in Mathematics,

Tao, T.: **Analysis I, 2nd ed.** 447-163

This is part one of a two-volume introduction to real analysis and is intended for honours undergraduates who have already been exposed to calculus.
The emphasis is on rigour and on foundations.
The material starts at the very beginning—the construction of the number systems and set theory—then goes on to the basics of analysis (limits, series, continuity, differentiation, Riemann integration), through to power series, several variable calculus and Fourier analysis, and finally to the Lebesgue integral.
These are almost entirely set in the concrete setting of the real line and Euclidean spaces, although there is some material on abstract metric and topological spaces.

Jan. 2010 347 pp.
9788185931944 5,320.

Lakshmibai, V. /Brown, J.: 447-088

Flag Varieties:
An Interplay of Geometry, Combinatorics, and Representation Theory

Flag varieties are important geometric objects and their study involves an interplay of geometry, combinatorics, and representation theory.
This book is a detailed account of this interplay.
In the area of representation theory, the book discusses complex semisimple Lie algebras and semisimple algebraic groups; in addition, the representation theory of symmetric groups is discussed.
In the area of algebraic geometry, the book explains in detail Grassmannian varieties, flag varieties, and their Schubert subvarieties.
Because of the connections with root systems, many of the geometric results admit elegant combinatorial description, a typical example being the description of the singular locus of a Schubert variety.
This is shown to be a consequence of standard monomial theory.
Thus the book includes SMT and some important applications—singular loci of Schubert varieties, toric degenerations of Schubert varieties, and the relationship between Schubert varieties and classical invariant theory.

Feb. 2009 272 pp.
9788185931920 6,380.

Hindustan

Graduate Texts in Mathematics,

Vol. 260: Herzog, J. /Hibi Takayuki : 447-081
Monomial Ideals

This book demonstrates current trends in research on combinatorial and computational commutative algebra with a primary emphasis on topics related to monomial ideals.
Providing a useful and quick introduction to areas of research spanning these fields, Monomial Ideals is split into three parts.
Part I offers a quick introduction to the modern theory of Grobner bases as well as the detailed study of generic initial ideals.
Part II supplies Hilbert functions and resolutions and some of the combinatorics related to monomial ideals including the Kruskal-Katona theorem and algebraic aspects of Alexander duality.
Part III discusses combinatorial applications of monomial ideals, providing a valuable overview of some of the central trends in algebraic combinatorics.
Main subjects include edge ideals of finite graphs, powers of ideals, algebraic shifting theory and an introduction to discrete polymatroids.

Nov. 2010 305 pp.
9780857291059 10,190.

Universitext

Bercovici, H. /Sz.-Nagy, B. /Foias, C. /Kerchy, L.:
Harmonic Analysis of Operators on Hilbert Space

The existence of unitary dilations makes it possible to study arbitrary contractions on a Hilbert space using the tools of harmonic analysis. 447-106
The first edition of this book was an account of the progress done in this direction in 1950-70.
Since then, this work has influenced many other areas of mathematics, most notably interpolation theory and control theory.
This second edition, in addition to revising and amending the original text, focuses on further developments of the theory.
Specifically, the last two chapters of the book continue and complete the study of two operator classes: operators whose powers do not converge strongly to zero, and operators whose functional calculus (as introduced in Chapter III) is not injective.

Sep. 2010 474 pp.
9781441960931 9,680.

Laurent-Thiebaut, C.:
Holomorphic Function Theory in Several Variables: 447-139

This book provides an introduction to complex analysis in several variables.
The viewpoint of integral representation theory together with Grauert's bumping method offers a natural extension of single variable techniques to several variables analysis and leads rapidly to important global results.
Applications focus on global extension problems for CR functions, such as the Hartogs-Bochner phenomenon and removable singularities for CR functions.
Three appendices on differential manifolds, sheaf theory and functional analysis make the book self-contained.
Each chapter begins with a detailed abstract, clearly demonstrating the structure and relations of following chapters.
New concepts are clearly defined and theorems and propositions are proved in detail. Historical notes are also provided at the end of each chapter.

Sep. 2010 234 pp.
9780857290298 8,490.

Springer

Universitext

Dal'bo, F.: (Original French edition published by EDP Sciences, 2007)

Geodesic and Horocyclic Trajectories

447-072

Geodesic and Horocyclic Trajectories presents an introduction to the topological dynamics of two classical flows associated with surfaces of curvature -1, namely the geodesic and horocycle flows.
Written primarily with the idea of highlighting, in a relatively elementary framework, the existence of gateways between some mathematical fields, and the advantages of using them, historical aspects of this field are not addressed and most of the references are reserved until the end of each chapter in the Comments section.
Topics within the text cover geometry, and examples, of Fuchsian groups; topological dynamics of the geodesic flow; Schottky groups; the Lorentzian point of view and Trajectories and Diophantine approximations.

Nov. 2010 **157 pp.**
9780857290724 **8,490.**

Shult, E.:

447-095

Points and Lines: Characterizing the Classical Geometries

The classical geometries of points and lines include not only the projective and polar spaces, but similar truncations of geometries naturally arising from the groups of Lie type.
Virtually all of these geometries (or homomorphic images of them) are characterized in this book by simple local axioms on points and lines.
The presentation is self-contained in the sense that proofs proceed step-by-step from elementary first principals without further appeal to outside results.
Table of contents I. Basics.- 1 Basics about Graphs.- 2 .Geometries: Basic Concepts. - 3 .Point-line Geometries.-4.Hyperplanes, Embeddings and Teirlinck's Theory.- II.The Classical Geometries.- 5 .Projective Planes.-6.Projective Spaces.- 7.Polar Spaces.- 8.Near Polygons.- III. Methodology.- 9.Chamber Systems and Buildings.- 10.2-Covers of Chamber Systems.- 11.Locally Truncated Diagram Geometries.-12.Separated Systems of Singular Spaces.- 13 Cooperstein's Theory of Symplecta and Parapolar Spaces.- IV. Applications to Other Lie Incidence Geometries.- 15.Characterizing the Classical Strong Parapolar Spaces: The Cohen-Cooperstein Theory Revisited.- etc.

Sep. 2010 **838 pp.**
9783642156267 **11,890.**

Haragus, M. /Iooss, G.:

447-122

Local bifurcations, center manifolds, and normal forms in infinite dimensional dynamical systems

An extension of different lectures given by the authors, Local Bifurcations, Center Manifolds, and Normal Forms in Infinite Dimensional Dynamical Systems provides the reader with a comprehensive overview of these topics.
Starting with the simplest bifurcation problems arising for ordinary differential equations in one- and two-dimensions, this book describes several tools from the theory of infinite dimensional dynamical systems, allowing the reader to treat more complicated bifurcation problems, such as bifurcations arising in partial differential equations.
Attention is restricted to the study of local bifurcations with a focus upon the center manifold reduction and the normal form theory; two methods that have been widely used during the last decades.

Dec. 2010 **346 pp.**
9780857291110 **10,190.**

Springer

Lecture Notes in Mathematics,

447-064

Vol. 2008: **Baum, P. /Cortinas, G. /Meyer, R. / Sanchez-Garcia, R. /Schlichting, M. /Toen, B.:**
Topics in Algebraic and Topological K-Theory

This volume is an introductory textbook to K-theory, both algebraic and topological, and to various current research topics within the field, including Kasparov's bivariant K-theory, the Baum-Connes conjecture, the comparison between algebraic and topological K-theory of topological algebras, the K-theory of schemes, and the theory of dg-categories.
Table of contents: K-theory for group C*-algebras.- Universal Coefficient Theorems and assembly maps in KK-theory.- Algebraic v. topological K-theory: a friendly match.- Higher algebraic K-theory (after Quillen, Thomason and others).- Lectures on DG-categories

Oct. 2010 **294 pp.**
9783642157073 **7,600.**

Problem Books in Mathematics

447-041

Tkachuk, V.:
A Cp-Theory Problem Book: Topological and Function Spaces

The theory of function spaces endowed with the topology of pointwise convergence, or Cp-theory, exists at the intersection of three important areas of mathematics: topological algebra, functional analysis, and general topology.
Cp-theory has an important role in the classification and unification of heterogeneous results from each of these areas of research.
Through over 500 carefully selected problems and exercises, this volume provides a self-contained introduction to Cp-theory and general topology.
By systematically introducing each of the major topics in Cp-theory, this volume is designed to bring a dedicated reader from basic topological principles to the frontiers of modern research.
This book also provides numerous topics for PhD specialization as well as a large variety of material suitable for graduate research.

Nov. 2010 **522 pp.**
9781441974419 **9,680.**

447-014

Gregor, T. /Tiser, J.:
Discovering Mathematics: A Problem-Solving Approach to Mathematical Analysis

Discovering Mathematics: A Problem-Solving Approach to Analysis with Mathematica and Maple, helpfully combines mathematical innovation with the use of software through interactive Mathematica and Maple notebooks, providing a constructive approach to mathematical discovery.
Through use of hyperlinks, interrelated concepts, definitions and theorems are connected, guiding the reader to structured problems with various levels of difficulty and highlighting different avenues of mathematical reasoning.
By incorporating technology into the hints and solutions, this book demonstrates how the level of problems progress in each grouping.
These problems are open to alternative formulations, generalizations, simplifications, and verification of hypotheses , increasing the level of interactivity and learning throughout the book.

Nov. 2010 **268 pp.**
9780857290540 **6,790.**

Springer

Bloch, E.: 447-065

The Real Numbers and Real Analysis

This text is a rigorous, detailed introduction to real analysis that presents the fundamentals with clear exposition and carefully written definitions, theorems, and proofs.
It is organized in a distinctive, flexible way that would make it equally appropriate to undergraduate mathematics majors who want to continue in mathematics, and to future mathematics teachers who want to understand the theory behind calculus.

May 2011 468 pp.
9780387721767 6,930.

Holme, A.:

Geometry: Our Cultural Heritage, 2nd ed. 447-180

This book contains selected topics from the history of geometry, with "gmodern" proofs of some of the results, as well as a fully modern treatment of selected basic issues in geometry.
It is geared towards the needs of future mathematics teachers.
One of my goals for this book is to open up for the dynamic character of geometry as such, and to extend an invitation to geometry as a gateway to mathematics in general.
It is unfortunate that today, at a time when mathematics is more important than ever, phrases like math avoidance and math anxiety are very much in the public vocabulary. Making a serious effort to heal the seills is an essential task.
Thus the book also aims at an informed public, interested in making a new beginning in math For the 2nd edition, some of the historical material has been expanded and numerous illustrations have been added, as has a chapter on polyhedra and tessellations and their symmetries.

Sep. 2010 378 pp.
9783642144400 11,040.

Texts in Applied Mathematics,

Naber, G.: 447-192

Topology, Geometry and Gauge Fields: Foundations

This is a book on topology and geometry and, like any books on subjects as vast as these, it has apoint-of-view that guided the selection of topics.
Naber takes the view that the rekindled interest that mathematics and physics have shown in each other of late should be fostered and that this is best accomplished by allowing them to cohabit.
The book weaves together rudimentary notions from the classical gauge theory of physics with the topological and geometrical concepts that became the mathematical models of these notions.
We ask the reader to come to us with some vague notion of what an electromagnetic field might be, a willingness to accept a few of the more elementary pronouncements of quantum mechanics, a solid background in real analysis and linear algebra and some of the vocabulary of modern algebra.
To such a reader we offer an excursion that begins with the definition of a topological space and finds its way eventually to the moduli space of anti-self-dual SU(2) connections on S4 with instanton number-1.

Oct. 2010 440 pp.
9781441972538 8,810.

Springer

Ito Masami /Kobayashi Yuji /Shoji Kunitaka (eds.): Automata, Formal Languages & Algebraic Systems: Proceedings of AFLAS 2008, Kyoto.

447-082

This volume consists of papers selected from the presentations at the workshop and includes mainly recent developments in the fields of formal languages, automata theory and algebraic systems related to the theoretical computer science and informatics.
It covers the areas such as automata and grammars, languages and codes, combinatorics on words, cryptosystems, logics and trees, Grobner bases, minimal clones, zero-divisor graphs, fine convergence of functions, and others.

Sep. 2010 250 pp.
9789814317603 13,170.

Kapoor, A.: Complex Variables: Principles and Problem Session

447-018

This textbook introduces the theory of complex variables at undergraduate level. A good collection of problems is provided in the second part of the book. The book is written in a user-friendly style that presents important fundamentals a beginner needs to master the technical details of the subject. The organization of problems into focused sets is an important feature of the book and the teachers may adopt this book for a course on complex variables and for mining problems.

Sep. 2010 500 pp.
9789814313520/9789814313537 13,030./7,710. (Paper ed.)

Series in Real Analysis,

Vol. 12: Lee, T. Y.: Henstock-Kurzweil Integration on Euclidean Spaces

447-140

The Henstock-Kurzweil integral, which is also known as the generalized Riemann integral, arose from a slight modification of the classical Riemann integral more than 50 years ago.
This relatively new integral is known to be equivalent to the classical Perron integral; in particular, it includes the powerful Lebesgue integral.
This book presents an introduction of the multiple Henstock-Kurzweil integral. Along with the classical results, this book contains some recent developments connected with measures, multiple integration by parts, and multiple Fourier series.

Mar. 2011 300 pp.
9789814324588 11,970.

Series in Contemporary Applied Mathematics,

Vol. 15: Li, T.-T. /Peng, Y.-J. /Rao, B.-P. (eds.): Some Problems on Nonlinear Hyperbolic Equations and Applications

447-142

This volume is composed of two parts: Mathematical and Numerical Analysis for Strongly Nonlinear Plasma Models and Exact Controllability and Observability for Quasilinear Hyperbolic Systems and Applications.
It presents recent progress and results obtained in the domains related to both subjects without attaching much importance to the details of proofs but rather to difficulties encountered, to open problems and possible ways to be exploited.

Sep. 2010 400 pp.
9789814322881 12,500.

World Scientific Pub.

Lakshmikantham, V. /Leela, S. /Vatsala, A.: 447-138

Theory of Differential Equations in Cones

This volume deals essentially with the theory of differential equations in arbitrary cones and demonstrates that developing Lyapunov method in cones greatly enhances the power of that method. It also presents theoretical approximation methods in terms of order relations induced by cones and shows that utilizing cones in investigating the theory of several dynamic systems is significantly more useful. The monograph provides a timely introduction to the study of the theory of differential equations in cones and is a useful source of reference for graduates and researchers working in this developing area of mathematics.

Dec. 2010 170 pp.
9781904868965 9,310.

Classic Reviews in Mathematics and Mathematical Physics

Mokhov, O. /Landau, L.: 447-149

Symplectic and Poisson Geometry on Loop Spaces of Smooth Manifolds and Integral Equations, 2nd ed.

This review is devoted to the differential-geometric theory of homogenous forms and other different homogenous structures (mainly, Poisson and symplectic structures) on loop spaces of smooth manifolds, their natural generalizations and applications in mathematical physics and field theory.

Aug. 2010 204 pp.
9781904868729 9,310.

Pogorelov, A.: 447-154

Multidimensional Monge-Ampere Equation

This review presents a detailed exposition of the results concerning the existence and uniqueness of the solutions of the general Monge-Ampere multidimensional equations of elliptic type.
This division of the theory of partial differential equations is closely connected with geometry.
This edition is also a tribute to A. V. Pogorelov (1919-2002) in recognition of his achievements and significant contribution to mathematics.
The review provides a useful reference text for students, postgraduates and researchers in geometry and differential equations.

Aug. 2010 110 pp.
9781904868811 6,210.

Voronov, T.: 447-167

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