Yurinsha Book News

Graduate Studies in Mathematics,

Vol. 133: **Rauch, J.:** 464-112

Hyperbolic Partial Differential Equations and Geometric Optics

This book introduces graduate students and researchers in mathematics and the sciences to the multifaceted subject of the equations of hyperbolic type, which are used, in particular, to describe propagation of waves at finite speed.
Among the topics carefully presented in the book are nonlinear geometric optics, the asymptotic analysis of short wavelength solutions, and nonlinear interaction of such waves.
Studied in detail are the damping of waves, resonance, dispersive decay, and solutions to the compressible Euler equations with dense oscillations created by resonant interactions. Many fundamental results are presented for the first time in a textbook format.
In addition to dense oscillations, these include the treatment of precise speed of propagation and the existence and stability questions for the three wave interaction equations.
One of the strengths of this book is its careful motivation of ideas and proofs, showing how they evolve from related, simpler cases. This makes the book quite useful to both researchers and graduate students interested in hyperbolic partial differential equations.

Apr. 2012 **373 pp.**
9780821872918 **7,550.**

A. M. S.

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No. 464 Feb. 2012
数理科学 友隣社 洋書専門

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AMS Pure and Applied Undergraduate Texts,

Vol. 17: **Duren, P.:** 464-084
Invitation to Classical Analysis

The exposition is at the undergraduate level, building on basic principles of advanced calculus without appeal to more sophisticated techniques of complex analysis and Lebesgue integration.
Among the topics covered are Fourier series and integrals, approximation theory, Stirling's formula, the gamma function, Bernoulli numbers and polynomials, the Riemann zeta function, Tauberian theorems, elliptic integrals, ramifications of the Cantor set, and a theoretical discussion of differential equations including power series solutions at regular singular points, Bessel functions, hypergeometric functions, and Sturm comparison theory.

Apr. 2012 **388 pp.**
9780821869321 **8,730.**

AMS/IP Studies in Advanced Mathematics,

Vol. 51: **Ji, L. /Poon, Y. /Yang, L. /Yau, S. T. (eds.):**
Fifth Int'l Congress of Chinese Mathematicians

This two-part volume represents the proceedings of the Fifth Int'l Congress of Chinese Mathematicians, held at Tsinghua University, Beijing, 2010.
The Congress brought together eminent Chinese and overseas mathematicians to discuss the latest developments in pure and applied mathematics.
Included are 60 papers based on lectures given at the conference. 464-008

Mar. 2012 **995 pp.**
9780821875551 (2 Vols. Set) **25,960.**

Vol. 51-Part 1: **Ji, L. /Poon, Y. /Yang, L. /Yau, S. T. (eds.):**
Fifth Int'l Congress of Chinese Mathematicians, Part 1

Table of Contents: Part 1 *B. Andrews -- Gradient and oscillation estimates and their applications in geometric PDE *J. A. Chen and M. Chen -- On canonical and explicit classification of algebraic threefolds *C.-Y. Chi -- Canonical pseudonorms on pluricanonical spaces *J. Coates -- The enigmatic Tate-Shafarevich group *X. Dai -- Eta invariants for even dimensional manifolds *F. Fang and Z. Zhang -- Ricci flow on 4-manifolds and Seiberg-witten equations *L. Fargues and J.-M. Fontaine -- Vector bundles and p-adic Galois representations *B. Fu -- Geometry of nilpotent orbits: Results and conjectures *L. Fu -- Integrable connections and Galois representations *A. Futaki -- Asymptotic Chow polystability in Kahler geometry *W. T. Gan -- Representations of metaplectic groups *C. Fang and X. He -- Notes on partial conjugation *K.-W. Lan -- Geometric modular forms and the cohomology of torsion automorphic sheaves *N. C. Leung -- SYZ transformations for toric varieties *B. Guo and H. Li -- Some variational problems in conformal geometry *T. Draghici, T.-J. Li, and W. Zhang -- Geometry of tamed almost complex structures on 4-dimensional manifolds *W.-C. W. Li -- The arithmetic of noncongruence modular forms *Y.-P. Lee, H.-W. Lin, and C.-L. Wang -- Analytic continuations of quantum cohomology *K. Liu and P. Peng -- Mathematical aspects of string duality *X. Guo and H. Qin -- The tame kernels of number fields *B. Sun -- Notes on MVW-extensions *F. Chen and S. Tan -- Vertex operator representations for a class of BC_v-graded Lie algebras *H.-H. Tseng -- Notes on orbifold Gromov-Witten theory *L.-S. Tseng -- Cohomologies and elliptic operators on symplectic manifolds *M.-T. Wang -- Quasilocal mass from a mathematical perspective *S. Wang -- On dimension data, local VS global conjugacy *X.-J. Wang and B. Zhou -- Variational problems of Monge-Ampere type *S. Wu -- Wellposedness of the two and three dimensional full water wave problem *H.-W. Xu -- Recent developments in differentiable sphere theorems *R. Du and S. Yau -- New invariants for complex manifolds, singularities, and CR manifolds with applications *W. Zhang -- Gross-Zagier formula and arithmetic fundamental lemma *J. Zhou -- Integrality properties of mirror maps *X-Y. Zhou and L. Zhu -- Ohsawa-Takegoshi L^2 extension theorem: Revisited

Mar. 2012 **497 pp.** 464-009
9780821875865 **15,340.**

A. M. S.

AMS/IP Studies in Advanced Mathematics,

Vol. 51-Part 2: Ji, L. /Poon, Y. /Yang, L. /Yau, S. T. (eds.): Fifth Int'l Congress of Chinese Mathematicians, Part 2

Table of Contents: Part 2 *B.-L. Chen -- Regularity of Einstein spacetimes *K.-C. Chen -- A survey on retrograde and prograde orbits of the three-body problem by variational methods *D. X. Gu, W. Zeng, L. M. Lui, F. Luo, and S.-T. Yau -- Recent development of computational conformal geometry *B.-Y. Guo, C. Zhang, and T. Sun -- Some developments in spectral methods *L.-H. Huang -- On the center of mass in general relativity *Z. Huang -- Tailored finite point method for numerical simulation of partial differential equations *T. Lam -- Loop symmetric functions and factorizing matrix polynomials *A. Laptev -- Spectral inequalities for partial differential equations and their applications *E. K-W. Chu, T.-S. Huang, and W.-W. Lin -- Structured doubling algorithms for solving g-palindromic quadratic eigenvalue problems *Y. Lin -- Ricci curvature and functional inequalities on graphs *P. Lu -- Complexity dichotomies of counting problems *L. M. Lui, T. W. Wong, W. Zeng, X. Gu, P. M. Thompson, T. F. Chan, and S.-T. Yau -- A survey on recent development in computational quasi-conformal geometry and its applications *T. Luo -- Dynamics of shock fronts for some hyperbolic systems *L. Han and J.-S. Pang -- Time-stepping methods for linear complementarity systems *C.-W. Shu -- A brief survey on high order accurate maximum principle satisfying and positivity preserving discontinuous Galerkin and finite volume schemes for conservation laws *J. Smoller and B. Temple -- A one parameter family of expanding wave solutions of the Einstein equations that induces an anomalous acceleration into the standard model of cosmology *G. Strang -- Banded matrices with banded inverses and A-LPU$ *G. Wahba -- Dissimilarity data in statistical model building and machine learning *R.-H. Wang -- Some progress on computational geometry *J. Wei -- Geometrization program of semilinear elliptic equations *Z. Zhu, A. M.-C. So, and Y. Ye -- Fast and near-optimal matrix completion via randomized basis pursuit *J. Yin -- Mathematical questions of quantum dilute gases *X. Yuan -- Algebraic dynamics, canonical heights and Arakelov geometry *B.-Y. Zhang -- Well-posedness and control of the Korteweg-de Vries equation on a bounded domain *Y. Jiang, H. Zhang, and W. Zhu -- Statistical analysis in genetic association studies of mental illnesses *H. Zhao -- Compressible Navier-Stokes equations with large density oscillation *W. Zou -- Some results on variational and topological methods

Mar. 2012 **498 pp.** **464-010**
9780821875872 **15,340.**

Vol. 50: **Andersen, J. /Boden, H. /Hahn, A. /Himpel, B. (eds.): Chern-Simons Gauge Theory: 20 Years After**
July 2011 *446 pp.* *9780821853535* *15,330.*

Vol. 49: **Plaue, M. /Rendall, A. /Scherfner, M. (eds.): Advances in Lorentzian Geometry**
June 2011 *143 pp.* *9780821853528* *7,120.*

Courant Lecture Notes,

Vol. 23: Percus, J.: Mathematical Methods in Immunology

Any organism, to survive, must use a variety of defense mechanisms. A relatively recent evolutionary development is that of the adaptive immune system, carried to a quite sophisticated level by mammals. The complexity of this system calls for its encapsulation by mathematical models, and this book aims at the associated description and analysis. **464-222**
In the process, it introduces tools that should be in the armory of any current or aspiring applied mathematician, in the context of, arguably, the most effective system nature has devised to protect an organism from its manifold invisible enemies.

Mar. 2012 **111 pp.**
9780821875568 **3,780.**

A. M. S.

University Lecture Series,

Vol. 58: Lax, P. /Zalcman, L.: 464-097

Complex Proofs of Real Theorems

This book is an extended meditation on Hadamard's famous dictum, "The shortest and best way between two truths of the real domain often passes through the imaginary one.
" Directed at an audience acquainted with analysis at the first year graduate level, it aims at illustrating how complex variables can be used to provide quick and efficient proofs of a wide variety of important results in such areas of analysis as approximation theory, operator theory, harmonic analysis, and complex dynamics.
Topics discussed include weighted approximation on the line, Muntz's theorem, Toeplitz operators, Beurling's theorem on the invariant spaces of the shift operator, prediction theory, the Riesz convexity theorem, the Paley-Wiener theorem, the Titchmarsh convolution theorem, the Gleason-Kahane-Zelazko theorem, and the Fatou-Julia-Baker theorem.

Jan. 2012 90 pp.
9780821875599 3,360.

Contemporary Mathematics

Vol. 562: Ara, P. /Brown, K. /Lenagan, T. /Letzter, E. / Stafford, J. /Zhang, J. (eds.): 464-123

New Trends in Noncommutative Algebra

This volume contains the proceedings of the conference "New Trends in Noncommutative Algebra", held at the University of Washington, Seattle, 2010, in honor of Ken Goodearl's 65th birthday. The articles reflect the wide interests of Goodearl and will provide researchers and graduate students with an indispensable overview of topics of current interest.
Specific fields covered include: noncommutative algebraic geometry, representation theory, Calabi-Yau algebras, quantum algebras and deformation quantization, Poisson algebras, growth of algebras, group algebras, etc.

Feb. 2012 297 pp.
9780821852972 11,680.

Memoirs of the American Mathematical Society,

Vol. 1017: Jablonski, S. /Jung, B. /Stochel, J.: 464-092

Weighted Shifts on Directed Trees

A new class of (not necessarily bounded) operators related to (mainly infinite) directed trees is introduced and investigated. Operators in question are to be considered as a generalization of classical weighted shifts, on the one hand, and of weighted adjacency operators, on the other; they are called weighted shifts on directed trees.

Mar. 2012 107 pp.
9780821868683 8,120.

Vol. 1016: Breuil, C. /Paskunas, V.: 464-035

Towards a Modulo p Langlands Correspondence for GL_2

The authors construct new families of smooth admissible \overline {\mathbb{F}} _p - representations of \mathrm{GL}_2(F), where F is a finite extension of \mathbb{Q}_p. When F is unramified, these representations have the \mathrm{GL}_2 ({\mathcal O}_F) -socle predicted by the recent generalizations of Serre's modularity conjecture.

Mar. 2012 114 pp.
9780821852279 8,240.

A. M. S.

Progress in Mathematics,

Vol. 299: Mastrolia, P. /Marco, R. /Alberto, S.: 464-103

Yamabe-type equations on complete, noncompact manifolds

The aim of this monograph is to present a self-contained introduction to some geometric and analytic aspects of the Yamabe problem, and to describe in a way accessible to non-specialists a range of methods and techniques that can be successfully applied to nonlinear differential equations in situations where the lack of compactness and of symmetry and homogeneity prevents the use of more standard tools typical of compact situations or of the Euclidean setting. After providing a self-contained treatment of the geometric tools used in the book, the reader is introduced to the main subject through a concise but clear study of some aspects of the Yamabe problem on compact manifolds, which provides motivation and geometrical feeling for the subsequent study.
In the main body of the book it is shown how the geometry and the analysis of nonlinear partial differential equations blend together to give up to date results on existence, nonexistence, uniqueness and a priori estimates for solutions of general Yamabe-type equations and inequalities on complete, non-compact Riemannian manifolds.

June 2012 230 pp.
9783034803755 13,250.

Vol. 298: Getz, J. /Goresky, M.: 464-043

Hilbert Modular Forms with Coecoefficients in Intersection Homology and Quadratic Base Change

In the 1970s Hirzebruch and Zagier produced elliptic modular forms with coefficients in the homology of a Hilbert modular surface.
They then computed the Fourier coefficients of these forms in terms of period integrals and L-functions.
In this book the authors take an alternate approach to these theorems and generalize them to the setting of Hilbert modular varieties of arbitrary dimension.
The approach is conceptual and uses tools that were not available to Hirzebruch and Zagier, including intersection homology theory, properties of modular cycles, and base change.
Automorphic vector bundles, Hecke operators and Fourier coefficients of modular forms are presented both in the classical and adelic settings.
The book should provide a foundation for approaching similar questions for other locally symmetric spaces.

Mar. 2012 240 pp.
9783034803502 12,470. 464-114

Schinazi, R.:

From Calculus to Analysis

This comprehensive textbook is intended for a two-semester sequence in analysis. The first four chapters present a practical introduction to analysis by using the tools and concepts of calculus.
The last five chapters present a first course in analysis.
The presentation is clear and concise, allowing students to master the calculus tools that are crucial in understanding analysis.
From Calculus to Analysis prepares readers for their first analysis course --- important because many undergraduate programs traditionally require such a course.

Nov. 2011 250 pp.
9780817682880 7,790.

Birkhauser

Monografie Matematyczne,

Vol. 73: **Plotnikov, P. /Sokolowski, J.:** 464-109

Compressible Navier-Stokes Equations: Theory and Shape Optimization

The book presents the modern state of the art in the mathematical theory of compressible Navier-Stokes equations, with a particular emphasis on the applications to aerodynamics.
The topics covered include: modeling of compressible viscous flows; modern mathematical theory of nonhomogeneous boundary value problems for viscous gas dynamics equations; applications to optimal shape design in aerodynamics; kinetic theory for equations with oscillating data; new approach to the boundary value problems for transport equations.

Mar. 2012 380 pp.
9783034803663 21,050.

Vol. 72: **Osekowski, A.:**

Shrap Martingale and Semimartigale Inequalities

464-106

This monograph is a presentation of a unified approach to a certain class of semimartingale inequalities, which can be regarded as probabilistic extensions of classical estimates for conjugate harmonic functions on the unit disc.
The approach, which has its roots in the seminal works of Burkholder in the 80s, enables to deduce a given inequality for semimartingales from the existence of a certain special function with some convex-type properties.
Remarkably, an appropriate application of the method leads to the sharp version of the estimate under investigation, which is particularly important for applications.
These include the theory of quasiregular mappings; the boundedness of two-dimensional Hilbert transform and a more general class of Fourier multipliers; the theory of rank-one convex and quasiconvex functions; and more.

Apr. 2012 386 pp.
9783034803694 21,050.

Progress in Nonlinear Differential Equations and Their Applications,

Vol. 88: **Csato, G. /Dacorogna, B. /Kneuss, O.:** 464-077

The Pullback Equation for Differential Forms.

The work begins by recounting various properties of exterior forms and differential forms that prove useful throughout the book.
From there it goes on to present the classical Hodge-Morrey decomposition and to give several versions of the Poincare lemma.
The core of the book discusses the case $k = n$, and then the case $1 \leq k \leq n-1$ with special attention on the case $k = 2$, which is fundamental in symplectic geometry.
Special emphasis is given to optimal regularity, global results and boundary data.
The last part of the work discusses Holder spaces in detail; all the results presented here are essentially classical, but cannot be found in a single book. This section may serve as a reference on Holder spaces and therefore will be useful to mathematicians well beyond those who are only interested in the pullback equation.

Jan. 2012 436 pp.
9780817683122 17,150.

Birkhauser

Cambridge Tracts in Mathematics,

Vol. 192: Nourdin, I. /Peccati, G.: 464-105

Normal Approximations with Malliavin Calculus: From Stein's Method to Universality

Stein's method is a collection of probabilistic techniques that allow one to assess the distance between two probability distributions by means of differential operators.
In 2007, the authors discovered that one can combine Stein's method with the powerful Malliavin calculus of variations, in order to deduce quantitative central limit theorems involving functionals of general Gaussian fields.
This book provides an ideal introduction both to Stein's method and Malliavin calculus, from the standpoint of normal approximations on a Gaussian space.
Many recent developments and applications are studied in detail, for instance: fourth moment theorems on the Wiener chaos, density estimates, Breuer-Major theorems for fractional processes, recursive cumulant computations, optimal rates and universality results for homogeneous sums.
Largely self-contained, the book is perfect for self-study.

Apr. 2012 270 pp.
9781107017771 8,690.

Cambridge Series in Statistical and Probabilistic Mathematics

Gilmour, S. /Mead, R. /Mead, A.: 464-168

Statistical Principles for the Design of Experiments: Applications to Real Experiments

This book is about the statistical principles behind the design of effective experiments and focuses on the practical needs of applied statisticians and experimenters engaged in design, implementation and analysis.
Emphasising the logical principles of statistical design, rather than mathematical calculation, the authors demonstrate how all available information can be used to extract the clearest answers to many questions.
The principles are illustrated with a wide range of examples drawn from real experiments in medicine, industry, agriculture and many experimental disciplines.
Numerous exercises are given to help the reader practise techniques and to appreciate the difference that good design can make to an experimental research project.

Aug. 2012 700 pp.
9780521862141 10,070.

Australian Math. Society Lecture Series,

Vol. 21: Larusson, F.: 464-095/096

Lectures on Real Analysis

This is a rigorous introduction to real analysis for undergraduate students, starting from the axioms for a complete ordered field and a little set theory.
The book avoids any preconceptions about the real numbers and takes them to be nothing but the elements of a complete ordered field.
All of the standard topics are included, as well as a proper treatment of the trigonometric functions, which many authors take for granted.
The final chapters of the book provide a gentle, example-based introduction to metric spaces with an application to differential equations on the real line.

Aug. 2012 130 pp.
9781107026780 /9781107608528 10,070./4,240. (Paper ed.)

Joseph, A. /Kumar, S. /Vergne, M. (eds.):
Collected Papers of Bertram Kostant, Vol. III: 1975-1985

464-050

For more than five decades Bertram Kostant has been one of the major architects of modern Lie theory.
Virtually all his papers are pioneering with deep consequences, many giving rise to whole new fields of activities.
His interests span a tremendous range of Lie theory,from differential geometry to representation theory, abstract algebra, and mathematical physics.
Some specific topics cover algebraic groups and invariant theory, the geometry of homogeneous spaces, representation theory, geometric quantization and symplectic geometry, Lie algebra cohomology, Hamiltonian mechanics, modular forms, Whittaker theory, Toda lattice, and much more.
It is striking to note that Lie theory (and symmetry in general) now occupies an ever increasing larger role in mathematics than it did in the fifties.

June 2013 645 pp.
9780387095868 11,890.

Lecture Notes in Mathematics,

Vol. 2049: **Favini, A. /Marinoschi, G.:**

464-040

Degenerate Nonlinear Diffusion Equations

The aim of these notes is to include in a uniform presentation style several topics related to the theory of degenerate nonlinear diffusion equations, treated in the mathematical framework of evolution equations with multivalued m-accretive operators in Hilbert spaces.
The problems concern nonlinear parabolic equations involving two cases of degeneracy. More precisely, one case is due to the vanishing of the time derivative coefficient and the other is provided by the vanishing of the diffusion coefficient on subsets of positive measure of the domain.
From the mathematical point of view the results presented in these notes can be considered as general results in the theory of degenerate nonlinear diffusion equations.
However, this work does not seek to present an exhaustive study of degenerate diffusion equations, but rather to emphasize some rigorous and efficient techniques for approaching various problems involving degenerate nonlinear diffusion equations, such as well-posedness, periodic solutions, asymptotic behaviour, discretization schemes, and coefficient identification, and to introduce relevant solving methods for each case.

May 2012 170 pp.
9783642282843 5,450.

Oliveria, P.:
Asymptotics for Associated Random Variables

Association and some other positive dependence notions were introduced in 1966 and 1967 but received little attention from the probabilistic and statistics community.
The interest in these dependence notions increased in the last 15 to 20 years, and many asymptotic results were proved and improved.
Despite this increased interest, characterizations and results remained essentially scattered in the literature published in different journals.
The goal of this book is to bring together the bulk of these results, 464-182
presenting the theory in a unified way, explaining relations and implications of the results.

Feb. 2012 194 pp.
9783642255311 10,910.

Springer

Grundlehren der mathematischen wissenschaften,

Vol. 260: **Freidlin, M. /Wentzell, A.:** 464-168
Random Perturbations of Dynamical Systems, 3rd ed.

Various limit theorems for stochastic processes defined as a result of random perturbations of dynamical systems are considered.
Exit problems, metastability and its manifestations such as stochastic resonance, optimal stabilisation, and the asymptotics of stationary distributions are presented in detail.
Notions of quasi-potential are introduced and transition paths are described.
The authors' main tools are the large deviation theory, the central limit theorem for stochastic processes, and the averaging principle.

Apr. 2012 500 pp.
9783642258466 17,150.

Universitext

Demengel, F. /Demengel, G.: 464-081
Functional Spaces for the Theory of Elliptic Partial Differential Equations

This book offers on the one hand a complete theory of Sobolev spaces, which are of fundamental importance for elliptic linear and non-linear differential equations, and explains on the other hand how the abstract methods of convex analysis can be combined with this theory to produce existence results for the solutions of non-linear elliptic boundary problems.
The book also considers other kinds of functional spaces which are useful for treating variational problems such as the minimal surface problem.
The main purpose of the book is to provide a tool for graduate and postgraduate students interested in partial differential equations, as well as a useful reference for researchers active in the field.
Prerequisites include a knowledge of classical analysis, differential calculus, Banach and Hilbert spaces, integration and the related standard functional spaces, as well as the Fourier transformation on the Schwartz space.

Feb. 2012 488 pp.
9781447128069 9,350.

Barreira, L.:
Ergodic Theory, Hyperbolic Dynamics and Dimension Theory 464-074

The volume is primarily intended for graduate students interested in dynamical systems, as well as researchers in other areas who wish to learn about ergodic theory, thermodynamic formalism, or dimension theory of hyperbolic dynamics at an intermediate level in a sufficiently detailed manner.
In particular, it can be used as a basis for graduate courses on any of these three subjects.
The text can also be used for self-study: it is self-contained, and with the exception of some well-known basic facts from other areas, all statements include detailed proofs.

Apr. 2012 290 pp.
9783642280894 7,790.

Springer

Mathematical Olympiad Series

Xu, J.: 464-021

Lecture Notes on Mathematical Olympiad Courses: For Senior Section, Vol. 1. -2. 2 Vols. Set

Olympiad mathematics is not a collection of techniques of solving mathematical problems but a system for advancing mathematical education. This book is based on the lecture notes of the mathematical Olympiad training courses conducted by the author in Singapore.
Its scope and depth not only covers and beyond the usual syllabus, but introduces a variety of concepts and methods in modern mathematics as well. In each lecture, the concepts, theories and methods are taken as the core. The examples serve to explain and enrich their intentions and to indicate their applications. Besides, appropriate number of test questions is available for the readers' practice and testing purpose.
Their detailed solutions are also conveniently provided.
The examples are not very complicated so readers can easily understand. There are many real competition questions included which students can use to verify their abilities. These test questions originate from many countries all over the world.

May 2012 500 pp.
9789814368940 8,020.

Xu, J.:
Lecture Notes on Mathematical Olympiad Courses: For Senior Section, Vol. 1
Apr. 2012 250 pp. 9789814368957 4,960.

Xu, J.:
Lecture Notes on Mathematical Olympiad Courses: For Senior Section, Vol. 2
May 2012 250 pp. 9789814368964 4,960.

Nankai Series in Pure, Applied Mathematics & Theoretical Physics,

***Vol. 9:* Bai, C. /Guo, L. /Loday, J.-L. (eds.):** 464-030

Operads and Universal Algebra: Proceedings of the Int'l Conference, Tianjin, 2009

This book aims to exemplify the recent developments in operad theory, in universal algebra and related topics in algebraic topology and theoretical physics.
The conference has established a better connection between mathematicians working on operads and mathematicians working in universal algebra, and to exchange problems, methods and techniques from these two subject areas.

Jan. 2012 300 pp.
9789814365116 14,160.

Hida Haruzo : 464-049

Geometric Modular Forms & Elliptic Curves, 2nd ed.

In this new second edition, a detailed description of Barsotti - Tate groups is added to Chapter 1. As an application, a down-to-earth description of formal deformation theory of elliptic curves is incorporated at the end of Chapter 2, and in Chapter 4, though limited to ordinary cases, newly incorporated are Ribet's theorem of full image of modular p-adic Galois representation and its generalization to 'big' lambda-adic Galois representations under mild assumptions.
Though some of the striking developments described above is out of the scope of this introductory book, the author gives a taste of present day research in the area of Number Theory at the very end of the book.

Jan. 2012 468 pp.
9789814368643 13,920.

World Scientific Pub.

Texts and Readings in Mathematics,

Vol. 42: **Rajiwade, A. /Bhandari, A.:** (Now in Paperback ed.)

Surprises and Counterexamples in Real Function Theory

This book presents a variety of intriguing, surprising and appealing topics and nonroutine proofs of several theorems in real function theory.
It is a reference book to which one can turn for finding answers to curiosities that arise while studying or teaching analysis.
Chapter 1 is an introduction to algebraic, irrational and transcendental numbers and contains the construction of the Cantor ternary set. Chapter 2 contains functions with extraordinary properties. Chapter 3 discusses functions that are continuous at each point but differentiable at no point. Chapters 4 and 5 include the intermediate value property, periodic functions, Rolle's theorem, Taylor's theorem, points of inflexion and tangents. Chapter 6 discusses sequences and series. It includes the restricted harmonic series, rearrangements of alternating harmonic series and some number theoretic aspects. In Chapter 7, the infinite exponential with its peculiar range of convergence is studied.

Dec. 2011 .... **464-110**
9789380250168 価格未定

Vol. 40: **Goswami, A. /Rao, B.:** (Now in Paperback ed.)

A Course in Applied Stochastic Processess

This book is an introduction to applications of the theory of stochastic processes - more specifically Markov chain theory - in population dynamics, genetics and epidemics. A prior exposure to basic probability theory should be helpful, but by no means essential.
The book includes a quick review of probability that starts from elementary combinatorial probability and ends with some basic properties of diffusions, including along the way, a fairly extensive account of martingales and Markov chains, mostly with proofs.
This is done fairly rigorously without using measure theoretic tools.
In continuation of the effort to keep the prerequisites at the bare minimum, all the basic genetics the reader needs to know is included.
Yet, sophisticated material on Wright-Fisher and Moran models of genetics including diffusion approximations is presented.
The material on epidemic models includes several important threshold theorems with carefully presented interpretation and complete proofs.
Although this book is primarily intended for use as a textbook for a course on Applied Stochastic Processes, it can also be used by researchers in the fields of genetics or epidemics for learning about applications of probability in their respective areas.

Dec. 2011 **225 pp.** **464-169**
9789380250137 価格未定

Vol. 28: **Kesavan, S.:** (Now in Paperback ed.)

Nonlinear Functional Analysis: A First Course

The main aim of these lectures is to give an introduction to the theory of the topological degree and to some variational methods used in the solution of nonlinear equations in Banach spaces.
While the treatment and choice of topics have been kept sufficiently general so as to interest all students of higher mathematics, the material presented will be especially useful to students aspiring to work in applications of mathematics.
The first chapter gives a brisk introduction to calculus in normed linear spaces and proves classical results like the implicit function theorem

and Sard's theorem.
The second chapter develops the theory of the topological degree in finite dimensional Euclidean spaces, while the third chapter extends this study to cover the theory of the Leray-Schauder degree for maps, which are compact perturbations of the identity.
Fixed point theorems and their applications are presented.
The fourth chapter gives an introduction to abstract bifurcation theory.
The last chapter studies some methods to find critical points of functionals defined on Banach spaces with emphasis on min-max methods.
This book presents the basic theory of these methods.
It is meant to be a primer of nonlinear analysis and used as a text or reference book by advanced students.
Prerequisites are knowledge of functional analysis and topology. 464-093

Dec. 2011 **186 pp.**
9789380250106 価格未定

Vol. 23: **Tijs, S.:** (Now in Paperback ed.)

Introduction to Game Theory

This book is an introductory graduate level text on game theory, which grew out of courses for students in Mathematics in Nijmegen and for students in Econometrics and Operations Research in Tilburg.
Game theory deals with mathematical models of conflict and cooperation.
In the first nine chapters attention is paid to non-cooperative games in extensive and strategic form and to some economic applications.
Relations with the theory of linear programming and the theory of linear complementarity are indicated. In the last ten chapters different types of cooperative games and solution concepts are treated. Economic applications and applications in OR-situations with multiple agents are discussed.
A rich collection of exercises, partly with solutions, is included.
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