Yurinsha Book News

de Gruyter Studies in Mathematics,

Vol. 46: **Sukochev, F. /Lord, S. /Zanin, D.:**

Singular Traces: 465-108

Theory and Applications

Singular traces are traces on ideals of compact operators that vanish on the subideal of finite rank operators. Singular traces feature in A. Connes' interpretation of noncommutative residues.
Particularly the Dixmier trace, which generalises the restricted Adler-Manin-Wodzicki residue of pseudo-differential operators and plays the role of the residue for a new catalogue of 'geometric' spaces, including Connes-Chamseddine standard models, Yang-Mills action for quantum differential forms, fractals, isospectral deformations, foliations and noncommutative index theory.
The theory of singular traces has been studied after Connes' application to non-commutative geometry and physics by various authors. Recent work by Nigel Kalton and the authors has advanced the theory of singular traces. Singular traces can be equated to symmetric functionals of symmetricsequence or function spaces, residues of zeta functions and heat kernel asymptotics, and characterised by Lidksii and Fredholm formulas.
The traces and formulas used in noncommutative geometry are now completely understood in this theory, with surprising new mathematical and physical consequences.

Dec. 2012 350 pp.
9783110262506 13,580.

de Gruyter

http://www.yurinsha.com
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No. 465 Mar. 2012
数理科学 友隣社 洋書専門

Graduate Studies in Mathematics,

Vol. 134: De Koninck, J.-M. /Luca, F.: 465-068
Analytic Number Theory:
Exploring the Anatomy of Integers

The authors assemble a fascinating collection of topics from analytic number theory that provides an introduction to the subject with a very clear and unique focus on the anatomy of integers, that is, on the study of the multiplicative structure of the integers.
Some of the most important topics presented are the global and local behavior of arithmetic functions, an extensive study of smooth numbers, the Hardy-Ramanujan and Landau theorems, characters and the Dirichlet theorem, the abc conjecture along with some of its applications, and sieve methods.
The book concludes with a whole chapter on the index of composition of an integer. One of this book's best features is the collection of problems at the end of each chapter that have been chosen carefully to reinforce the material. The authors include solutions to the even-numbered problems, making this volume very appropriate for readers who want to test their understanding of the theory presented in the book.

June 2012 420 pp.
9780821875773 8,770.

Student Mathematical Library,

Vol. 62: Weber, R.: 465-038
Computability Theory

What can we compute—even with unlimited resources? Is everything within reach? Or are computations necessarily drastically limited, not just in practice, but theoretically? These questions are at the heart of computability theory.
The goal of this book is to give the reader a firm grounding in the fundamentals of computability theory and an overview of currently active areas of research, such as reverse mathematics and algorithmic randomness.
Turing machines and partial recursive functions are explored in detail, and vital tools and concepts including coding, uniformity, and diagonalization are described explicitly.
From there the material continues with universal machines, the halting problem, parametrization and the recursion theorem, and thence to computability for sets, enumerability, and Turing reduction and degrees.
A few more advanced topics round out the book before the chapter on areas of research.

May 2012 206 pp.
9780821873922 4,330.

Contemporary Mathematics,

Vol. 567: Bowen, L. /Grigorchuk, R. /Vorobets, Y. (eds.):
Dynamical Systems and Group Actions

This volume contains cutting-edge research from leading experts in ergodic theory, dynamical systems and group actions. 465-061
A large part of the volume addresses various aspects of ergodic theory of general group actions including local entropy theory, universal minimal spaces, minimal models and rank one transformations.
Other papers deal with interval exchange transformations, hyperbolic dynamics, transfer operators, amenable actions and group actions on graphs.

May 2012 264 pp.
9780821869222 11,580.

A. M. S.

Contemporary Mathematics,

Vol. 563: Acosta-Humanez, P. / 465-052
Finkel, F. /Kamran, N. /Olver, P. (eds.):
Algebraic Aspects of Darboux Transformations, Quantum Integrable Systems and Supersymmetric Quantum Mechanics

This volume represents the 2010 Jairo Charris Seminar in Algebraic Aspects of Darboux Transformations, Quantum Integrable Systems and Supersymmetric Quantum Mechanics, which was held at the Universidad Sergio Arboleda in Santa Marta, Colombia.
The papers cover the fields of Supersymmetric Quantum Mechanics and Quantum Integrable Systems, from an algebraic point of view.
Some results presented in this volume correspond to the analysis of Darboux Transformations in higher order as well as some exceptional orthogonal polynomials.
The reader will find an interesting Galois approach to study finite gap potentials.

Mar. 2012 211 pp.
9780821875841 9,240.

Vol. 564: Alexeev, V. /Gibney, A. / 465-053
Izadi, E. /Kollar, J. /Looijenga, E. (eds.):
Compact Moduli Spaces and Vector Bundles

This book contains the proceedings of the conference on Compact Moduli and Vector Bundles, held from October 21-24, 2010, at the University of Georgia.
This book is a mix of survey papers and original research articles on two related subjects: Compact Moduli spaces of algebraic varieties, including of higher-dimensional stable varieties and pairs, and Vector Bundles on such compact moduli spaces, including the conformal block bundles.
These bundles originated in the 1970s in physics; the celebrated Verlinde formula computes their ranks.
Among the surveys are those that examine compact moduli spaces of surfaces of general type and others that concern the GIT constructions of log canonical models of moduli of stable curves.

Mar. 2012 256 pp.
9780821868997 9,240.

Vol. 565: Ariki Susumu /Nakajima Hiraku / 465-056
Saito Yoshihisa / Shinoda Ken-ichi /
Shoji Toshiaki / Tanisaki Toshiyuki (eds.):
Algebraic Groups and Quantum Groups

This volume contains the proceedings of the tenth international conference on Representation Theory of Algebraic Groups and Quantum Groups, held August 2-6, 2010, at Nagoya University, Nagoya, Japan.
In three articles, the authors study representations of W-algebras and affine Lie algebras at the critical level, and three other articles are related to crystals in the affine case, that is, Mirkovic-Vilonen polytopes for affine type A and Kerov-Kirillov-Reshetikhin type bijection for affine type E_6.
Other contributions cover a variety of topics such as modular representation theory of finite groups of Lie type, quantum queer super Lie algebras, Khovanov's arc algebra, Hecke algebras and cyclotomic q-Schur algebras, G_1T-Verma modules for reductive algebraic groups, equivariant K-theory of quantum vector bundles, and the cluster algebra.

Mar. 2012 211 pp.
9780821853177 11,580.

A. M. S.

Progress in Mathematics,

Vol. 300: **Bump, D. /Friedberg, S. /Goldfeld, D. (eds.): Multiple Dirichlet Series, L-Functions and Automorphic Forms** 465-062

Multiple Dirichlet Series, L-functions and Automorphic Forms gives the latest advances in the rapidly developing subject of Multiple Dirichlet Series, an area with origins in the theory of automorphic forms that exhibits surprising and deep connections to crystal graphs and mathematical physics. As such, it represents a new way in which areas including number theory, combinatorics, statistical mechanics, and quantum groups are seen to fit together.
The volume also includes papers on automorphic forms and L-functions and related number-theoretic topics.
Contributors: J. Beineke, B. Brubaker, D. Bump, G. Chinta, G. Cornelissen, C.A. Diaconu, S. Frechette, S. Friedberg, P. Garrett, D. Goldfeld, P.E. Gunnells, B. Heim, J. Hundley, D. Ivanov, Y. Komori, A.V. Kontorovich, O. Lorscheid, K. Matsumoto, P.J. McNamara, S.J. Patterson, M. Suzuki, H. Tsumura.

June 2012 **351 pp.**
9780817683337 **15,090.**

Vol. 299: **Muller-Hoissen, F. /Pallo, M. /Stasheff, J. (eds.): Associahedra, Tamari Lattices and Related Structures: Tamari Memorial Festschrift** 465-096

Tamari lattices originated from weakenings or reinterpretations of the familar associativity law.
This has been the subject of Dov Tamari's thesis at the Sorbonne in Paris in 1951 and the central theme of his subsequent mathematical work.
Tamari lattices can be realized in terms of polytopes called associahedra, which in fact also appeared first in Tamari's thesis.
By now these beautiful structures have made their appearance in many different areas of pure and applied mathematics, such as algebra, combinatorics, computer science, category theory, geometry, topology, and also in physics.
Their interdisciplinary nature provides much fascination and value.
On the occasion of Dov Tamari's centennial birthday, this book provides an introduction to topical research related to Tamari's work and ideas.

June 2012 **450 pp.**
9783034804042 **16,600.**

Operator theory: Advances and Applications,

Vol. 223: **Jacob, B. /Zwart, H.: Linear Port-Hamiltonian Systems on Infinite-Dimensional Spaces** 465-141

This book gives a self-contained introduction to the theory of infinite-dimensional systems theory and its applications to port-Hamiltonian systems. The textbook starts with elementary known results and further progresses smoothly to advanced topics of current research.
Many physical systems can be formulated using a Hamiltonian framework, leading to models described by ordinary or partial differential equations. For the purpose of control and for the interconnection of two or more Hamiltonian systems it is essential to take into account this interaction with the environment. This book is the first textbook on infinite-dimensional port-Hamiltonian systems.

May 2012 **230 pp.**
9783034803984 **7,540.**

Birkhauser

Chicago Lectures in Mathematics,

Vol. 202: Knuth, D.: 465-020/021

Companion to the Papers of Donald Knuth

Donald E. Knuth's seminal publications, such as Selected Papers on Fun and Games and Selected Paper on the Design of Algorithms, have earned him a loyal following among scholars and computer scientists, and his award-winning textbooks have becomes classics that are often given credit for shaping the field.
In this volume, he explains and comments on the changes he has made to his work over the last twenty years in response to new technologies and the evolving understanding of key concepts in computer science.
His commentary is supplemented by a full bibliography of his works and a number of interviews with Knuth himself, which shed light on his professional life and publications, as well as provide interesting biographical details.

Jan. 2012 441 pp.
9781575866352 /9781575866345 6,000./3,000. (Paper ed.)

Chicago University

Ash, A. /Gross, R.: 465-001

Elliptic Tales: Curves, Counting, and Number Theory

Elliptic Tales describes the latest developments in number theory by looking at one of the most exciting unsolved problems in contemporary mathematics—the Birch and Swinnerton-Dyer Conjecture.
The Clay Mathematics Institute is offering a prize of $1 million to anyone who can discover a general solution to the problem.

Apr. 2012 312 pp.
9780691151199 2,730.

Barrett, J. /Byrne, P. (eds.): 465-002

The Everett Interpretation of Quantum Mechanics: Collected Works 1955-1980 with Commentary

Hugh Everett III was an American physicist best known for his many-worlds interpretation of quantum mechanics, which formed the basis of his PhD thesis at Princeton University in 1957.
Although counterintuitive, Everett's revolutionary formulation of quantum mechanics offers the most direct solution to the infamous quantum measurement problem—that is, how and why the singular world of our experience emerges from the multiplicities of alternatives available in the quantum world.

June 2012 392 pp.
9780691145075 6,030.

Mathematical Notes,

*Vol. **:* Fathi, A. /Laudenbach, F. /Ponearu, V.: 465-185

Thurston's Work on Surfaces

This book provides a detailed exposition of William Thurston's work on surface homeomorphisms, available here for the first time in English.
Based on material of Thurston presented at a seminar in Orsay from 1976 to 1977, it covers topics such as the space of measured foliations on a surface, the Thurston compactification of Teichmuller space, the Nielsen-Thurston classification of surface homeomorphisms, and dynamical properties of pseudo-Anosov diffeomorphisms.

Mar. 2012 352 pp.
9780691147352 5,150.

Princeton University

Problem Books in Mathematics

Shiryaev, A.: Translated by Lyasoff, Andrew: 465-030
Problems in Probability

Problems in Probability comprises one of the most comprehensive, nearly encyclopedic, collections of problems and exercises in probability theory. Albert Shiryaev has skillfully created, collected, and compiled the exercises in this text over the course of many years while working on topics which interested him the most.
A substantial number of the exercises resulted from diverse sources such as textbooks, lecture notes, exercise manuals, monographs, and discussions that took place during special seminars for graduate and undergraduate students.
Many problems contain helpful hints and other relevant comments and a portion of the material covers some important applications from optimal control and mathematical finance.

May 2012 **392 pp.**
9781461436874 **9,050.**

Springer Monographs in Mathematics

Bogatyrev, A. /Kruzhilin, N.: 465-124
Extremal Polynomials and Riemann Surfaces

The book develops the classical Chebyshev's approach which gives analytical representation for the solution in terms of Riemann surfaces. The techniques born in the remote (at the first glance) branches of mathematics such as complex analysis, Riemann surfaces and Teichmuller theory, foliations, braids, topology are applied to approximation problems. The key feature of this book is the usage of beautiful ideas of contemporary mathematics for the solution of applied problems and their effective numerical realization.
This is one of the few books where the computational aspects of the higher genus Riemann surfaces are illuminated. Effective work with the moduli spaces of algebraic curves provides wide opportunities for numerical experiments in mathematics and theoretical physics.

Apr. 2012 **153 pp.**
9783642256332 **10,560.**

Graduate Texts in Mathematics,

***Vol. 263:* Zhu, K.:** 465-173
Analysis on Fock Spaces

Several natural Lp spaces of analytic functions have been widely studied in the past few decades, including Hardy spaces, Bergman spaces, and Fock spaces.
The terms "Hardy spaces" and "Bergman spaces" are by now standard and well established. But the term "Fock spaces" is a different story. Numerous excellent books now exist on the subject of Hardy spaces. Several books about Bergman spaces, including some of the author's, have also appeared in the past few decades.
But there has been no book on the market concerning the Fock spaces. The purpose of this book is to fill that void, especially when many results in the subject are complete by now.
This book presents important results and techniques summarized in one place, so that new comers, especially graduate students, have a convenient reference to the subject.

Aug. 2012 << Apr. 2012 **274 pp.**
9781441988003 **6,790.**

Springer

Universitext

Demengel, F. /Demengel, G.: 465-130

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 9,050.

Springer Series in Computational Mathematics,

Vol. 42: 138 **Hackbusch, W.:** 465-138

Tensor Spaces and Numerical Tensor Calculus

Special numerical techniques are already needed to deal with nxn matrices for large n. Tensor data are of size nxnx...xn=n^d, where n^d exceeds the computer memory by far. They appear for problems of high spatial dimensions. Since standard methods fail,a particular tensor calculus is needed to treat such problems. The monograph describes the methods how tensors can be practically treated and how numerical operations can be performed. Applications are problems from quantum chemistry, approximation of multivariate functions, solution of pde, e.g., with stochastic coefficients, etc.

Mar. 2012 498 pp.
9783642280269 16,600.

Graduate Texts in Physics

Scheck, F.: 465-307

Classical Field Theory: On Electrodynamics, Non-Abelian Gauge Theories, and Gravitation

The first two chapters cover all essential properties of Maxwell's equations, including their symmetries and their covariance in a modern notation. Chapter 3 is devoted to Maxwell theory as a classical field theory and to solutions of the wave equation. Chapter 4 deals with important applications of Maxwell theory. It includes topical subjects such as metamaterials with negative refraction index and solutions of Helmholtz' equation in paraxial approximation relevant for the description of laser beams. Chapter 5 describes non-Abelian gauge theories from a classical, geometric point of view, in analogy to Maxwell theory as a prototype, and culminates in an application to the U(2) theory relevant for electroweak interactions. The last chapter 6 gives a concise summary of semi-Riemannian geometry as the framework for the classical field theory of gravitation.

Feb. 2012 400 pp.
9783642279843 9,050.

Springer

Newman, S.: 465-098

A Classical Introduction to Galois Theory

This book provides an introduction to Galois theory and focuses on one central theme - the solvability of polynomials by radicals.
Both classical and modern approaches to the subject are described in turn in order to have the former provide motivation for the latter.
The theme of the book is historically the reason that Galois theory was created, and it continues to provide a platform for exploring both classical and modern concepts.
The classical material within the book includes theorems on polynomials, fields, and groups due to such luminaries as Gauss, Kronecker, Lagrange, Ruffini and, of course, Galois.
These results figured prominently in earlier expositions of Galois theory, but seem to have gone out of fashion.

July 2012 296 pp.
9781118091395 8,770.

Pure and Applied Mathematics

Cox, D.: 465-066

Galois Theory, 2nd ed.

Galois theory is one of the most established topics in mathematics, with historical roots that led to the development of many central concepts in modern algebra, including groups and fields.
Covering classic applications of the theory, such as solvability by radicals, geometric constructions, and finite fields, Galois Theory, Second Edition delves into novel topics like Abel's theory of Abelian equations, casus irreducibili, and the Galois theory of origami.
In addition, this book features detailed treatments of several topics not covered in standard texts on Galois theory, including: *The contributions of Lagrange, Galois, and Kronecker *How to compute Galois groups *Galois's results about irreducible polynomials of prime or prime-squared degree *Abel's theorem about geometric constructions on the lemniscates *Galois groups of quartic polynomials in all characteristics

Mar. 2012 602 pp.
9781118072059 8,770.

Wiley Series in Discrete Mathematics and Optimization

Stiebitz, M. /Scheide, D. /Toft, B. /Favrholdt, M.: 465-106

Graph Edge Coloring:
Vizing's Theorem and Goldberg's Conjectre

This book provides an overview of the current state of the science, explaining the interconnections among the results obtained from important graph theory studies. The authors introduce many new improved proofs of known results to identify and point to possible solutions for open problems in edge coloring.
The book begins with an introduction to graph theory and the concept of edge coloring.
Subsequent chapters explore important topics such as: Use of Tashkinov trees to obtain an asymptotic positive solution to Goldberg's conjecture Application of Vizing fans to obtain both known and new results Kierstead paths as an alternative to Vizing fans Classification problem of simple graphs Generalized edge coloring in which a color may appear more than once at a vertex

Mar. 2012 344 pp.
9781118091371 11,690.

Wiley

Mathematical Olympiad Series

Xiong, B. /Yee Lee, P. (eds.): 464-040

Mathematical Olympiad in China(2009-2010): Problems and Solutions

The International Mathematical Olympiad (IMO) is a competition for high school students. China has taken part in the IMO 21 times since 1985 and has won the top ranking for countries 14 times, with a multitude of golds for individual students.
The six students China has sent every year were selected from 20 to 30 students among approximately 130 students who took part in the annual China Mathematical Competition during the winter months.
This volume of comprises a collection of original problems with solutions that China used to train their Olympiad team in the years from 2009 to 2010.
Mathematical Olympiad problems with solutions for the years 2002-2008 appear in an earlier volume, Mathematical Olympiad in China.

June 2012 **250 pp.**
9789814390217 **4,480.**

Schott, R. /Staples, S.:

Operator Calculus on Graphs: Theory and Applications in Computer Science 464-103

This pioneering book presents a study of the interrelationships among operator calculus, graph theory, and quantum probability in a unified manner, with significant emphasis on symbolic computations and an eye toward applications in computer science.
Presented in this book are new methods, built on the algebraic framework of Clifford algebras, for tackling important real world problems related, but not limited to, wireless communications, neural networks, electrical circuits, transportation, and the world wide web.
Examples are put forward in Mathematica throughout the book, together with packages for performing symbolic computations.
Contents: Combinatorial Algebras and Their Properties Combinatorics and Graph Theory Operator Calculus Probability on Algebraic Structures Computational Complexity Symbolic Computations Using Mathematica

Feb. 2012 **420 pp.**
9781848168763 **15,810.**

Korman, P.:

Global Solution Curves for Semilinear Elliptic Equations 465-143

This book provides an introduction to the bifurcation theory approach to global solution curves and studies the exact multiplicity of solutions for semilinear Dirichlet problems, aiming to obtain a complete understanding of the solution set.
This understanding opens the way to efficient computation of all solutions. Detailed results are obtained in case of circular domains, and some results for general domains are also presented. The author is one of the original contributors to the field of exact multiplicity results.
Contents: Continuation of Solutions in General Domain Curves of Positive Solutions on Balls Symmetry Breaking Curves with Infinitely Many Turns Numerical Computation of Solutions Solutions of Annular Domains Curves of Solutions to Hamiltonian Systems S-Shapes Bifurcation Curves for Two Point Problems Infinitely Many Solution Curves with Pitchfork Bifurcation Elastic Beam Equations Prescribed Mean Curvature Equation

Feb. 2012 **470 pp.**
9789814374347 **10,620.**

World Scientific Pub.

Dudek, W. /Trokhimenko, V.: 465-071

Algebras of Multiplace Functions: Together with Versita

It is the first complete monograph (in English) on this area, covering mainly Russian literature.
It aresses all algebraist working in the area of universal algebras, semigroup theory. It is also fruitful source for graduate and PhD students who are starting their research in this area.
The book is the first monograph in English mathematical literature which provides readers with a very systematical study of the notion of Menger algebras and its generalizations and applications.
The results presented here were originally published mostly in Russian literature: In 2006 the first version of this book was edited in Russian; now is presented an extended version.

May 2012 420 pp.
9783110269284 19,620.

de Gruyter Proceedings in Mathematics

Sather-Wagstaff, S. / 465-102
Francisco, C. /Klingler, L. /Vassilev, J. (eds.):

Progress in Commutative Algebra 2: Closures, Finiteness and Factorization

This is the second of two volumes of a state-of-the-art survey article collection which originates from three commutative algebra sessions at the 2009 Fall Southeastern American Mathematical Society Meeting at Florida Atlantic University.
The articles reach into diverse areas of commutative algebra and build a bridge between Noetherian and non-Noetherian commutative algebra.
The current trends in two of the most active areas of commutative algebra are presented: non-noetherian rings, advances from the homological study of noetherian rings.
This volume contains surveys on aspects of closure operations, finiteness conditions and factorization.
Closure operations on ideals and modules are a bridge between noetherian and nonnoetherian commutative algebra.
It contains a nice guide to closure operations by Epstein, but also contains an article on test ideals by Schwede and Tucker and one by Enescu which discusses the action of the Frobenius on finite dimensional vector spaces both of which are related to tight closure.

Mar. 2012 300 pp.
9783110278590 19,620.

de Gruyter Expositions in Mathematics,

***Vol. 57:* Strade, H.:** 465-107

Simple Lie Algebras over Fields of Positive Characteristic, III: Completion of the Classification

This is the last of three volumes by Helmut Strade, presenting the state of the art of the structure and classification of Lie algebras over fields of positive characteristic.
In this monograph the proof of the Classification Theorem announced presented in Volume 1 is concluded.
It collects all the important results on the topic which can be found only in scattered scientific literatur so far.

Sep. 2012 350 pp.
9783110262988 19,620.

de Gruyter

de Gruyter Studies in Mathematics,

Vol. 46: Sakhnovich, A.: 465-167

Inverse Problems & Nonlinear Evolution Equations: Solutions, Darboux Matrices and Weyl-Titchmarsh Functions

This monograph fits the clearly need for books with a rigorous treatment of the inverse problems for non-classical systems and that of initial-boundary-value problems for integrable nonlinear equations.
The author develops a unified treatment of explicit and global solutions via the transfer matrix function in a form due to Lev Sakhnovich.

Apr. 2011 300 pp.
9783110258608 15,090.

Vol. 42: Melnikov, Y. /Melnikov, M.: 465-156

Green's Functions: Construction and Applications

Green's function represents one of the classical and widely used issues in the area of differential equations.
This text is looking at applied elliptic and parabolic type partial differential equations in two variables.
The elliptic type includes the Laplace, static Klein-Gordon and biharmonic equation.
The parabolic type is represented in this text by the classical heat equation and the Black-Scholes equation which has emerged as a mathematical model in financial mathematics.

Mar. 2012 << Dec. 2012 440 pp.
9783110253023 15,090.

Florescu, L. /Godet-Thobie, C.: 465-136

Young Measures and Compactness in Measure Spaces

In recent years, technological progress created a great need for complex mathematical models. Many practical problems can be formulated using optimization theory and they hope to obtain an optimal solution.
In most cases, such optimal solution can not be found.
So, non-convex optimization problems (arising, e.g., in variational calculus, optimal control, nonlinear evolutions equations) may not possess a classical minimizer because the minimizing sequences have typically rapid oscillations.
This behavior requires a relaxation of notion of solution for such problems; often we can obtain such a relaxation by means of Young measures.

May 2012 350 pp.
9783110276404 18,110.

de Gruyter Textbook

Hopfner, R.: 465-227

Asymptotic Statistics: With A View to Stochastic Processes

Local asymptotics for statistical models in the sense of local asymptotic (mixed) normality or local asymptotic quadraticity make up the core of the book.
Numerous examples deal with classical independent and identically distributed models and with stochastic processes.
The book is suitable for graduate students starting to work in statistics of stochastic processes, as well as for researchers interested in a precise introduction to this area.

21301 290 pp.
9783110250244 6,030.

de Gruyter

EMS Monographs in Mathematics,

Krieger, J. /Schlag, W.: 465-144
Concentration Compactness for Critical Wave Maps

Wave maps are the simplest wave equations taking their values in a Riemannian manifold (M,*g*) .
Their Lagrangian is the same as for the scalar equation, the only difference being that lengths are measured with respect to the metric *g* .
By Noether's theorem, symmetries of the Lagrangian imply conservation laws for wave maps, such as conservation of energy. In coordinates, wave maps are given by a system of semillinear wave equations.
Over the past 20 years important methods have emerged which address the problem of local and global wellposedness of this system.
Due to weak dispersive effects, wave maps defined on Minkowski spaces of low dimensions, such as $R^{2+1}_{t,x}$, present particular technical difficulties.

This class of wave maps has the additional important feature of being energy critial, which refers to the fact that the energy scales exactly like the equation.

Feb. 2012 **490 pp.**
9783037191064 **13,290.**

IRMA - Lecture Notes in Mathematics and Theoretical Physics,

***Vol. 18:* Papadopoulos, A. (ed.):** 465-099
Strasbourg Master Class on Geometry

This book contains carefully revised and expanded versions of eight courses that were presented at the University of Strasbourg, during two geometry master classes, in 2008 and 2009.
The aim of the master classes was to give to fifth-year students and PhD students in mathematics the opportunity to learn new topics that lead directly to the current research in geometry and topology.
The courses were held by leading experts.
The subjects treated include hyperbolic geometry, three-manifold topology, representation theory of fundamental groups of surfaces and of three-manifolds, dynamics on the hyperbolic plane with applications to number theory, Riemann surfaces, Teichmuller theory, Lie groups and asymptotic geometry.

Jan. 2012 **461 pp.**
9783037191057 **7,490.**

New Series: *The QGM Master Class Series*

Penner, R.: 465-163
Decorated Teichmuller Theory

There is an essentially "tinker-toy" model of a trivial bundle over the classical Teichmuller space of a punctured surface, called the decorated Teichmuller space, where the fiber over a point is the space of all tuples of horocycles, one about each puncture.
This model leads to an extension of the classical mapping class groups called the Ptolemy groupoids and to certain matrix models solving related enumerative problems, each of which has proved useful both in math and in theoretical physics.
This volume gives the story and wider context of these decorated Teichmuller spaces as developed by the author over the last two decades in a series of papers, someof them in collaboration.

Jan. 2012 << May 2012 **377 pp.**
9783037190753 **8,760.**

European Mathematical Society