Yurinsha Book News

Annals of Mathematics Studies,

Vol. 201: Cardaliaguet, P. /Delarue, F.: The Master Equation and the Convergence Problem in Mean Field Games

No. 517-137

This book describes the latest advances in the theory of mean field games, which are optimal control problems with a continuum of players, each of them interacting with the whole statistical distribution of a population. While originating in economics, this theory now has applications in areas as diverse as mathematical finance, crowd phenomena, epidemiology, and cybersecurity.Because mean field games concern the interactions of infinitely many players in an optimal control framework, one expects them to appear as the limit for Nash equilibria of differential games with finitely many players, as the number of players tends to infinity.
This book rigorously establishes this convergence, which has been an open problem until now. The limit of the system associated with differential games with finitely many players is described by the so-called master equation, a nonlocal transport equation in the space of measures. After defining a suitable notion of differentiability in the space of measures, the authors provide a complete self-contained analysis of the master equation.
Their analysis includes the case of common noise problems in which all the players are affected by a common Brownian motion.

(and Others 2 Vols. / Page 8)

Aug. 2019 192 pp.
9780691190709/9780691191041 22,610./10,280. (Paper ed.)
Princeton Univercity

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(株) 友 隣 社

AMS/MAA Textbooks,

Vol. 47: **Bogacki, P.:** No. 517-070

Linear Algebra: Concepts and Applications

Tis book is designed to be used in a first linear algebra course taken by mathematics and science majors. It provides a complete coverage of core linear algebra topics, including vectors and matrices, systems of linear equations, general vector spaces, linear transformations, eigenvalues, and eigenvectors. All results are carefully, clearly, and rigorously proven. The exposition is very accessible.

Mar. 2019 383 pp.
9781470443849 16,980.

Vol. 46: **Cuoco, A. /Waterman, K. /Kerins, B. / Kaczorowski, E. /Manes, M.:** No. 517-079

Linear Algebra and Geometry

Linear Algebra and Geometry is organized around carefully sequenced problems that help students build both the tools and the habits that provide a solid basis for further study in mathematics.
Requiring only high school algebra, it uses elementary geometry to build the beautiful edifice of results and methods that make linear algebra such an important field.

Apr. 2019 ....
9781470443504 16,980.

Vol. 44: **Carroll, M. /Rykken, E.:** No. 517-192

Geometry: The Line and the Circle

Geometry: The Line and the Circle is an undergraduate text with a strong narrative that is written at the appropriate level of rigor for an upper-level survey or axiomatic course in geometry. Starting with Euclid's Elements, the book connects topics in Euclidean and non-Euclidean geometry in an intentional and meaningful way, with historical context.

Jan. 2019 480 pp.
9781470448431 18,700.

Contemporary Mathematics,

Vol. 722: **Aubry, Y. /Howe, E. /Ritzenthaler, C. (eds.):**
Arithmetic Geometry: No. 517-065
Computation and Applications

The papers are original research articles covering a large range of topics, including weight enumerators for codes, function field analogs of the Brauer-Siegel theorem, the computation of cohomological invariants of curves, the trace distributions of algebraic groups, and applications of the computation of zeta functions of curves.

Feb. 2019 175 pp.
9781470442125 20,070.

Vol. 721: **Vojtechovsky, P. /Bremner. M. /Carter, S. / Evans, A. /Huerta, J. /Kinyon, M. / Moorhouse, E. /Smith, J.:** No. 517-122

Nonassociative Mathematics and Its Applications

Included are research papers covering active areas of investigation, survey papers covering Leibniz algebras, self-distributive structures, and rack homology, and a sampling of applications ranging from Yang-Mills theory to the Yang-Baxter equation and Laver tables.

Feb. 2019 ....
9781470442453 20,070.

A. M. S.

Graduate Studies in Mathematics,

Vol. 198: **Benedetto, R.:**

Dynamics in One Non-Archimedean Variable

The theory of complex dynamics in one variable, initiated by Fatou and Julia in the early twentieth century, concerns the iteration of a rational function acting on the Riemann sphere. No. 517-131
Building on foundational investigations of p-adic dynamics in the late twentieth century, dynamics in one non-archimedean variable is the analogous theory over non-archimedean fields rather than over the complex numbers.
It is also an essential component of the number-theoretic study of arithmetic dynamics.
This textbook presents the fundamentals of non-archimedean dynamics, including a unified exposition of Rivera-Letelier's classification theorem, as well as results on wandering domains, repelling periodic points, and equilibrium measures.

Mar. 2019 ....
9781470446888 16,300.

Vol. 197: **Craig, W.:** No. 517-145

A Course on Partial Differential Equations

Does entropy really increase no matter what we do? Can light pass through a Big Bang? What is certain about the Heisenberg uncertainty principle? Many laws of physics are formulated in terms of differential equations, and the questions above are about the nature of their solutions.

Jan. 2019 205 pp.
9781470442927 12,520.

Mathematical Surveys and Monographs,

Vol. 40 - No. 8: **Gorenstein, D. /Lyons, R. /Solomon, R.:**

The Classification of the Finite Simple Groups,

No. 8. Part III: Chap. 12 -17: The Generic Case, Completed No. 517-087

In conjunction with Numbers 4 and 6, it allows us to reach a major milestone in our series - the completion of the proof of the following theorem:
Theorem O: Let G be a finite simple group of odd type, all of whose proper simple sections are known simple groups.
Then either G is an alternating group or G is a finite group of Lie type defined over a field of odd order or G is one of six sporadic simple groups.

Jan. 2019 488 pp.
9781470441890 20,930.

Vol. 236: **Host, B. /Kra, B.:** No. 517-153

Nilpotent Structures in Ergodic Theory

Nilsystems play a key role in the structure theory of measure preserving systems, arising as the natural objects that describe the behavior of multiple ergodic averages.
This book is a comprehensive treatment of their role in ergodic theory, covering development of the abstract theory leading to the structural statements, applications of these results, and connections to other fields.
Starting with a summary of the relevant dynamical background, the book methodically develops the theory of cubic structures that give rise to nilpotent groups and reviews results on nilsystems and their properties that are scattered throughout the literature.

Jan. 2019 427 pp.
9781470447809 20,580.

A. M. S.

Progress in Mathematics,

Vol. 327: **Ruzhansky, M. /Suragan, D.:** No. 517-113

Hardy Inequalities on Homogeneous Groups: 100 Years of Hardy Inequalities

This open access book provides an extensive treatment of Hardy inequalities and closely related topics from the point of view of Folland and Stein's homogeneous (Lie) groups.
The place where Hardy inequalities and homogeneous groups meet is a beautiful area of mathematics with links to many other subjects.
While describing the general theory of Hardy, Rellich, Caffarelli-Kohn-Nirenberg, Sobolev, and other inequalities in the setting of general homogeneous groups, the authors pay particular attention to the special class of stratified groups.
In this environment, the theory of Hardy inequalities becomes intricately intertwined with the properties of sub-Laplacians and subelliptic partial differential equations.
These topics constitute the core of this book and they are complemented by additional, closely related topics such as uncertainty principles, function spaces on homogeneous groups, the potential theory for stratified groups, and the potential theory for general Hormander's sums of squares and their fundamental solutions.

Feb. 2019 588 pp.
9783030028947 9,750.

Tarski, A.:

Tarski, Alfred: Collected Papers 4 Vols. Set

Alfred Tarski was one of the two giants of the twentieth-century development of logic, along with Kurt Goedel.
The four volumes of this collection contain all of Tarski's published papers and abstracts, as well as a comprehensive bibliography.
Here will be found many of the works, spanning the period 1921 through 1979, which are the bedrock of contemporary areas of logic, whether in mathematics or philosophy.
These areas include the theory of truth in formalized languages, decision methods and undecidable theories, foundations of geometry, set theory, and model theory, algebraic logic, and universal algebra. No. 517-034

June 2019 ....
9783030055400 88,720.

Tarski, A.:

Tarski, A: Collected Papers, Vol. 4: 1958-1979.

Nov. 2018 770 pp.
9783319954165 31,200.

Tarski, A.:

Tarski, A: Collected Papers, Vol. 3: 1945-1957.

Nov. 2018 694 pp.
9783319954226 25,350.

Tarski, A.:

Tarski, A: Collected Papers, Vol. 2: 1935-1944.

Jan. 2019 700 pp.
9783319954288 25,350.

Tarski, A.:

Tarski, A: Collected Papers, Vol. 1: 1921-1934.

Nov. 2018 670 pp.
9783319953656 23,400.

Birkhauser

Cambridge Studies in Advanced Mathematics,

Vol. ***: Cisinski, D.-C.:

Higher Categories and Homotopical Algebra

This book provides an introduction to modern homotopy theory through the lens of higher categories after Joyal and Lurie, giving access to methods used at the forefront of research in algebraic topology and algebraic geometry in the twenty-first century. No. 517-077

The text starts from scratch - revisiting results from classical homotopy theory such as Serre's long exact sequence, Quillen's theorems A and B, Grothendieck's smooth/proper base change formulas and the construction of the Kan-Quillen model structure on simplicial sets - and develops an alternative to a significant part of Lurie's definitive reference Higher Topos Theory, with new constructions and proofs, in particular, the Yoneda Lemma and Kan extensions.

The strong emphasis on homotopical algebra provides clear insights into classical constructions such as calculus of fractions, homotopy limits and derived functors. For graduate students and researchers from neighbouring fields, this book is a user-friendly guide to advanced tools that the theory provides for application.

Apr. 2019 446 pp.

9781108473200 12,440.

Cambridge Tracts in Mathematics,

Vol. ***: Dodson, B.: No. 517-146

Defocusing Nonlinear Schrodinger Equations

This study of Schrodinger equations with power-type nonlinearity provides a great deal of insight into other dispersive partial differential equations and geometric partial differential equations.

It presents important proofs, using tools from harmonic analysis, microlocal analysis, functional analysis, and topology.

This includes a new proof of Keel-Tao endpoint Strichartz estimates, and a new proof of Bourgain's result for radial, energy-critical NLS.

It also provides a detailed presentation of scattering results for energy-critical and mass-critical equations.

Apr. 2019 256 pp.

9781108472081 21,420.

London Mathematical Society Lecture Note Series,

Vol. ***: Liu, K.: No. 517-159

Stochastic Stability of Differential Equations in Abstract Spaces

The stability of stochastic differential equations in abstract, mainly Hilbert, spaces receives a unified treatment in this self-contained book.

It covers basic theory as well as computational techniques for handling the stochastic stability of systems from mathematical, physical and biological problems.

Its core material is divided into three parts devoted respectively to the stochastic stability of linear systems, non-linear systems and time-delay systems.

The focus is on stability of stochastic dynamical processes affected by white noise, which are described by partial differential equations such as the Navier-Stokes equations. A range of mathematicians and scientists, including those involved in numerical computation, will find this book useful.

It is also ideal for engineers working on stochastic systems and their control, and researchers in mathematical physics or biology.

Apr. 2019 276 pp.

9781108705172 12,400.

Cambridge

Cambridge Texts in Applied Mathematics,

Vol. ***: **Moffatt, K. /Dormy, E.:** No. 517-281

Self-Exciting Fluid Dynamos

Exploring the origins and evolution of magnetic fields in planets, stars and galaxies, this book gives a basic introduction to magnetohydrodynamics and surveys the observational data, with particular focus on geomagnetism and solar magnetism.
Pioneering laboratory experiments that seek to replicate particular aspects of fluid dynamo action are also described.
The authors provide a complete treatment of laminar dynamo theory, and of the mean-field electrodynamics that incorporates the effects of random waves and turbulence.
Both dynamo theory and its counterpart, the theory of magnetic relaxation, are covered.
Topological constraints associated with conservation of magnetic helicity are thoroughly explored and major challenges are addressed in areas such as fast-dynamo theory, accretion-disc dynamo theory and the theory of magnetostrophic turbulence.

Apr. 2019 544 pp.
9781107065871 25,920.

Cambridge Series in Statistical and Probabilistic Mathematics,

Vol. 49: **Durrett, R.:** No. 517-221

Probability:
Theory and Examples, 5th ed.

This fifth edition contains a new chapter on multidimensional Brownian motion and its relationship to PDEs, an advanced topic that is finding new applications. Setting the foundation for this expansion, Chapter 7 now features a proof of Ito's formula.
Key exercises that previously were simply proofs left to the reader have been directly inserted into the text as lemmas.

Apr. 2019 496 pp.
9781108473682 13,520.

Vol. 48: **Wainwright, M. J.:** No. 517-242

High-Dimensional Statistics:
A Non-Asymptotic Viewpoint

Recent years have witnessed an explosion in the volume and variety of data collected in all scientific disciplines and industrial settings.
Such massive data sets present a number of challenges to researchers in statistics and machine learning.
This book provides a self-contained introduction to the area of high-dimensional statistics, aimed at the first-year graduate level.
It includes chapters that are focused on core methodology and theory - including tail bounds, concentration inequalities, uniform laws and empirical process, and random matrices - as well as chapters devoted to in-depth exploration of particular model classes - including sparse linear models, matrix models with rank constraints, graphical models, and various types of non-parametric models.
With hundreds of worked examples and exercises, this text is intended both for courses and for self-study by graduate students and researchers in statistics, machine learning, and related fields who must understand, apply, and adapt modern statistical methods suited to large-scale data.

Apr. 2019 555 pp.
9781108498029 13,070.

Cambridge

Advanced Lectures in Mathematics,

Vol. 41: **Ji, L. /Papadopoulos, A. /Yau, S.-T. (eds.): Handbook of Group Actions, Vol. IV**

No. 517-097

Groups and group actions are probably the most central objects in mathematics. Comprising volumes 31, 32, 40 and 41 of the ALM series, the Handbook of Group Actions presents survey articles on the topic of group actions and how they appear in several mathematical contexts.
The general subject matter is organized under the following sections: geometry, mapping class groups, knot groups, topology, representation theory, deformation theory, and discrete groups.

Nov. 2018 778 pp.
9781571463654 15,480.

Vol. 40: **Ji, L. /Papadopoulos, A. /Yau, S.-T. (eds.): Handbook of Group Actions, Vol. III**

No. 517-096

Nov. 2018 566 pp.
9781571463647 15,210.

Vol. 38: **Ji, L. (ed.): Complex Geometry From Riemann to Kahler-Einstein and Calabi-Yau**

No. 517-201

Complex geometry has been extensively studied and developed since the 19th century.
This volume examines the subject from a global, historical perspective. It begins with an essay on the historical development of complex geometry, with extensive quotations of experts past and present, followed by a discussion of Calabi-Yau manifolds, and a look at Shing-Tung Yau as a writer and mathematician.
Next, it presents a series of selected papers, beginning with Bernhard Riemann's thesis on the foundation of complex analysis, and his masterpiece on the foundations of geometry, followed by numerous seminal papers of modern practitioners: Atiyah, Bott, Chern, Calabi, Chow, Donaldson, Hirzebruch, Kahler, Kodaira, Siu, Uhlenbeck, and Yau.
The volume concludes with a set of commentaries written by Yau, from his personal perspective, on the broad subject of complex geometry and its applications; and finally with an extensive list of papers on complex geometry from the 20th and 21st centuries, categorized by topic.

Nov. 2018 676 pp.
9781571463524 18,750.

International Press

Handbook of Statistics,

Vol. 40: **Srinivasa Rao, A. /Rao, C.: Integrated Population Biology and Modeling, Part B**

No. 517-033

This book offers very delicately complex and precise realities of quantifying modern and traditional methods of understanding populations and population dynamics, with this updated release focusing on Prey-predator animal models, Back projections, Evolutionary Biology computations, Population biology of collective behavior and bio patchiness, Collective behavior, Population biology through data science, Mathematical modeling of multi-species mutualism: new insights, remaining challenges and applications to ecology, Population Dynamics of Manipur, Stochastic Processes and Population Dynamics Models: etc.

Feb. 2019 420 pp.
9780444641526 43,000.

North Holland

Annals of Mathematics Studies,

Vol. ***: Haesemeyer, C. /Weibel, C.: No. 517-024

The Norm Residue Theorem in Motivic Cohomology

This book presents the complete proof of the Bloch-Kato conjecture and several related conjectures of Beilinson and Lichtenbaum in algebraic geometry.
Brought together here for the first time, these conjectures describe the structure of etale cohomology and its relation to motivic cohomology and Chow groups.
Although the proof relies on the work of several people, it is credited primarily to Vladimir Voevodsky.
The authors draw on a multitude of published and unpublished sources to explain the large-scale structure of Voevodsky's proof and introduce the key figures behind its development. No. 517-090
They go on to describe the highly innovative geometric constructions of Markus Rost, including the construction of norm varieties, which play a crucial role in the proof.
The book then addresses symmetric powers of motives and motivic cohomology operations.
Comprehensive and self-contained, The Norm Residue Theorem in Motivic Cohomology unites various components of the proof that until now were scattered across many sources of varying accessibility, often with differing hypotheses, definitions, and language.

June 2019 272 pp.
9780691181820/9780691191041 22,610./10,280. (Paper ed.)

Vol. ***: Schwartz, R.:

The Plaid Model

Outer billiards provides a toy model for planetary motion and exhibits intricate and mysterious behavior even for seemingly simple examples.
It is a dynamical system in which a particle in the plane moves around the outside of a convex shape according to a scheme that is reminiscent of ordinary billiards.
The Plaid Model, which is a self-contained sequel to Richard Schwartz's Outer Billiards on Kites, provides a combinatorial model for orbits of outer billiards on kites. No. 517-211
Schwartz relates these orbits to such topics as polytope exchange transformations, renormalization, continued fractions, corner percolation, and the Truchet tile system.
The combinatorial model, called "The plaid model", has a self-similar structure that blends geometry and elementary number theory.
The results were discovered through computer experimentation and it seems that the conclusions would be extremely difficult to reach through traditional mathematics.
The book includes an extensive computer program that allows readers to explore the materials interactively and each theorem is accompanied by a computer demonstration.

Mar. 2019 280 pp.
9780691181370/9780691181387 22,610./10,280. (Paper ed.)

Vol. 201: Cardaliaguet,P./Delarue,F.:
The Master Equation and 詳報 表紙 拐載
the Convergence Problem in Mean Field Games
Aug. 2019 192 pp. 9780691190709/9780691191041 22,610./10,280. (Paper ed.)

Princeton University

Moscow Lectures,

Vol. 2: Kazaryan, M. /Lando, S. /Prasolov, V.: No. 517-100

Algebraic Curves: Towards Moduli Spaces

This book offers a concise yet thorough introduction to the notion of moduli spaces of complex algebraic curves.
Over the last few decades, this notion has become central not only in algebraic geometry, but in mathematical physics, including string theory, as well.
The book begins by studying individual smooth algebraic curves, including the most beautiful ones, before addressing families of curves.
Studying families of algebraic curves often proves to be more efficient than studying individual curves: these families and their total spaces can still be smooth, even if there are singular curves among their members.

Jan. 2019 222 pp.
9783030029425 11,700.

Agarwal, P. /Jleli, M. /Samet, B.: No. 517-124

Fixed Point Theory in Metric Spaces: Recent Advances and Applications

Divided into ten chapters, it discusses topics such as the Banach contraction principle and its converse; Ran-Reurings fixed point theorem with applications; the existence of fixed points for the class of [Alpha]-[fai] contractive mappings with applications to quadratic integral equations; recent results on fixed point theory for cyclic mappings with applications to the study of functional equations; the generalization of the Banach fixed point theorem on Branciari metric spaces; the existence of fixed points for a certain class of mappings satisfying an implicit contraction; fixed point results for a class of mappings satisfying a certain contraction involving extended simulation functions; the solvability of a coupled fixed point problem under a finite number of equality constraints; the concept of generalized metric spaces, for which the authors extend some well-known fixed point results; and a new fixed point theorem that helps in establishing a Kelisky-Rivlin type result for q-Bernstein polynomials and modified q-Bernstein polynomials.

Dec. 2018 152 pp.
9789811329128 16,570.

Contemporary Matheamticians,

Vol. 3: Cioranescu, D. /Damlamian, A. /Griso, G.: No. 517-142

The Periodic Unfolding Method: Theory and Applications to Partial Differential Problems

This is the first book on the subject of the periodic unfolding method (originally called 兎 clatement periodique in French), which was originally developed to clarify and simplify many questions arising in the homogenization of PDE's. It has since led to the solution of some open problems.
Written by the three mathematicians who developed the method, the book presents both the theory as well as numerous examples of applications for partial differential problems with rapidly oscillating coefficients: in fixed domains (Part I), in periodically perforated domains (Part II), and in domains with small holes generating a strange term (Part IV).
The method applies to the case of multiple microscopic scales (with finitely many distinct scales) which is connected to partial unfolding (also useful for evolution problems). This is discussed in the framework of oscillating boundaries (Part III). A detailed example of its application to linear elasticity is presented in the case of thin elastic plates (Part V).

Dec. 2018 461 pp.
9789811330315 21,450.

Springer

Lecture Notes in Mathematics,

Vol. 2235: **Aiena, P.:** No. 517-126

Fredholm and Local Spectral Theory II: With Application to Weyl-Type Theorems

This monograph concerns the relationship between the local spectral theory and Fredholm theory of bounded linear operators acting on Banach spaces.
The purpose of this book is to provide a first general treatment of the theory of operators for which Weyl-type or Browder-type theorems hold.
The product of intensive research carried out over the last ten years, this book explores for the first time in a monograph form, results that were only previously available in journal papers.
Written in a simple style, with sections and chapters following an easy, natural flow, it will be an invaluable resource for researchers in Operator Theory and Functional Analysis.

Dec. 2018 499 pp.
9783030022655 7,800.

Vol. 2234: **Kobayashi Toshiyuki /Speh, B.:** No. 517-102

Symmetry Breaking for Representations of Rank One Orthogonal Groups II

This work provides the first classification theory of matrix-valued symmetry breaking operators from principal series representations of a reductive group to those of its subgroup.
The study of symmetry breaking operators (intertwining operators for restriction) is an important and very active research area in modern representation theory, which also interacts with various fields in mathematics and theoretical physics ranging from number theory to differential geometry and quantum mechanics.
The first author initiated a program of the general study of symmetry breaking operators.
The present book pursues the program by introducing new ideas and techniques, giving a systematic and detailed treatment in the case of orthogonal groups of real rank one, which will serve as models for further research in other settings.

Nov. 2018 310 pp.
9789811329005 8,770.

Vol. 2232: **Eftimie, R.:** No. 517-263

Hyperbolic and Kinetic Models for Self-Organised Biological Aggregations: A Modelling and Pattern Formation Approach

This book focuses on the spatio-temporal patterns generated by two classes of mathematical models (of hyperbolic and kinetic types) that have been increasingly used in the past several years to describe various biological and ecological communities.
Here we combine an overview of various modelling approaches for collective behaviours displayed by individuals/cells/bacteria that interact locally and non-locally, with analytical and numerical mathematical techniques that can be used to investigate the spatio-temporal patterns produced by said individuals/cells/bacteria.
Richly illustrated, the book offers a valuable guide for researchers new to the field, and is also suitable as a textbook for senior undergraduate or graduate students in mathematics or related disciplines.

Jan. 2019 255 pp.
9783030025854 9,750.

Springer

Lecture Notes in Mathematics,

Vol. 2231: **Kim, S.-H. /Koberda, T. /Mj, M.:** No. 517-101

Flexibility of Group Actions on the The Circle

In this partly expository work, a framework is developed for building exotic circle actions of certain classical groups.
The authors give general combination theorems for indiscrete isometry groups of hyperbolic space which apply to Fuchsian and limit groups.
An abundance of integer-valued subadditive defect-one quasimorphisms on these groups follow as a corollary.
The main classes of groups considered are limit and Fuchsian groups.
Limit groups are shown to admit large collections of faithful actions on the circle with disjoint rotation spectra.
For Fuchsian groups, further flexibility results are proved and the existence of non-geometric actions of free and surface groups is established.
An account is given of the extant notions of semi-conjugacy, showing they are equivalent.

Mar. 2019 120 pp.
9783030028541 6,820.

Universitext

Mitrea, D.: No. 517-166

Distributions, Partial Differential Equations, and Harmonic Analysis, 2nd ed.

The aim of this book is to offer, in a concise, rigorous, and largely self-contained manner, a rapid introduction to the theory of distributions and its applications to partial differential equations and harmonic analysis.
The book is written in a format suitable for a graduate course spanning either over one-semester, when the focus is primarily on the foundational aspects, or over a two-semester period that allows for the proper amount of time to cover all intended applications as well.
It presents a balanced treatment of the topics involved, and contains a large number of exercises (upwards of two hundred, more than half of which are accompanied by solutions), which have been carefully chosen to amplify the effect, and substantiate the power and scope, of the theory of distributions.

Jan. 2019 597 pp.
9783030032951 10,720.

Oksendal, B. /Sulem, A.: No. 517-283

Applied Stochastic Control of Jump Diffusions, 3rd ed.

Here is a rigorous introduction to the most important and useful solution methods of various types of stochastic control problems for jump diffusions and its applications.
Discussion includes the dynamic programming method and the maximum principle method, and their relationship.
The text emphasises real-world applications, primarily in finance.
Results are illustrated by examples, with end-of-chapter exercises including complete solutions.
The 2nd edition adds a chapter on optimal control of stochastic partial differential equations driven by Levy processes, and a new section on optimal stopping with delayed information.
Basic knowledge of stochastic analysis, measure theory and partial differential equations is assumed.

Apr. 2019 ....
9783030027797 10,720.

Springer

No. 517-088

Greuel, G.-M. /Lossen, C. /Shustin, E.: Singular Algebraic Curves: With An Appendix by Oleg Viro

Singular algebraic curves have been in the focus of study in algebraic geometry from the very beginning, and till now remain a subject of an active research related to many modern developments in algebraic geometry, symplectic geometry, and tropical geometry.
The monograph suggests a unified approach to the geometry of singular algebraic curves on algebraic surfaces and their families, which applies to arbitrary singularities, allows one to treat all main questions concerning the geometry of equisingular families of curves, and, finally, leads to results which can be viewed as the best possible in a reasonable sense.
Various methods of the cohomology vanishing theory as well as the patchworking construction with its modifications will be of a special interest for experts in algebraic geometry and singularity theory.

Dec. 2018 563 pp.
9783030033491 23,400.

Narkiewicz, W.: The Story of Algebraic Numbers in the First Half of the 20th Century: From Hilbert to Tate

No. 517-025

The book is aimed at people working in number theory or at least interested in this part of mathematics.
It presents the development of the theory of algebraic numbers up to the year 1950 and contains a rather complete bibliography of that period.
The reader will get information about results obtained before 1950.
It is hoped that this may be helpful in preventing rediscoveries of old results, and might also inspire the reader to look at the work done earlier, which may hide some ideas which could be applied in contemporary research.

Jan. 2019 436 pp.
9783030037536 19,500.

Papageorgiou, N. /Radulescu, V. /Repovs, D.: Modern Nonlinear Analysis -Theory

No. 517-171

This book emphasizes those basic abstract methods and theories that are useful in the study of nonlinear boundary value problems.
The content is developed over six chapters, providing a thorough introduction to the techniques used in the variational and topological analysis of nonlinear boundary value problems described by stationary differential operators.
The authors give a systematic treatment of the basic mathematical theory and constructive methods for these classes of nonlinear equations as well as their applications to various processes arising in the applied sciences.
They show how these diverse topics are connected to other important parts of mathematics, including topology, functional analysis, mathematical physics, and potential theory.
Throughout the book a nice balance is maintained between rigorous mathematics and physical applications.
The primary readership includes graduate students and researchers in pure and applied nonlinear analysis.

Apr. 2019 ....
9783030034290 19,500.

Springer

Sinai, Y. (ed.): No. 517-128

Selecta III:
Professor Sinai's Selected Papers.

This volume contain several papers, some papers related to probability theory and statistical physics,
papers on Anderson localization for some classes of Schroedinger equations and the papers on Interval Exchange Transformations, joint with C Ulcigrai and A Bufetov.
Of notable mention are the paper on the distribution of the first positive sums in the case of independent random variables which was the author's first publication and the joint paper with V Yakhot which had several applications among hydrodynamical community.

July 2019 500 pp.
9789813208872 22,020.

Series on Number Theory and Its Applications,

Snaith, V.: No. 517-118

Derived Langlands:
Monomial Resolutions of Admissible Representations

The Langlands Programme is one of the most important areas in modern pure mathematics.
The importance of this volume lies in its potential to recast many aspects of the programme in an entirely new context. For example, the morphisms in the monomial category of a locally p-adic Lie group have a distributional description, due to Bruhat in his thesis.
Admissible representations in the programme are often treated via convolution algebras of distributions and representations of Hecke algebras.

July 2019 350 pp.
9789813275744 22,020.

Biagi, S. /Bonfiglioli, A.: No. 516-069

An Introduction to
the Geometrical Analysis of Vector Fields,
- With Applications to Maximum Principles and Lie Groups

This book provides the reader with a gentle path through the multifaceted theory of vector fields, starting from the definitions and the basic properties of vector fields and flows, and ending with some of their countless applications, in the framework of what is nowadays called Geometrical Analysis.

Feb. 2019 450 pp.
9789813276611 24,570.

Mansoulie, B.: No. 517-020

All of Physics (Almost) in 15 Equations

The book comprises 15 short chapters, each presenting an important equation of Physics, from the simplest and oldest, to more complex and recent ones.
The target audience is the interested general public, hence no mathematics is involved (beyond the simple expression of each equation).
What can a professional "read" in an equation? Does one see a rainbow differently when one knows the law of refraction of light?
Do some equations tell more than what they were invented for?
The book presents an opportunity to think about the nature of the physical laws (without writing a philosophy treatise): are they written in advance, or only the result of our imagination?

Nov. 2018 160 pp.
9789813273405 4,730.

World Scientific Pub.

Memoires de la Societe Mathematique de France,

Numero 158: **Lupu, T.:** No. 517-230

Poisson Ensembles of Loops of Loops of One-Dimensional Diffusions

There is a natural measure on loops (time-parametrized trajectories that in the end return to the origin), which one can associate to a wide class of Markov processes.
The Poisson ensembles of Markov loops are Poisson point processes with intensity proportional to these measures.
In wide generality, these Poisson ensembles of Markov loops are related, at intensity parameter 1/2, to the Gaussian free field, and at intensity parameter 1, to the loops done by a Markovian sample path.
Here, we study the specific case when the Markov process is a one-dimensional diffusion.
After a detailed description of the measure, we study the Poisson point processes of loops, their occupation fields, and explain how to sample these Poisson ensembles of loops out of diffusion sample path perturbed at their successive minima.
Finally, we introduce a couple of interwoven determinantal point processes on the line, which is a dual through Wilson's algorithm of Poisson ensembles of loops, and study the properties of these determinantal point processes.

Dec. 2018 162 pp.
9782856298916 *価格未定*

Numero 157: **Spitzweck, M.:** No. 517-119

A Commutative P1-Spectrum Representing Motivic Cohomology Over Dedekind Domains

We construct a motivic Eilenberg-MacLane spectrum with a highly structured multiplication over general base schemes which represents Levine's motivic cohomology, defined via Bloch's cycle complexes, over smooth schemes over Dedekind domains.
Our method is by gluing p-completed and rational parts along an arithmetic square. Hereby the finite coefficient spectra are obtained by truncated etale sheaves (relying on the now proven Bloch-Kato conjecture) and a variant of Geisser's version of syntomic cohomology, and the rational spectra are the ones which represent Beilinson motivic cohomology.
As an application the arithmetic motivic cohomology groups can be realized as Ext-groups in a triangulated category of motives with integral coefficients.
Our spectrum is compatible with base change giving rise to a formalism of six functors for triangulated categories of motivic sheaves over general base schemes including the localization triangle.
Further applications are a generalization of the Hopkins-Morel isomorphism and a structure result for the dual motivic Steenrod algebra in the case where the coefficient characteristic is invertible on the base scheme.

Dec. 2018 114 pp.
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Numero 156: **Sabbah, C.:** No. 517-179

Irregular Hodge Theory

We introduce the category of irregular mixed Hodge modules consisting of possibly irregular holonomic D-modules which can be endowed in a canonical way with a filtration, called the irregular Hodge filtration.
Mixed Hodge modules with their Hodge filtration naturally belong to this category, as well as their twist by the exponential of any meromorphic function.

Dec. 2018 126 pp.
9782856298879 9,850.

Societe Mathematique de France

Vol. 405: **Bony, J.-F. /Fujie Setsuo /Ramond, T. /Zerzeri,M.:**
Resonances pour des ensembles captes homoclines

We study semiclassical resonances generated by homoclinic trapped sets. First, under some general assumptions, we prove that there is no resonance in a region below the real axis. No. 517-067
Then, we obtain a quantization rule and the asymptotic expansion of the resonances when there is a finite number of homoclinic trajectories. The same kind of results is proved for homoclinic sets of maximal dimension.

Dec. 2018 314 pp.
9782856298947 14,620.

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Feynman-Kac Formulas for the Ultra-Violet Penormalized Nelson Model

We derive Feynman-Kac formulas for the ultra-violet renormalized Nelson Hamiltonian with a Kato decomposable external potential and for corresponding fiber Hamiltonians in the translation invariant case. We simultaneously treat massive and massless bosons.
Furthermore, we present a non-perturbative construction of a renormalized Nelson Hamiltonian in a non-Fock representation defined as the generator of a corresponding Feynman-Kac semi-group.
Our novel analysis of the vacuum expectation of the Feynman-Kac integrands shows that, if the external potential and the Pauli-principle are dropped, then the spectrum of the N-particle renormalized Nelson Hamiltonian is bounded from below by some negative universal constant times g^4N^3, for all values of the coupling constant g.

Oct. 2018 110 pp.
9782856298930 8,910.

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KAM tori for perturbations of the defocusing NLS equations

We prove that small, semi-linear Hamiltonian perturbations of the defocusing nonlinear Schrodinger (dNLS) equation on the circle have an abundance of invariant tori of any size and (finite) dimension which support quasi-periodic solutions.
When compared with previous results the novelty consists in considering perturbations which do not satisfy any symmetry condition (they may depend on x in an arbitrary way) and need not be analytic.

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9782856298923 10,890.

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We show that Hecke algebra of type B and a coideal subalgebra of the type A quantum group satisfy a double centralizer property, generalizing the Schur-Jimbo duality in type A. The quantum group of type A and its coideal subalgebra form a quantum symmetric pair.
A new theory of canonical bases arising from quantum symmetric pairs is initiated. It is then applied to formulate and establish for the first time a Kazhdan-Lusztig theory for the BGG category O of the ortho-symplectic Lie superalgebras osp(2m+1|mu 1mu 2n).

Oct. 2018 134 pp.
9782856298893 13,860.