

Yurinsha Book News

London Mathematical Society Monographs,

Vol. 35: Chen, Z.-Q. /

457-125

Fukushima Masatoshi :
**Symmetric Markov Processes,
Time Change, & Boundary Theory**

This book gives a comprehensive and self-contained introduction to the theory of symmetric Markov processes and symmetric quasi-regular Dirichlet forms. In a detailed and accessible manner, Zhen-Qing Chen & Masatoshi Fukushima cover the essential elements and applications of the theory of symmetric Markov processes, including recurrence/transience criteria, probabilistic potential theory, additive functional theory, and time change theory. The authors develop the theory in a general framework of symmetric quasi-regular Dirichlet forms in a unified manner with that of regular Dirichlet forms, emphasizing the role of extended Dirichlet spaces and the rich interplay between the probabilistic and analytic aspects of the theory. Chen and Fukushima then address the latest advances in the theory, presented here for the first time in any book. Topics include the characterization of time-changed Markov processes in terms of Douglas integrals and a systematic account of reflected Dirichlet spaces, and the important roles such advances play in the boundary theory of symmetric Markov processes.

Dec. 2011

512 pp.

9780691136059

9,000.

Princeton University Press

<http://www.yurinsha.com>

ホームページは毎月25日更新予定です

No. 457

July 2011

敬理科学

友 隣 社

洋書専門

*Graduate Studies in Mathematics,***Vol. 126: Tao, T.:**

457-167

An Introduction to Measure Theory

This is a graduate text introducing the fundamentals of measure theory and integration theory, which is the foundation of modern real analysis. The text focuses first on the concrete setting of Lebesgue measure and the Lebesgue integral (which in turn is motivated by the more classical concepts of Jordan measure and the Riemann integral), before moving on to abstract measure and integration theory, including the standard convergence theorems, Fubini's theorem, and the Caratheodory extension theorem. Classical differentiation theorems, such as the Lebesgue and Radamacher differentiation theorems, are also covered, as are connections with probability theory.

Oct. 2011

219 pp.

9780821869192

6,520.

*University Lecture Series,***Vol. 57: Sottile, F.:**

457-098

Real Solutions to Equations from Geometry

This book focuses on equations from toric varieties and Grassmannians. Not only is much known about these, but such equations are common in applications. There are three main themes: upper bounds on the number of real solutions, lower bounds on the number of real solutions, and geometric problems that can have all solutions be real.

The book begins with an overview, giving background on real solutions to univariate polynomials and the geometry of sparse polynomial systems.

The first half of the book concludes with fewnomial upper bounds and with lower bounds to sparse polynomial systems.

The second half of the book begins by sampling some geometric problems for which all solutions can be real, before devoting the last five chapters to the Shapiro Conjecture, in which the relevant polynomial systems have only real solutions.

Sep. 2011

199 pp.

9780821853313

5,780.

*Fields Institute Monographs,***Vol. 28: Riehm, C.:**

457-094

Introduction to Orthogonal, Symmetric and Unitary Representations of Finite Groups

The principal goal is an exposition of the known results on the equivalence theory, and related matters such as the Witt and Witt-Grothendieck groups, over the "classical" fields—algebraically closed, real closed, finite, local and global. A detailed exposition of the background material needed is given in the first chapter.

It was A. Frohlich who first gave a systematic organization of this subject, in a series of papers beginning in 1969.

His paper Orthogonal and symplectic representations of groups represents the culmination of his published work on orthogonal and symplectic representations.

The author has included most of the work from that paper, extending it to include unitary representations, and also providing new approaches, such as the use of the equivariant Brauer-Wall group in describing the principal invariants of orthogonal representations and their interplay with each other.

Aug. 2011

291 pp.

9780821842713

12,180.

A. M. S.

Memoirs of the American Mathematical Society,

No. 1000: Kobayashi Toshiyuki/ Mano Gen : 457-084
The Schrodinger Model for the Minimal Representation of
the Indefinite Orthogonal Group $O(p,q)$

The authors introduce a generalization of the Fourier transform, denoted by \mathcal{F}_C , on the isotropic cone C associated to an indefinite quadratic form of signature (n_1, n_2) on \mathbb{R}^n ($n = n_1 + n_2$; even). This transform is in some sense the unique and natural unitary operator on $L^2(C)$, as is the case with the Euclidean Fourier transform $\mathcal{F}_{\mathbb{R}^n}$ on $L^2(\mathbb{R}^n)$. Inspired by recent developments of algebraic representation theory of reductive groups, the authors shed new light on classical analysis on the one hand, and give the global formulas for the L^2 -model of the minimal representation of the simple Lie group $G = O(n_1 + 1, n_2 + 1)$ on the other hand.

Aug. 2011 132 pp.
 9780821847572 8,730.

No. 1001: Strickland, N.: 457-100
Multicurves and Equivariant Cohomology

Let A be a finite abelian group. The author sets up an algebraic framework for studying A -equivariant complex-orientable cohomology theories in terms of a suitable kind of equivariant formal group. He computes the equivariant cohomology of many spaces in these terms, including projective bundles (and associated Gysin maps), Thom spaces, and infinite Grassmannians.

Aug. 2011 117 pp.
 9780821849019 8,610.

No. 1002: Chun Leung, M.: 457-183
Supported Blow-Up and
Prescribed Scalar Curvature on S^n

The author expounds the notion of supported blow-up and applies it to study the renowned Nirenberg/Kazdan-Warner problem on S^n . When $n \geq 5$ and under some mild conditions, he shows that blow-up at a point with positive definite Hessian has to be a supported isolated blow-up, which, when combined with a uniform volume bound, is a removable singularity. A new asymmetric condition is introduced to exclude single simple blow-up. These enable the author to obtain a general existence theorem for S^n with rather natural condition.

Aug. 2011 99 pp.
 9780821853375 8,490.

No. 1003: Jorgensen, P. /Kornelson, K. /Shuman, K.: 457-143
Iterated Function Systems, Moments, and
Transformations of Infinite Matrices

Their main object of study is the infinite matrix which encodes all the moment data of a Borel measure on \mathbb{R}^d or \mathbb{C} . To encode the salient features of a given IFS into precise moment data, they establish an interdependence between IFS equilibrium measures, the encoding of the sequence of moments of these measures into operators, and a new correspondence between the IFS moments and this family of operators in Hilbert space.

Aug. 2011 105 pp.
 9780821852484 8,610.

A. M. S.

Memoirs of the American Mathematical Society,

No. 1004: Handel, M. / Mosher, L.: 457-143
Axes in Outer Space

The authors develop a notion of axis in the Culler-Vogtmann outer space \mathcal{X}_r of a finite rank free group F_r , with respect to the action of a nongeometric, fully irreducible outer automorphism ϕ . Unlike the situation of a loxodromic isometry acting on hyperbolic space, or a pseudo-Anosov mapping class acting on Teichmüller space, \mathcal{X}_r has no natural metric, and ϕ seems not to have a single natural axis. Instead these axes for ϕ , while not unique, fit into an "axis bundle" \mathcal{A}_ϕ with nice topological properties: \mathcal{A}_ϕ is a closed subset of \mathcal{X}_r proper homotopy equivalent to a line, it is invariant under ϕ , the two ends of \mathcal{A}_ϕ limit on the repeller and attractor of the source-sink action of ϕ on compactified outer space, and \mathcal{A}_ϕ depends naturally on the repeller and attractor.

Aug. 2011 104 pp.
 9780821869277 8,610.

Contemporary Mathematics,

Vol. 548: Ammari, H. / 457-205
 Garnier, J. / Kang, H. / Solna, K. (eds.):

Mathematical and Statistical Methods for Imaging
 This volume contains the proceedings of the NIMS Thematic Workshop on Mathematical and Statistical Methods for Imaging, Inha University, Korea. The goal of this volume is to give the reader a deep and unified understanding of the field of imaging & of the analytical and statistical tools used in imaging. It offers a good overview of the current status of the field and of directions for further research. Challenging problems are addressed from analytical, numerical, and statistical perspectives.

Aug. 2011 163 pp.
 9780821852897 8,490.

Vol. 549: Blazquez-Sanz, D. / 457-116
 Morales-Ruiz, J. / Rodriguez Lombardero, J. (eds.):
**Symmetries and Related Topics in
 Differential and Difference Equations**

This volume represents the 2009 Jairo Charris Seminar in Symmetries of Differential and Difference Equations, the Universidad Sergio Arboleda. The papers include topics such as Lie symmetries, equivalence transformations and differential invariants, group theoretical methods in linear equations, namely differential Galois theory and Stokes phenomenon, and the development of some geometrical methods in theoretical physics.

Sep. 2011 165 pp.
 9780821868720 8,490.

AMS Pure and Applied Undergraduate Texts,

Vol. 16: Taylor, J.: 457-173
Complex Variables

Table of Contents: *The complex numbers *Analytic functions *Power series expansions *The general Cauchy theorems *Residue theory *Conformal mappings *Analytic continuation and the Picard theorems *Infinite products *The gamma and zeta functions *Bibliography *Index

Oct. 2011 308 pp.
 9780821869017 7,380.

A. M. S.

*Progress in Mathematics,***Vol. ***: Joseph, A. /Melnikov, A. /Penkov, I. (eds.):
Highlights in Lie Algebraic Methods**

Jacobs University in Bremen, Germany in 2009, this volume consists of expository and research articles that highlight the various Lie algebraic methods used in mathematical research today.

Key topics discussed include spherical varieties, Littelmann Paths and Kac-Moody Lie algebras, finite W-algebras, modular representations and primitive ideals, representation theory of Artin algebras and quivers, Kac-Moody superalgebras, categories of Harish-Chandra modules, cohomological methods, and cluster algebras. 457-112

Dec. 2011 230 pp.
9780817682736 13,190.

**Vol. 294: Barreira, L.:
Thermodynamic Formalism and
Applications to Dimension Theory**

The monograph gives a unified exposition of the thermodynamic formalism and some of its main extensions, with emphasis on the relation to the dimension theory and the multifractal analysis of dynamical systems. In particular, the book considers three different flavors of the thermodynamic formalism, namely nonadditive, subadditive, and almost additive, and provides a detailed discussion of some of the most significant results in the area, some of them quite recent.

Oct. 2011 310 pp.
9783034802055 15,830.

*Advanced Courses in Mathematics - CRM Barcelona***Caffarelli, L. /Golse, F. /Guo, Y. /Kenig, C. /Vasseur, A.:
Nonlinear Partial Differential Equations**

The book covers several topics of current interest in the field of nonlinear partial differential equations and their applications to the physics of continuous media and particle interactions. 457-122

It treats the quasigeostrophic equation, integral diffusions, periodic Lorentz gas, Boltzmann equation, and critical dispersive nonlinear Schrodinger and wave equations.

July 2011 150 pp.
9783034801904 7,030.

*Monographs in Mathematics,***Vol. 102: Brudnyi, A. /Brudnyi, Y.: 457-119
Methods of Geometric Analysis in
Extension and Trace Problems, Vol. 1**

The account covers the development of the area from the initial classical works of the first half of the 20th century to the flourishing period of the last decade. Seemingly very specific, these problems have been from the very beginning a powerful source of ideas, concepts and methods that essentially influenced and in some cases even transformed considerable areas of analysis.

Aug. 2011 580 pp.
9783034802086 15,830.

**Vol. 103: Brudnyi, A. /Brudnyi, Y.: 457-120
Methods of Geometric Analysis in
Extension and Trace Problems, Vol. 2**

Oct. 2011 415 pp. 9783034802116 17,590.

Birkhauser

Edge, W.:

457-012

The Theory of Ruled Surfaces

A table of the different types of quartic ruled surfaces in three-dimensional space was published by Cremona in 1868.

The corresponding tables of quintic and sextic ruled surfaces (classified by means of their double curves and bitangent developables) are presented in this book, first published in 1931.

The results are obtained by two different methods which confirm the workings of one another in a very striking way.

Correspondence theory and higher space are used throughout and properties of several interesting curves and loci are investigated.

Table of Contents: Preface 1. Introductory 2. Quartic ruled surfaces
3. Quintic ruled surfaces 4. Sextic ruled surfaces 5. Developable surfaces
6. Sextic ruled surfaces (continued)

June 2011

336 pp.

9781107689671

3,220.

Cambridge Tracts in Mathematics,

Vol. 188: Chalendar, I. /Partington, J.:

457-123

**Modern Approaches to
the Invariant Subspace Problem**

One of the major unsolved problems in operator theory is the fifty-year-old invariant subspace problem, which asks whether every bounded linear operator on a Hilbert space has a nontrivial closed invariant subspace.

This book presents some of the major results in the area, including many that were derived within the past few years and cannot be found in other books.

Beginning with a preliminary chapter containing the necessary pure mathematical background, the authors present a variety of powerful techniques, including the use of the operator-valued Poisson kernel, various forms of the functional calculus, Hardy spaces, fixed point theorems, minimal vectors, universal operators and moment sequences.

Sep. 2011

280 pp.

9781107010512

8,320.

London Mathematical Society Student Texts,

Vol. 79: Girondo, E. /Gonzalez-Diez, G.:

457-135/136

Introduction to**Compact Riemann Surfaces and Dessins d'enfants**

Few books on the subject of Riemann surfaces cover the relatively modern theory of dessins d'enfants (children's drawings), which was launched by Grothendieck in the 1980s and is now an active field of research.

In this book, the authors begin with an elementary account of the theory of compact Riemann surfaces viewed as algebraic curves and as quotients of the hyperbolic plane by the action of Fuchsian groups of finite type.

They then use this knowledge to introduce the reader to the theory of dessins d'enfants and its connection with algebraic curves defined over number fields.

A large number of worked examples are provided to aid understanding, so no experience beyond the undergraduate level is required.

Readers without any previous knowledge of the field of dessins d'enfants are taken rapidly to the forefront of current research.

Nov. 2011

275 pp.

9780521519632/9780521740227

10,990./4,100. (Paper ed.)

Cambridge

Chicago Lectures in Mathematics,

May, P. /Pont, K.:

457-088

**More Concise Algebraic Topology:
Localization, Completion, and Model Categories**

J. Peter May's *A Concise Course in Algebraic Topology* addresses the standard first course material, such as fundamental groups, covering spaces, the basics of homotopy theory, and homology and cohomology.

In this sequel, May and his coauthor, Kathleen Ponto, cover topics that are essential for algebraic topologists and others interested in algebraic topology, but that are not treated in standard texts.

They focus on the localization and completion of topological spaces, model categories, and Hopf algebras.

The first half of the book sets out the basic theory of localization and completion of nilpotent spaces, using the most elementary treatment the authors know of. It makes no use of simplicial techniques or model categories, and it provides full details of other necessary preliminaries.

Jan. 2012

384 pp.

9780226511788

5,880.

CSLI Lecture Notes,

Bender, E. /Arnold, J. (eds.):

457-004/005

**Language from a Cognitive Perspective:
Grammar, Usage, and Processing**

This book is a collection of papers on language processing, usage, and grammar, written to commemorate the career of Thomas Wasow on the occasion of his sixty-fifth birthday.

Wasow has been professor of linguistics and philosophy at Stanford University since 1973, and is affiliated with the Symbolic Systems Program.

He has made significant contributions to the study of English syntax, psycholinguistics, and philosophy of linguistics.

July 2011

220 pp.

9781575866116 /9781575866109

5,880./2,580. (Paper ed.)

The University of Chicago Press*EMS Series of Lectures in Mathematics,*

Calaque, D. /Rossi, C.:

457-066

**Lectures on Duflo Isomorphisms in
Lie Algebra and Complex Geometry**

Later on, Duflo's result was refound by Kontsevich in the framework of deformation quantization, who also observed that there is a similar isomorphism between Dolbeault cohomology of holomorphic polyvector fields on a complex manifold and its Hochschild cohomology.

The present book, which arose from a series of lectures by the first author at ETH, derives these two isomorphisms from a Duflo-type result for \mathbb{Q} -manifolds.

All notions mentioned above are introduced and explained in the book, the only prerequisites being basic linear algebra and differential geometry.

In addition to standard notions such as Lie (super)algebras, complex manifolds, Hochschild and Chevalley-Eilenberg cohomologies, spectral sequences, Atiyah and Todd classes, the graphical calculus

introduced by Kontsevich in his seminal work on deformation quantization is addressed in details

May 2011

114 pp.

9783037190968

4,220.

European Mathematical Society

*Annals of Mathematics Studies,***Vol. 178: Fefferman, C./Graham, R.:**

457-188/189

The Ambient Metric

This book develops and applies a theory of the ambient metric in conformal geometry. This is a Lorentz metric in $n+2$ dimensions that encodes a conformal class of metrics in n dimensions.

The ambient metric has an alternate incarnation as the Poincaré metric, a metric in $n+1$ dimensions having the conformal manifold as its conformal infinity.

In this realization, the construction has played a central role in the AdS/CFT correspondence in physics.

The existence and uniqueness of the ambient metric at the formal power series level is treated in detail.

This includes the derivation of the ambient obstruction tensor and an explicit analysis of the special cases of conformally flat and conformally Einstein spaces.

Poincaré metrics are introduced and shown to be equivalent to the ambient formulation.

Jan. 2012 128 pp.

9780691153131/9780691153148

7,240./4,970. (Paper ed.)

457-114/115

Vol. 177: Bismut, J.-M.:**Hypoelliptic Laplacian and Orbital Integrals**

This book uses the hypoelliptic Laplacian to evaluate semisimple orbital integrals in a formalism that unifies index theory and the trace formula.

The hypoelliptic Laplacian is a family of operators that is supposed to interpolate between the ordinary Laplacian and the geodesic flow.

It is essentially the weighted sum of a harmonic oscillator along the fiber of the tangent bundle, and of the generator of the geodesic flow.

In this book, semisimple orbital integrals associated with the heat kernel of the Casimir operator are shown to be invariant under a suitable hypoelliptic deformation, which is constructed using the Dirac operator of Kostant.

Their explicit evaluation is obtained by localization on geodesics in the symmetric space, in a formula closely related to the Atiyah-Bott fixed point formulas. Orbital integrals associated with the wave kernel are also computed.

Sep. 2011

320 pp.

9780691151298/9780691151304

9,950./5,880. (Paper ed.)

*Princeton Lectures in Analysis,***Vol. 4: Stein, E.:**

457-164

Functional Analysis:**An Introduction to Further Topics in Analysis**

This is the fourth and final volume in the Princeton Lectures in Analysis, a series of textbooks that aim to present, in an integrated manner, the core areas of analysis.

Beginning with the basic facts of functional analysis, this volume looks at Banach spaces, L_p spaces, and distribution theory, and highlights their roles in harmonic analysis.

The authors then use the Baire category theorem to illustrate several points, including the existence of Besicovitch sets.

The second half of the book introduces readers to other central topics in analysis, such as probability theory and Brownian motion, which culminates in the solution of Dirichlet's problem.

Oct. 2011

432 pp.

9780691113876

7,690.

Princeton University Press

Ergebnisse der Mathematik und ihrer Grenzgebiete 3 Folge

Vol. 55: Talagrand, M.: 457-239
**Mean Field Models for Spin Glasses, Vol. II:
 Advanced Replica-Symmetry and
 Low Temperature, 2nd revised and enlarged ed.**
 Table of contents: Part I. Advanced Replica-Symmetry. - The Gardener
 Formula for the sphere. - The Gardener Formula for the Discrete Cube.
 - The Hopfield Model. - The SK Model Without External Field. - Part II.
 Low Temperature. - The Ghirlanda-Guerra Identities. - The High-
 Temperature Region of the SK Model. - The Parisi Formula. - The Parisi
 Solution. - The p-spin Interaction Model.
 Sep. 2011 630 pp.
 9783642222528 24,630.

Vol. 56: Forstneric, F.: 457-131
**Stein Manifolds and Holomorphic Mappings:
 The Homotopy Principle in Complex Analysis**
 Table of contents: Preliminaries. - Stein Manifolds.
 - Stein Neighborhoods and Holomorphic Approximation. - Automorphisms
 of Complex Euclidean Spaces. - Oka Manifolds. - Elliptic Complex Geometry
 and Oka Principle. - Applications. - Embeddings, Immersions and
 Submersions.- Topological Methods in Stein Geometry.
 Sep. 2011 487 pp.
 9783642222498 24,630.

Universitext

Ovchinnikov, S.: 457-091
Graphs and Cubes

This introductory text in graph theory focuses on partial cubes, which are graphs that are isometrically embeddable into hypercubes of an arbitrary dimension, as well as bipartite graphs, and cubical graphs. This branch of graph theory has developed rapidly during the past three decades, producing exciting results and establishing links to other branches of mathematics.

In accordance with the book's geometric approach, the reader will find many drawings illustrating concepts and proofs. Exercises, along with historical
 Sep. 2011 280 pp.
 9781461407966 7,910.

Steinberg, B.: 457-099
**Representation Theory of Finite Groups:
 An Introductory Approach**

This book presents group representation theory at a level accessible to mature undergraduate students and beginning graduate students. It can also be used as a reference for academics working in all areas of mathematics and statistics. The required background is maintained to the level of undergraduate linear algebra, group theory, and very basic ring theory. Module theory and Wedderburn theory, as well as tensor products, are deliberately omitted. Instead, an approach based on discrete Fourier Analysis is taken and deals with only finite groups.

The main topics covers in this text include character theory, the group algebra, Burnside's pq-theorem and the dimension theorem, permutation representations, and induced representations and Mackey's Theorem etc.

Aug. 2011 158 pp.
 9781461407751 7,030.

Springer

Vol. 2034: Bonfiglioli, A. / Fulci, R.: 457-181

Topics in Noncommutative Algebra:

The theorem of Campbell, Baker, Hausdorff and Dynkin

Motivated by the importance of the Campbell, Baker, Hausdorff, Dynkin Theorem in many different branches of Mathematics and Physics (Lie group-Lie algebra theory, linear PDEs, Quantum and Statistical Mechanics, Numerical Analysis, Theoretical Physics, Control Theory, sub-Riemannian Geometry), this monograph is intended to:

- 1) fully enable readers (graduates or specialists, mathematicians, physicists or applied scientists, acquainted with Algebra or not) to understand and apply the statements and numerous corollaries of the main result;
- 2) provide a wide spectrum of proofs from the modern literature, comparing different techniques and furnishing a unifying point of view and notation;
- 3) provide a thorough historical background of the results, together with unknown facts about the effective early contributions by Schur, Poincare, Pascal, Campbell, Baker, Hausdorff and Dynkin;
- 4) give an outlook on the applications, especially in Differential Geometry (Lie group theory) and Analysis (PDEs of subelliptic type); etc.

Oct. 2011

500 pp.

9783642225963

15,830.

Vol. 2033: Koltchinskii, V.: 457-223

Oracle Inequalities in Empirical Risk

Minimization and Sparse Recovery Problems:

Ecole d'Ete de Probabilites de Saint-FlourXXXVIII-2008

In recent years, there have been new developments in this area motivated by the study of new classes of methods in machine learning such as large margin classification methods.

The main probabilistic tools involved in the analysis of these problems are concentration and deviation inequalities by Talagrand along with other methods of empirical processes theory.

Sparse recovery based on l_1 -type penalization and low rank matrix recovery based on the nuclear norm penalization are other active areas of research, where the main problems can be stated in the framework of penalized empirical risk minimization, and concentration inequalities and empirical processes tools have proved to be very useful.

Aug. 2011

230 pp.

9783642221460

7,910.

Vol. 2031: Kano Mikio / Akiyama Jin : 457-048

Factors and Factorizations of Graphs

This book chronicles the development of graph factors and factorizations.

It pursues a comprehensive approach, addressing most of the important results from hundreds of findings over the last century.

One of the main themes is the observation that many theorems can be proved using only a few standard proof techniques.

This stands in marked contrast to the seemingly countless, complex proof techniques offered by the extant body of papers and books.

In addition to covering the history and development of this area, the book offers conjectures and discusses open problems.

It also includes numerous explanatory figures that enable readers to progressively and intuitively understand the most important notions and proofs in the area of factors and factorization.

July 2011

360 pp.

9783642219184

12,310.

Springer

Lecture Notes in Mathematics,

**Vol. 2030: Matsumoto Yukio /Montesinos-Amilibia, J.:
Pseudo-periodic Maps and
Degeneration of Riemann Surfaces** 457-087

The first part of the book studies pseudo-periodic maps of a closed surface of genus greater than or equal to two. This class of homeomorphisms was originally introduced by J. Nielsen in 1944 as an extension of periodic maps. In this book, the conjugacy classes of the (chiral) pseudo-periodic mapping classes are completely classified, and Nielsen's incomplete classification is corrected. The second part applies the results of the first part to the topology of degeneration of Riemann surfaces. It is shown that the set of topological types of all the singular fibers appearing in one-parameter holomorphic families of Riemann surfaces is in a bijective correspondence with the set of conjugacy classes of the pseudo-periodic maps of negative twists. The correspondence is given by the topological monodromy.

Sep. 2011

230 pp.

9783642225338

7,910.

Algebra and Applications,

**Vol. 16: Arad, Z. /Bangteng, X. /Chen, G. /
Cohen, E. /Hajihia Hussam, A. /Muzychuk, M.:
On Normalized Integral Table Algebras
(Fusion Rings) Generated by
a Faithful Non-real Element of Degree 3** 457-057

The theory of table algebras was introduced in 1991 by Z. Arad and H. Blau in order to treat, in a uniform way, products of conjugacy classes and irreducible characters of finite groups.

Today, table algebra theory is a well-established branch of modern algebra with various applications, including the representation theory of finite groups, algebraic combinatorics and fusion rules algebras.

This book presents the latest developments in this area.

Its main goal is to give a classification of the Normalized Integral Table Algebras (Fusion Rings) generated by a faithful non-real element of degree 3. This book will be of interest to research mathematicians and PhD students working in table algebras, group representation theory, algebraic combinatorics and integral fusion rule algebras.

Aug. 2011

275 pp.

9780857298492

14,070.

Developments in Mathematics,

**Vol. 23: Alladi, K. /Garvan, F. (eds.):
Partitions, Q-Series, and Modular Forms** 457-056

Most major aspects of the modern theory of q-series and how they relate to number theory, combinatorics, and special functions are represented in this volume.

Topics include the theory of partitions via computer algebra, elementary asymptotic methods; expositions on Ramanujan's mock theta-functions emphasizing the classical aspects as well as the recent exciting connections with the theory of harmonic Maass forms; and a systematic analysis of multiple basic hypergeometric functions associated with root systems of Lie algebras.

Aug. 2011

202 pp.

9781461400271

15,830.

Springer

Springer Proceedings in Mathematics,

Vol. 12: Neamtu, M. /Schumaker, L. (eds.): 457-153

**Approximation Theory XIII:
San Antonio 2010**

These proceedings were prepared in connection with the int'l conference Approximation Theory XIII, which was held, 2010 in San Antonio, Texas. Along with the many plenary speakers, the contributors to this proceedings provided inspiring talks and set a high standard of exposition in their descriptions of new directions for research.

Many relevant topics in approximation theory are included in this book, such as abstract approximation, approximation with constraints, interpolation and smoothing, wavelets and frames, shearlets, orthogonal polynomials, univariate and multivariate splines, and complex approximation.

Oct. 2011 480 pp.

9781461407713 19,350.

Vol. 10: Sastry, N. (ed.): 457-095

**Buildings, Finite Geometries and Groups:
Proceedings of a Satellite Conference,
Int'l Congress of Mathematicians (ICM) 2010**

This is a collection of articles by some of the currently very active research workers in several areas related to finite simple groups, Chevalley groups and their generalizations: theory of buildings, finite incidence geometries, modular representations, Lie theory, etc.

These articles reflect the current major trends in research in the geometric and combinatorial aspects of the study of these groups.

July 2011 324 pp.

9781461407089 19,350.

Agarwal, R. /Perera, K. /Pinelas, S.: 457-106

An Introduction to Complex Analysis

This textbook introduces the subject of complex analysis to advanced undergraduate and graduate students in a clear and concise manner.

Key features of this textbook: -Effectively organizes the subject into easily manageable sections in the form of 50 class-tested lectures - Uses detailed examples to drive the presentation -Includes numerous exercise sets that encourage pursuing extensions of the material, each with an "Answers or Hints" section -covers an array of advanced topics which allow for flexibility in developing the subject beyond the basics -Provides a concise history of complex numbers

Aug. 2011 346 pp.

9781461401940 7,910.

Varadarajan, V.: 457-102

**Reflections on Quanta,
Symmetries, and Supersymmetries**

Unitary representation theory has great intrinsic beauty which enters other parts of mathematics at a very deep level.

In quantum physics it is the preferred language for describing symmetries and supersymmetries.

Two of the greatest figures in its history are Mackey and Harish-Chandra. Their work (to use the words of Weyl) affords shade to large parts of present day mathematics and high energy physics.

It is to their memory that this volume is lovingly dedicated.

May 2011 231 pp.

9781441906663 14,070.

Springer

SpringerBriefs in Mathematics,

Anastassiou, G.: 457-110

**Approximation by
Multivariate Singular Integrals**

The basic approximation properties of the general multivariate singular integral operators is presented quantitatively, particularly special cases such as the multivariate Picard, Gauss-Weierstrass, Poisson-Cauchy and trigonometric singular integral operators are examined thoroughly. This book studies the rate of convergence of these operators to the unit operator as well as the related simultaneous approximation. The last chapter, which includes many examples, presents a related Korovkin type approximation theorem for functions of two variables.

Oct. 2011 86 pp. 8,790.
9781461405887

Anastassiou, G.: 457-109

Advances on Fractional Inequalities

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