Yurinsha Book News

Grundlehren der mathematischen Wissenschaften,

Band 354: Simon, B.: No. 520-153

Loewner's Theorem on Monotone Matrix Functions

This book provides an in depth discussion of Loewner's theorem on the characterization of matrix monotone functions.
The author refers to the book as a 'love poem,' one that highlights a unique mix of algebra and analysis and touches on numerous methods and results.
The book details many different topics from analysis, operator theory and algebra, such as divided differences, convexity, positive definiteness, integral representations of function classes, Pick interpolation, rational approximation, orthogonal polynomials, continued fractions, and more.
Most applications of Loewner's theorem involve the easy half of the theorem. A great number of interesting techniques in analysis are the bases for a proof of the hard half.
Centered on one theorem, eleven proofs are discussed, both for the study of their own approach to the proof and as a starting point for discussing a variety of tools in analysis.
Historical background and inclusion of pictures of some of the main figures who have developed the subject, adds another depth of perspective.

Sep. 2019 470 pp.
9783030224219 18,700.

Springer

http://www.yurinsha.com
ホームページは毎月1日が更新予定日です

No. 520 July - Aug. 2019

数理科学 友隣社 洋書専門

Contemporary Mathematics,

Vol. 732: **Anni, S. /Jorgenson, J. /Smajlovic, L. /Walling, L.:**
Automorphic Forms and Related Topics

This volume contains the proceedings of the Building Bridges: 3rd EU/US Summer School and Workshop on Automorphic Forms and Related Topics, which was held in Sarajevo from July 11-22, 2016.
The articles summarize material which was presented during the lectures and speed talks during the workshop. No. 520-059
These articles address various aspects of the theory of automorphic forms and its relations with the theory of *L*-functions, the theory of elliptic curves, and representation theory.
In addition to mathematical content, the workshop held a panel discussion on diversity and inclusion, which was chaired by a social scientist who has contributed to this volume as well.

July 2019 286 pp.
9781470435257 19,780.

Vol. 731: **Niemeyer, R. /Pearse, E. /Rock, J. /Samuel, T. (eds.):**
Horizons of Fractal Geometry and Complex Dimensions

This volume contains the proceedings of the 2016 Summer School on Fractal Geometry and Complex Dimensions, in celebration of Michel L. Lapidus's 60th birthday, held from June 21-29, 2016, at California Polytechnic State University, San Luis Obispo, California. No. 520-144
The theme of the contributions is fractals and dynamics and content is split into four parts, centered around the following themes: Dimension gaps and the mass transfer principle, fractal strings and complex dimensions, Laplacians on fractal domains and SDEs with fractal noise, and aperiodic order (Delone sets and tilings).

July 2019 304 pp.
9781470435813 19,780.

Vol. 730: **Facchini, A. /Gregory, L. /**
L'Innocente, S. /Tressl, M. (eds.): No. 520-075
Model Theory of Modules, Algebras and Categories

This volume contains the proceedings of the international conference Model Theory of Modules, Algebras and Categories, held from July 28-August 2, 2017, at the Ettore Majorana Foundation and Centre for Scientific Culture in Erice, Italy.
Papers contained in this volume cover recent developments in model theory, module theory and category theory, and their intersection.

June 2019 237 pp.
9781470443672 19,660.

Vol. 729: **Davis, D. /Henn, H.-W. /**
Jardine, J. /Johnson, M. (eds.): No. 520-070
Homotopy Theory:
Tools and Applications

The articles cover a variety of topics spanning the current research frontier of homotopy theory.
This includes articles concerning both computations and the formal theory of chromatic homotopy, different aspects of equivariant homotopy theory and KK-theory, as well as articles concerned with structured ring spectra, cyclotomic spectra associated to perfectoid fields, and the theory of higher homotopy operations.

June 2019 268 pp.
9781470442446 19,450.

A. M. S.

CBMS Regional Conference Series in Mathematics,

Vol. 132: **Landsberg, J.:** No. 520-084

Tensors:
Asymptotic Geometry and Developments 2016-2018

Tensors are used throughout the sciences, especially in solid state physics and quantum information theory.
This book brings a geometric perspective to the use of tensors in these areas. It begins with an introduction to the geometry of tensors and provides geometric expositions of the basics of quantum information theory, Strassen's laser method for matrix multiplication, and moment maps in algebraic geometry. It also details several exciting recent developments regarding tensors in general.

June 2019 152 pp.
9781470451363 9,140.

Graduate Studies in Mathematics,

Vol. 200: **Dyatlov, S. /Zworski, M.:** No. 520-124

Mathematical Theory of Scattering Resonances

Scattering resonances generalize bound states/eigenvalues for systems in which energy can scatter to infinity. A typical resonance has a rate of oscillation (just as a bound state does) and a rate of decay.
Although the notion is intrinsically dynamical, an elegant mathematical formulation comes from considering meromorphic continuations of Green's functions. The poles of these meromorphic continuations capture physical information by identifying the rate of oscillation with the real part of a pole and the rate of decay with its imaginary part.
An example from mathematics is given by the zeros of the Riemann zeta function: they are, essentially, the resonances of the Laplacian on the modular surface.

Sep. 2019 631 pp.
9781470443665 15,800.

Pure and Applied Undergraduate Texts,

Vol. 38: **Bridger, M.:** No. 520-112

Real Analysis:
A Constructive Approach Through Interval Arithmetic

This book presents a careful treatment of calculus and its theoretical underpinnings from the constructivist point of view.
This leads to an important and unique feature of this book:
All existence proofs are direct, so showing that the numbers or functions in question exist means exactly that they can be explicitly calculated.
For example, at the very beginning, the real numbers are shown to exist because they are constructed from the rationals using interval arithmetic.

June 2019 302 pp.
9781470451448 13,630.

Vol. 37: **Mesterton-Gibbons, M.:** No. 520-275

An Introduction to Game-Theoretic Modelling, 3rd ed.

This book introduces game theory and its applications from an applied mathematician's perspective, systematically developing tools and concepts for game-theoretic modelling in the life and social sciences.
Filled with down-to-earth examples of strategic behavior in humans and other animals, the book presents a unified account of the central ideas of both classical and evolutionary game theory.

July 2019 398 pp.
9781470450298 13,780.

A. M. S.

Progress in Mathematics,

Vol. 331: **Facchini, A.:** No. 520-074

Semilocal Categories and Modules with Semilocal Endomorphism Rings

This book collects and coherently presents the research that has been undertaken since the author's previous book Module Theory (1998).
In addition to some of the key results since 1995, it also discusses the development of much of the supporting material.
In the twenty years following the publication of the Camps-Dicks theorem, the work of Facchini, Herbera, Shamsuddin, Puninski, Prihoda and others has established the study of serial modules and modules with semilocal endomorphism rings as one of the promising directions for module-theoretic research.

Apr. 2020 ....
9783030232832 20,570.

Vol. 330: **Gorelik, M. /Hinich, V. /Melnikov, A. (eds.):**

Representations and Nilpotent Orbits of Lie Algebraic Systems: In Honour of the 75th Birthday of Tony Joseph

No. 520-076

This volume, a celebration of Anthony Joseph's fundamental influence on classical and quantized representation theory, explores a wide array of current topics in Lie theory by experts in the area.
The chapters are based on the 2017 sister conferences titled "Algebraic Modes of Representations", the first of which was held from July 16-18 at the Weizmann Institute of Science and the second from July 19-23 at the University of Haifa.
The chapters in this volume cover a range of topics, including:
*Primitive idealsInvariant theory
*Geometry of Lie group actionsQuantum affine algebras
*YangiansCategorificationVertex algebras
This volume is addressed to mathematicians who specialize in representation theory and Lie theory, and who wish to learn more about this fascinating subject.

Sep. 2019 465 pp.
9783030235307 20,570.

Vol. 329: **Broise-Alamichel, A.:** No. 520-065

Equidistribution and Counting Under Equilibrium States in Negative Curvature and Trees

This book provides a complete exposition of equidistribution and counting problems weighted by a potential function of common perpendicular geodesics in negatively curved manifolds and simplicial trees.
Avoiding any compactness assumptions, the authors extend the theory of Patterson-Sullivan, Bowen-Margulis and Oh-Shah (skinning) measures to CAT(-1) spaces with potentials.
The work presents a proof for the equidistribution of equidistant hypersurfaces to Gibbs measures, and the equidistribution of common perpendicular arcs between for instance closed geodesics.
Using tools from ergodic theory (including coding by topological Markov shifts, and an appendix by Buzzi that relates weak Gibbs measures and equilibrium states for them), the authors further prove the variational principle and rate of mixing for the geodesic flow on metric and simplicial trees-again without the need for any compactness or torsionfree assumptions.

Jan. 2020 350 pp.
9783030183141 18,700.

Birkhauser

Pathways in Mathematics

Dosly, O. /Elyseeva, J. /Hilscher, R.: No. 520-121

Symplectic Difference Systems: Oscillation and Spectral Theory

This monograph is devoted to covering the main results in the qualitative theory of symplectic difference systems, including linear Hamiltonian difference systems and Sturm-Liouville difference equations, with the emphasis on the oscillation and spectral theory.

As a pioneer monograph in this field it contains nowadays standard theory of symplectic systems, as well as the most current results in this field, which are based on the recently developed central object - the comparative index.

Aug. 2019 537 pp.

9783030193720 22,440.

Cornerstones

D'angelo, J.: No. 520-117

Hermitian Analysis: From Fourier Series to Cauchy-Riemann Geometry

This textbook provides a coherent, integrated look at various topics from undergraduate analysis. It begins with Fourier series, continues with Hilbert spaces, discusses the Fourier transform on the real line, and then turns to the heart of the book, geometric considerations.

This chapter includes complex differential forms, geometric inequalities from one and several complex variables, and includes some of the author's original results. The concept of orthogonality weaves the material into a coherent whole.

This textbook will be a useful resource for upper-undergraduate students who intend to continue with mathematics, graduate students interested in analysis, and researchers interested in some basic aspects of Cauchy-Riemann (CR) geometry.

June 2019 229 pp.

9783030165130 11,220.

Progress in Nonlinear Differential Equations & Their Applications,

Vol. 90: **Barbu, V.:** No. 520-248

Controllability and Stabilization of Parabolic Equations

This monograph presents controllability and stabilization methods in control theory that solve parabolic boundary value problems.

Starting from foundational questions on Carleman inequalities for linear parabolic equations, the author addresses the controllability of parabolic equations on a variety of domains and the spectral decomposition technique for representing them.

Dec. 2018 226 pp.

9783030095505 10,010.

Operator theory: Advances and Applications,

Vol. 275: **Alpay, D. /Vajiac, M. (eds.):** No. 520-101

Linear Systems, Signal Processing and Hypercomplex Analysis: Chapman Univ. 2017

It presents original research by experts in signal processing, linear systems, operator theory, complex and hypercomplex analysis and related topics.

Oct. 2019 ....

9783030184834 30,560.

Birkhauser

Natarajan, P.: No. 520-143

Sequence Spaces and Summability Over Valued Fields

Sequence spaces and summability over valued fields is a research book aimed at research scholars, graduate students and teachers with an interest in Summability Theory both Classical and Ultrametric. The book presents theory and methods in the chosen topic, spread over 8 chapters that seem to be important at research level in a still developing topic.

July 2019 216 pp.
9780367236625 21,700.

Mezo, I.: No. 520-304

Combinatorics and Number Theory of Counting Sequences

Combinatorialists are seldom aware of number theoretical tools, and number theorists rarely aware of the possible combinatorial applications. This book is accessible for both of the groups.
The first part introduces several important counting sequences and studies their properties in detail. The tools to study these sequences are developed, so very basic preliminary knowledge is necessary. The second part of the book shows how these sequences can be generalized to study new combinatorial problems, and we offer an up to date overview of the present literature. The third part describes the necessary tools to study the number theoretical properties of the counting sequences introduced.

July 2019 496 pp.
9781138564855 20,790.

Bagchi, B.: No. 520-105

Partial Differerntial Equations for Mathematical Physics

This book is intended for graduate students, researchers of theoretical physics and applied mathematics, and professionals who want to take a course in partial differential equations.
This book offers the essentials of the subject with the prerequisite being only an elementary knowledge of introductory calculus, ordinary differential equations, and certain aspects of classical mechanics.
We have stressed more the methodologies of partial differential equations and how they can be implemented as tools for extracting their solutions rather than dwelling on the foundational aspects.

July 2019 224 pp.
9780367227029 19,930.

Chapman & Hall/CRC Texts in Statistical Science

Reich, B. /Ghosh, S.: No. 520-229

Bayesian Statistical Methods

Bayesian Statistical Methods provides data scientists with the foundational and computational tools needed to carry out a Bayesian analysis.
This book focuses on Bayesian methods applied routinely in practice including multiple linear regression, mixed effects models and generalized linear models (GLM).
The authors include many examples with complete R code and comparisons with analogous frequentist procedures.

Apr. 2019 275 pp.
9780815378648 13,020.

Chapman & Hall

Peyriere, J.: No. 520-147

An Introduction to Singular Intergrals

In just over 100 pages, this book provides basic, essential knowledge of some of the tools of real analysis: the Hardy Littlewood maximal operator, the alderon Zygmund theory, the Littlewood Paley theory, interpolation of spaces and operators, and the basics of H1 and BMO spaces.
This concise text offers brief proofs and exercises of various difficulties designed to challenge and engage students. An Introduction to Singular Integrals is meant to give first-year graduate students in Fourier analysis and partial differential equations an introduction to harmonic analysis.
While some background material is included in the appendices, readers should have a basic knowledge of functional analysis, some acquaintance with measure and integration theory, and familiarity with the Fourier transform in Euclidean spaces.

Jan. 2019 115 pp.
9781611975413 9,970.

S. I. A. M.

Cours Specialises - Collection SMF,

Vol. 26: **Kowalski, E.:** No. 520-083

An Introduction to Expander Graphs

Expander graphs are families of finite graphs that are simultaneously relatively sparse and highly connected.
Since their discovery in the lates 1960s, they have appeared in many seemingly unrelated areas of mathematics, from theoretical computer science to arithmetic and algebraic geometry, from representation theory to number theory. The goal of this book is to present the theory of expander graphs and to explore some of these rich connections.
Besides a careful exposition of the basic parts of the theory, including the Cheeger constant, random walks and spectral gap characterizations of expander graphs, it contains many different constructions of various families of expander graphs.

Apr. 2019 276 pp.
9782856298985 11,590.

Asterisque,

Vol. 408: **Maulik, D. /Okunkov, A.:** No. 520-087

Quantum Groups and Quantum Cohomology

In this paper, we study the classical and quantum equivariant cohomology of Nakajima quiver varieties for a general quiver Q.
Using a geometric R-matrix formalism, we construct a Hopf algebra Y_Q, the Yangian of Q, acting on the cohomology of these varieties, and show several results about their basic structure theory. We prove a formula for quantum multiplication by divisors in terms of this Yangian action.
The quantum connection can be identified with the trigonometric Casimir connection for Y_Q; equivalently, the divisor operators correspond to certain elements of Baxter subalgebras of Y_Q.
A key role is played by geometric shift operators which can be identified with the quantum KZ difference connection. In the second part, we give an extended example of the general theory for moduli spaces of sheaves on C^2, framed at infinity. Here, the Yangian action is analyzed explicitly in terms of a free field realization; the corresponding R-matrix is closely related to the reflection operator in Liouville field theory.

May 2019 212 pp.
9782856299005 10,470.

Societe Mathematique de France

Springer Monographs in Mathematics

Elliott, J.: No. 520-071

Rings, Modules, and Closure Operations

This book presents a systematic exposition of the various applications of closure operations in commutative and noncommutative algebra.
In addition to further advancing multiplicative ideal theory, the book opens doors to the various uses of closure operations in the study of rings and modules, with emphasis on commutative rings and ideals.
Several examples, counterexamples, and exercises further enrich the discussion and lend additional flexibility to the way in which the book is used, i.e., monograph or textbook for advanced topics courses.

Nov. 2019 436 pp.
9783030244002 18,700.

Springer INdAM Series,

Vol. 33: **Dipierro, S. (ed.):** No. 520-120

Contemporary Research in Elliptic PDEs and Related Topics

This volume collects contributions from the speakers at an INdAM Intensive period held at the University of Bari in 2017.
The contributions cover several aspects of partial differential equations whose development in recent years has experienced major breakthroughs in terms of both theory and applications.
The topics covered include nonlocal equations, elliptic equations and systems, fully nonlinear equations, nonlinear parabolic equations, overdetermined boundary value problems, maximum principles, geometric analysis, control theory, mean field games, and bio-mathematics.
The authors are trailblazers in these topics and present their work in a way that is exhaustive and clearly accessible to PhD students and early career researcher.

July 2019 340 pp.
9783030189204 20,570.

Atlantis Studies in Mathematics,

Vol. 7: **Charalambous, M.:**

Dimension Theory: A Selection of Theorems and Counterexamples

This book covers the fundamental results of the dimension theory of metrizable spaces, especially in the separable case. No. 520-173
Its distinctive feature is the emphasis on the negative results for more general spaces, presenting a readable account of numerous counterexamples to well-known conjectures that have not been discussed in existing books.
Moreover, it includes three new general methods for constructing spaces: Mrowka's psi-spaces, van Douwen's technique of assigning limit points to carefully selected sequences, and Fedorchuk's method of resolutions.
Accessible to readers familiar with the standard facts of general topology, the book is written in a reader-friendly style suitable for self-study.
It contains enough material for one or more graduate courses in dimension theory and/or general topology.
More than half of the contents do not appear in existing books, making it also a good reference for libraries and researchers.

Sep. 2019 256 pp.
9783030222314 15,890.

Springer

Universitext

Craven, D.: No. 520-069

Representation Theory of Finite Groups: A Guidebook

This book provides an accessible introduction to the state of the art of representation theory of finite groups.
Starting from a basic level that is summarized at the start, the book proceeds to cover topics of current research interest, including open problems and conjectures.
The central themes of the book are block theory and module theory of group representations, which are comprehensively surveyed with a full bibliography.

Sep. 2019 210 pp.
9783030217914 9,350.

Dajczer, M. /Tojeiro, R: No. 520-177

Submanifold Theory: Beyond An Introduction

This book provides a comprehensive introduction to Submanifold theory, focusing on general properties of isometric and conformal immersions of Riemannian manifolds into space forms.
One main theme is the isometric and conformal deformation problem for submanifolds of arbitrary dimension and codimension.
Several relevant classes of submanifolds are also discussed, including constant curvature submanifolds, submanifolds of nonpositive extrinsic curvature, conformally flat submanifolds and real Kaehler submanifolds.
This is the first textbook to treat a substantial proportion of the material presented here.
The first chapters are suitable for an introductory course on Submanifold theory for students with a basic background on Riemannian geometry.
The remaining chapters could be used in a more advanced course by students aiming at initiating research on the subject, and are also intended to serve as a reference for specialists in the field.

Aug. 2019 569 pp.
9781493996421 13,090.

Todorcevic, V.: No. 520-155

Harmonic Quasiconformal Mappings and Hyperbolic Type Metrics

The book presents a research area in geometric function theory concerned with harmonic quasiconformal mappings and hyperbolic type metrics defined on planar and multidimensional domains.
The classes of quasiconformal and quasiregular mappings are well established areas of study in this field as these classes are natural and fruitful generalizations of the class of analytic functions in the planar case.
The book contains many concrete examples, as well as detailed proofs and explanations of motivations behind given results, gradually bringing the reader to the forefront of current research in the area.
This monograph was written for a wide readership from graduate students of mathematical analysis to researchers working in this or related areas of mathematics who want to learn the tools or work on open problems listed in various parts of the book.

Sep. 2019 170 pp.
9783030225902 14,960.

Springer

Probability Theory and Stochastic Modelling,

Vol. 94: **Budhiraja, A. /Dupuis, P.:** No. 520-207

Analysis and Approximation of Rare Events: Representations and Weak Convergence Methods

This book presents broadly applicable methods for the large deviation and moderate deviation analysis of discrete and continuous time stochastic systems.
A feature of the book is the systematic use of variational representations for quantities of interest such as normalized logarithms of probabilities and expected values.
By characterizing a large deviation principle in terms of Laplace asymptotics, one converts the proof of large deviation limits into the convergence of variational representations.

July 2019 552 pp.
9781493995776 20,570.

Undergraduate Texts in Mathematics

Petersen, K.: No. 520-092

Inquiry-Based Enumerative Combinatorics: One, Two, Skip A Few. . . Ninety-Nine, One Hundred

This textbook offers the opportunity to create a uniquely engaging combinatorics classroom by embracing Inquiry-Based Learning (IBL) techniques.
Readers are provided with a carefully chosen progression of theorems to prove and problems to actively solve.
Students will feel a sense of accomplishment as their collective inquiry traces a path from the basics to important generating function techniques.

July 2019 232 pp.
9783030183073 8,410.

CRM Series in Mathematical Physics

Kuru, S. /Negro, J. /Nieto, L. (eds.): No. 520-329

Integrability, Supersymmetry and Coherent States: A Volume in Honour of Veronique Hussin

The conference gathered 60 participants from many countries working in different fields of Theoretical Physics, and was dedicated to
Prof. Veronique Hussin an internationally recognized expert in many branches of Mathematical Physics who has been making remarkable contributions to this field since the 1980s.

Aug. 2019 340 pp.
9783030200862 20,570.

Springer Undergraduate Mathematics

Ruderman, M.: No. 520-284

Fluid Dynamics and Linear Elasticity: A First Course in Continuum Mechanics

?This book provides a concise introduction to continuum mechanics, with a particular emphasis on fluid dynamics, suitable for upper undergraduate students in applied mathematics and related subjects.
Starting with a preliminary chapter on tensors, the main topic of the book begins in earnest with the chapters on continuum kinematics and dynamics.
Following chapters cover linear elasticity and both incompressible and compressible fluids.
Special topics of note include nonlinear acoustics and the theory of motion of viscous thermal conducting compressible fluids.

Aug. 2019 280 pp.
9783030192969 6,540.

Springer

Cheng, S.-Y. Ji, L. /Xu, H. /Yang, X. (eds.): No. 520-016

Impressions of Shing-Tung Yau and His Mathematical World

Shing-Tung Yau is a name familiar to most mathematicians and } theoretical physicists, through his fundamental work in geometric analysis and the theory of Calabi-Yau manifolds.
Professor Yau is also known to the educated public, particularly in China, by his many expository works, his publications in the news media, and his tireless work over the years in promotion of mathematics and mathematical education.

May 2019 506 pp.
9781571463814 4,980.

Lin, Z. /Su, Z.: No. 520-218

Probability Theory: An Elementary Course

Probability theory is a discipline that studies the quantitative regularity of random phenomena.
The fact that random phenomena arise, especially in the era of big data and artificial intelligence, determines the importance of this discipline.
This volume introduces various concepts that quantitatively describe random phenomena, including probability, random variables, distribution functions, density functions, mathematical expectations, variance, moments, and characteristic functions.
It finishes off by presenting probability limit theory, including various convergences.

Feb. 2020 350 pp.
9789811200199 16,270.

Mancini, S.: No. 520-274

A Quantum Leap in Information Theory

This is an introductory textbook at graduate or advanced undergraduate level. Students with diverse backgrounds, in mathematics, physics and computer science, can use it to become acquainted with the quantum theory of information. Its scope is deliberately chosen to be not too broad, while being self-consistent and usable for a semester-long course for beginners.
The subject is presented using a balanced mix of intuitive arguments and rigorous formalism. The emphasis is not on the physical information but rather in the formal and mathematical features of quantum information theory.

Sep. 2019 210 pp.
9789811201547 14,610.

Schwarz, A.: No. 520-341

Mathematical Foundations of Quantum Field Theory

The book is very different from other books devoted to quantum field theory, both in the style of exposition and in the choice of topics.
Written for both mathematicians and physicists, the author explains the theoretical formulation with a mixture of rigorous proofs and heuristic arguments; references are given for those who are looking for more details.
The author is also careful to avoid ambiguous definitions and statements that can be found in some physics textbooks.
In terms of topics, almost all other books are devoted to relativistic quantum field theory, conversely this book is concentrated on the material that does not depend on the assumptions of Lorentz-invariance and/or locality.

Sep. 2019 250 pp.
9789813278639 21,250.

World Scientific Pub.

Problem Solving in Mathematics and Beyond

Geretschlager, R. (ed.): No. 520-021/022

Engaging Young Students in Mathematics Through Competitions, Vol. 1

The two volumes of Engaging Young Students in Mathematics through Competitions present a wide scope of aspects relating to mathematics competitions and their meaning in the world of mathematical research, teaching and entertainment.

Volume I contains a wide variety of fascinating mathematical problems of the type often presented at mathematics competitions as well as papers by an international group of authors involved in problem development, in which we can get a sense of how such problems are created in various specialized areas of competition mathematics as well as recreational mathematics.

It will be of special interest to anyone interested in solving original mathematics problems themselves for enjoyment to improve their skills.

Nov. 2019 200 pp.
9789811205828/9789811207235 11,290./6,310. (Paper ed.)

World Scientific Series on Nonlinear Science Series, A:

Gentile, F. /Chen, G. /Luis Moiola, J.: No. 520-261

Frequecny-Domain Approach to Hopf Bifurcation Analysis: Continuous Time-Delayed Systems

This book is devoted to the study of an effective frequency-domain approach, based on systems control theory, to compute and analyze several types of standard bifurcation conditions for general continuous-time nonlinear dynamical systems.

A very rich pictorial gallery of local bifurcation diagrams for such nonlinear systems under simultaneous variations of several system parameters is presented.

Some higher-order harmonic balance approximation formulas are derived for analyzing the oscillatory dynamics in small neighborhoods of certain types of Hopf and degenerate Hopf bifurcations.

The frequency-domain approach is then extended to the large class of delay-differential equations, where the time delays can be either discrete or distributed.

For the case of discrete delays, two alternatives are presented, depending on the structure of the underlying dynamical system, where the more general setting is then extended to the case of distributed time-delayed systems.

Nov. 2019 350 pp.
9789811205460 19,580.

Series on Multivariate Analysis

Sengupta, D. /Jammalamadaka, S.: No. 520-151

Linear Models and Regression with R: An Integrated Approach

Starting with the basic linear model where the design and covariance matrices are of full rank, this book demonstrates how the same statistical ideas can be used to explore the more general linear model with rank-deficient design and/or covariance matrices.

The unified treatment presented here provides a clearer understanding of the general linear model from a statistical perspective, thus avoiding the complex matrix-algebraic arguments that are often used in the rank-deficient case. Elegant geometric arguments are used as needed.

Nov. 2019 706 pp.
9789811200403 32,860.

World Scientific Pub.

de Gruyter Studies in Mathematics,

*Vol. **:* Valdinoci, E. /Dipierro, S. /Carbotti, A.: No. 520-157

Local Density of Solutions to Fractional Equations

This book presents in a detailed and self-contained way
a new and important density result in the analysis of fractional
partial differential equations, while also covering several fundamental facts
about space- and time-fractional equations.

Oct. 2019 142 pp.
9783110660692 14,890.

Le Bris, C. /Lions, P.-L.: No. 520-138

Parabolic Equations with Irregular Data and Related Issues

This book studies the existence and uniqueness of solutions to parabolic-type
equations with irregular coefficients and/or initial conditions.
It elaborates on the DiPerna-Lions theory of renormalized solutions to
linear transport equations and related equations, and also examines
the connection between the results on the partial differential equation and
the well-posedness of the underlying stochastic/ordinary differential equation.

June 2019 143 pp.
9783110633139 16,610.

Carstensen-Opitz, C.: No. 520-066

Abstract Algebra: Applications to Galois Theory, Algebraic Geometry, Representation Theory and Cryptography, 2nd ed.

A new approach to conveying abstract algebra, the area that studies algebraic
structures, such as groups, rings, fields, modules, vector spaces, and algebras,
that is essential to various scientific disciplines such as particle physics and
cryptology. It provides a well written account of the theoretical foundations and
it also includes a chapter on cryptography.
End of chapter problems help readers with accessing the subjects.

Sep. 2019 430 pp.
9783110603934 9,540.

Georgiev, S. /Zennir, K.: No. 520-128

Functional Analysis with Applications

This book on functional analysis covers all the basics of the subject (normed,
Banach and Hilbert spaces, Lebesgue integration and spaces,
linear operators and functionals, compact and self-adjoint operators,
small parameters, fixed point theory) with a strong focus on examples,
exercises and practical problems, thus making it ideal as course material
but also as a reference for self-study.

Sep. 2019 400 pp.
9783110657692 13,170.

Bengtsson, A.: No. 520-316

Higher Spin Gauge Theory: Concceptual Rethinking and Abstract Approaches

This monograph takes stock of the situation in higher spin gauge theories
for the first time. Besides a thorough recapitulation of the field's history,
it reviews the progress that has been made and offers a pedagogical
introduction to the subject.
Abstract approaches to the theory are offered to facilitate a conceptual rethinking
of the main problems and to help see patterns hidden by heavy formalism.

Aug. 2019 300 pp.
9783110450538 22,910.

de Gruyter

Cao, H.-D. /Li, J. /Schoen, R. (eds.): No. 520-006

Selected Works of Shing-Tung Yau 1971-1991

5-Volume Set

One of the most eminent of contemporary mathematicians, Shing-Tung Yau has received numerous honors, including the 1982 Fields Medal, considered the highest honor in mathematics, for his work in differential geometry. He is known also for his work in algebraic and Kahler geometry, general relativity, and string theory. His influence in the development and establishment of these areas of research has been great.

These five volumes reproduce a comprehensive selection of his published mathematical papers of the years 1971 to 1991--- a period of groundbreaking accomplishments in numerous disciplines including geometric analysis, Kahler geometry, and general relativity.

The editors have organized the contents of this collection by subject area-metric geometry and minimal submanifolds; metric geometry and harmonic functions; eigenvalues and general relativity; and Kahler geometry.

May 2019 2078 pp.
9781571463685 15,770.

International Press

Annals of Mathematics Studies

Vol. ***: **Thurston, D. (ed.):** No. 520-043

What's Next?:

The Mathematical Legacy of William P. Thurston

William Thurston (1946-2012) was one of the greatmathematicians of the twentieth century.

He was avisionary whose extraordinary ideas revolutionized abroad range of mathematical fields, from foliations,contact structures, and Teichmuller theory to automorphismsof surfaces, hyperbolic geometry, geometrizationof 3-manifolds, geometric group theory, andrational maps.

In addition, he discovered connectionsbetween disciplines that led to astonishing breakthroughsin mathematical understanding as well as the creation of entirely new fields.

His far-reachingquestions and conjectures led to enormous progress by other researchers.

Feb. 2020 472 pp.
9780691167763/9780691167770 22,440./10,200. (Paper ed.)

Vol. 204: **Tu, L.:** No. 520-097

Introductory Lectures on Equivarirnt Cohomology

This book gives a clear introductory account of equivariant cohomology, a central topic in algebraic topology.

Equivariant cohomology is concerned with the algebraic topology of spaces with a group action, or in other words, with symmetries of spaces.

First defined in the 1950s, it has been introduced into K-theory and algebraic geometry, but it is in algebraic topology that the concepts are the most transparent and the proofs are the simplest.

One of the most useful applications of equivariant cohomology is the equivariant localization theorem of Atiyah-Bott and Berline-Vergne, which converts the integral of an equivariant differential form into a finite sum over the fixed point set of the group action, providing a powerful tool for computing integrals over a manifold.

Dec. 2019 200 pp.
9780691191744/9780691191751 22,440./10,200. (Paper ed.)

Princeton University

Annals of Mathematics Studies

Vol. 203: **Harder, G. /Raghuram, A.:** No. 519-078

Eisenstein Cohomology for GLn and the Special Values of Rankin-Selberg L-Functions

The authors study the cohomology of locally symmetric spaces for GL(N) wherethe cohomology groups are with coefficients in a local system attached to a finite-dimensional algebraic representation of GL(N).
The image of the globa cohomology in the cohomology of the Borel-Serre boundary is called Eisenstein cohomology, since at a transcendental level the cohomology classes may bedescribed in terms of Eisenstein series and induced representations.
However, because the groups are sheaf-theoretically defined, one can control their rationaity and even integrality properties.

Dec. 2019 236 pp.
9780691197883/9780691197890 22,440./10,200. (Paper ed.)

Vol. 202: **Wustholz, G. /Fuchs, C. (eds.):** No. 519-196

Arithmetic and Geometry: Ten Years in Alpbach

Arithmetic and Geometry presents highlights of recent work in arithmetic algebraic geometry by some of the world's leading mathematicians.
Together, these 2016 lectures which were delivered in celebration of the tenth anniversary of the annual summer workshops in Alpbach, Austria provide an introduction to high-level research on three topics: Shimura varieties, hyperelliptic continued fractions and generalized Jacobians, and Faltings height and L-functions.
The book consists of notes, written by young researchers, on three sets of lectures or minicourses given at Alpbach.
The first course, taught by Peter Scholze, contains his recent results dealing with the local Langlands conjecture.
The fundamental question is whether for a given datum there exists a so-called local Shimura variety.
In some cases, they exist in the category of rigid analytic spaces; in others, one has to use Scholze's perfectoid spaces.

Oct. 2019 186 pp.
9780691193786/9780691193779 22,440./10,200. (Paper ed.)

Crannell, A. /Frantz, M. /Futamura Fumiko : No. 519-175

Perspective and Projective Geometry

Through a unique approach combining art andmathematics, Perspective and Projective Geometryintroduces students to the ways that projectivegeometry applies to perspective art.
Geometry, likemathematics as a whole, offers a useful and meaningfullens for understanding the visual world.
Exploring pencil-and-paper drawings, photographs, Renaissance paintings, and GeoGebra constructions, this textbook equips students with the geometric tools for projectinga three-dimensional scene onto two dimensions.
Organized as a series of exercise modules, this book teaches students through hands-on inquiry and participation.
Each lesson begins with a visual puzzle that can be investigated through geometry, followed by exercises that reinforce new concepts and hone stdents's analytical abilities.
An electronic instructor's manual available to teachers contains sample syllabi and advice, including suggestions for pacing and grading rubrics for art projects.

Oct. 2019 240 pp.
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Princeton University