



Books Catalogue 2026





EMS Press is the publishing house of the European Mathematical Society, the not-for-profit organisation dedicated to the promotion and development of mathematics in Europe. Our editorial mission is to publish high-quality research for both the European and global mathematics community. We focus on technology-driven solutions for academic publishing, and are committed to delivering fair and sustainable open access.

Since 2003 EMS Press has published over 250 books in mathematics in both print and digital formats, with approximately 10 new titles published per year. Our books programme is mainly organised by series, including monographs, graduate texts, collected volumes, lecture notes as well as textbooks.

All book titles are available for individual and institutional purchase (with 20% discount for EMS members) and as an eBooks package – contact orders@ems.press for any purchase enquiries.

For book manuscript submissions, please contact our editorial director, Apostolos Damialis – damialis@ems.press.



Institutional Package Options

EMS eBooks Package 2026 | € 10,375 (€900 renewal)

Purchase a full institution-wide, multi-user access licence for the entire EMS Press eBooks portfolio of more than 250 titles plus forthcoming 2026 titles with more than 40% discount on the total list price, at just €10,375 for first time subscribers. For those renewing the price is €900.

This includes DRM-free access to over 100,000 pages of high quality research, all fully downloadable as PDF files. We offer a number of library-friendly features including easily available metadata (XML, MARC and ONIX), perpetual access and no annual maintenance fees. All of our content is archived in CLOCKSS, and subscriptions are valid on a campus-wide basis with no restrictions on simultaneous downloads.

Print copies are available to eBook Package subscribers at discounted rates too; €10,375 for all books published 2004 to 2025, or just €500 for titles published in 2025 or 2026, delivered at the point of publication, with approximately 10 new titles per year.

To purchase our eBooks package, renew your existing subscription, or enquire about adding print volumes please email EMS Press directly at subscriptions@ems.press, or enquire via your usual subscription agent.

EMS MONOGRAPHS IN MATHEMATICS

The *EMS Monographs in Mathematics* is a book series aimed at mathematicians and scientists. It publishes research monographs from all fields of mathematics. The individual volumes are intended to give a comprehensive and self-contained account of their particular subject. They present mathematical results that are new or have not been accessible previously in the literature.

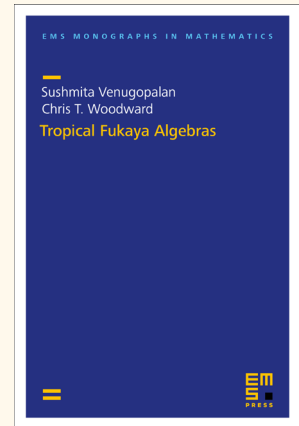
Edited by Hugo Duminil-Copin (Université de Genève and Institut des Hautes Études Scientifiques), Gavril Farkas (Humboldt-Universität zu Berlin), Isabelle Gallagher (École normale supérieure de Paris and Université de Paris), and Paul Seidel (Massachusetts Institute of Technology)

Tropical Fukaya Algebras

Sushmita Venugopalan (Institute of Mathematical Sciences, Chennai, India), Chris T. Woodward (Rutgers, The State University of New Jersey, New Brunswick, USA)

ISBN 978-3-98547-093-8 | eISBN 978-3-98547-593-3
2025 | 378 pp. | hardcover | 79 € | 89 \$

This book develops a tropical version of the Fukaya algebra of a Lagrangian submanifold. In particular, the book contains a study of the behavior of pseudoholomorphic disks with Lagrangian boundary conditions under multi-directional neck-stretching, corresponding to a multiple cut operation on a symplectic manifold. The limit objects under the neck-stretching, called broken disks, consist of pseudoholomorphic maps, as well as certain tropical graphs. The results are applied to give various computations of disk potentials, such as those of Lagrangians in cubic surfaces and flag varieties. It will interest readers working at the interface of symplectic geometry, mirror symmetry, and tropical geometry.

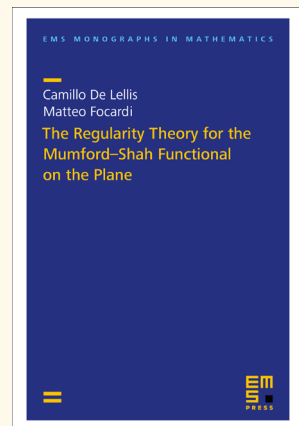


The Regularity Theory for the Mumford–Shah Functional on the Plane

Camillo De Lellis (Institute for Advanced Study, Princeton, USA), Matteo Focardi (Università degli Studi di Firenze, Italy)

ISBN 978-3-98547-089-1 | eISBN 978-3-98547-589-6
2025 | 266 pp. | hardcover | 69 € | 75 \$

This monograph provides a detailed, up-to-date account of the *Mumford–Shah functional*, a key tool in image segmentation, focusing on the planar case. Beginning with existence results for minimizers, it delves into the structure and smoothness of discontinuity sets using ε -regularity techniques. The authors revisit foundational literature and introduce arguments to clarify and advance current understanding of the minimization problem. Several consequences of the ε -regularity theory are also investigated, in particular leading to different characterizations of the Mumford–Shah conjecture.

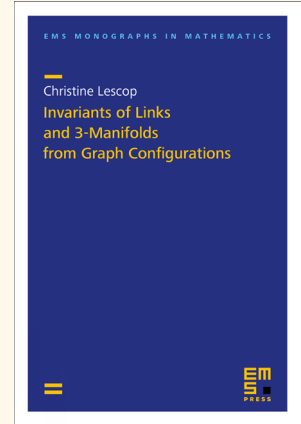


Invariants of Links and 3-Manifolds from Graph Configurations

Christine Lescop (CNRS and Université Grenoble Alpes, France)

ISBN 978-3-98547-082-2 | eISBN 978-3-98547-582-7
2024 | 587 pp. | hardcover | 99 € | 109 \$

This self-contained book explains how to count graph configurations to obtain topological invariants for 3-manifolds and links in these 3-manifolds, and it investigates the properties of the obtained invariants. The simplest of these invariants is the linking number of two disjoint knots in the ambient space described in the beginning of the book as the degree of a Gauss map. The book is written for graduate students and more advanced researchers interested in low-dimensional topology and knot theory.



EMS TEXTBOOKS IN MATHEMATICS

The *EMS Textbooks in Mathematics* is a book series aimed at students or professional mathematicians seeking an introduction into a particular field. The individual volumes are intended to provide not only relevant techniques, results and their applications, but afford insight into the motivations and ideas behind the theory. Suitably designed exercises help to master the subject and prepare the reader for the study of more advanced and specialized literature.

Differential-Algebraic Equations

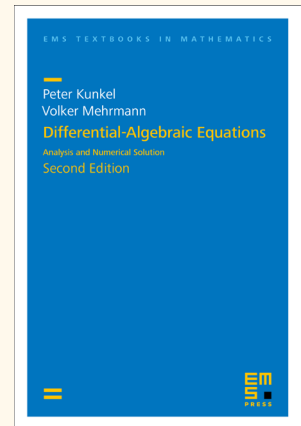
Analysis and Numerical Solution

Second Edition

Volker Mehrmann (Technische Universität Berlin, Germany), Peter Kunkel (Universität Leipzig, Germany)

ISBN 978-3-98547-016-7 | eISBN 978-3-98547-516-2
2024 | 538 pp. | hardcover | 79 € | 89 \$

Differential-algebraic equations are a widely accepted tool for the modeling and simulation of constrained dynamical systems in numerous applications, such as mechanical multibody systems, electrical circuit simulation, chemical engineering, control theory, fluid dynamics and many other areas. In the second edition of this textbook a systematic and detailed analysis of initial and boundary value problems for differential-algebraic equations is provided, addressing also their numerical solution. The large variety of the topics covered make this textbook an invaluable resource for both young and experienced researchers in applied mathematics.

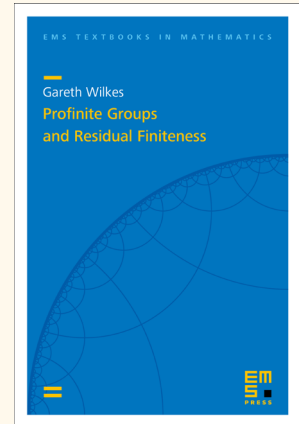


Profinite Groups and Residual Finiteness

Gareth Wilkes (University of Cambridge, UK)

ISBN 978-3-98547-078-5 | eISBN 978-3-98547-578-0
2024 | 434 pp. | hardcover | 59 € | 65 \$

This book describes the theory of profinite groups, from the basics to topics pertinent to current research. It is the first textbook on profinite groups to focus on their use in studying residually finite groups via their profinite completions. It begins with a firm theoretical underpinning from category theory and introduces profinite groups as worthy objects of study. A standalone first course in group cohomology follows, before modifying this theory for use with profinite groups. Later chapters collect together for the first time key results on the relation between a group's cohomology and its profinite completion, and introduce the concept of a profinite group's action on a profinite tree.



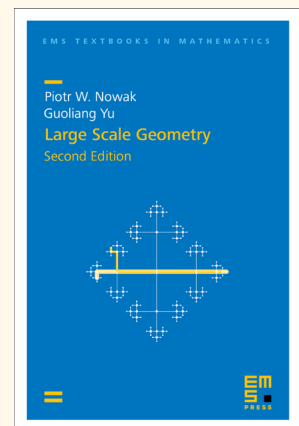
Large Scale Geometry

Second Edition

Piotr W. Nowak (Polish Academy of Sciences, Warsaw, Poland), Guoliang Yu (Texas A&M University, College Station, USA)

ISBN 978-3-98547-018-1 | eISBN 978-3-98547-518-6
2023 | 213 pp. | hardcover | 49 € | 55 \$

This book provides a friendly approach to the basic theory of large scale geometry and offers a glimpse of its applications to topology, geometry, and higher index theory. The authors have made a conscientious effort to make the book accessible to advanced undergraduate students, graduate students, and non-experts. The present second edition has been updated to cover recent developments involving constructions of groups and metric spaces with exotic properties as well as results charting new directions in index theory, and it also includes minor improvements in the presentation and an updated bibliography.



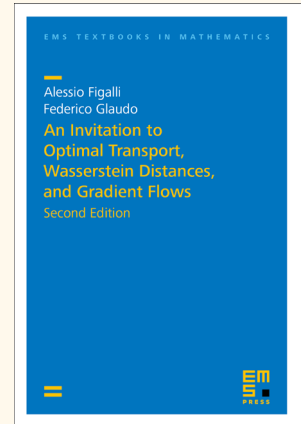
An Invitation to Optimal Transport, Wasserstein Distances, and Gradient Flows

Second Edition

Alessio Figalli (ETH Zürich, Switzerland), Federico Glaudo (Institute for Advanced Study, Princeton, USA)

ISBN 978-3-98547-050-1 | eISBN 978-3-98547-550-6
2023 | 152 pp. | hardcover | 39 € | 45 \$

Coauthored by one of the leading experts in optimal transport, this book provides a self-contained introduction to this important topic presenting its essentials: Kantorovich duality, existence and uniqueness of optimal transport maps, Wasserstein distances, the JKO scheme, Otto's calculus, and Wasserstein gradient flows. The book is suitable for a course at the graduate level, and also includes an appendix with a series of exercises along with their solutions. The present second edition contains a number of additions, such as a new section on the Brunn–Minkowski inequality, new exercises, and various corrections throughout the text.



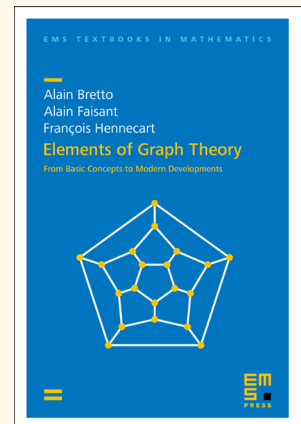
Elements of Graph Theory

From Basic Concepts to Modern Developments

Alain Faisant (Université de Lyon – Université Jean Monnet Saint-Étienne, France), François Hennecart (Université de Lyon – Université Jean Monnet Saint-Étienne, France), Alain Bretto (Université de Caen Normandie, France)

ISBN 978-3-98547-017-4 | eISBN 978-3-98547-517-9
2022 | 502 pp. | hardcover | 59 € | 65 \$

This book is an introduction to graph theory, presenting most of its elementary and classical notions through an original and rigorous approach, including detailed proofs of most of the results. It covers all aspects of graph theory from an algebraic, topological and analytic point of view, while also developing the theory's algorithmic parts. The variety of topics covered aims to lead the reader in understanding graphs in their greatest diversity in order to perceive their power as a mathematical tool.



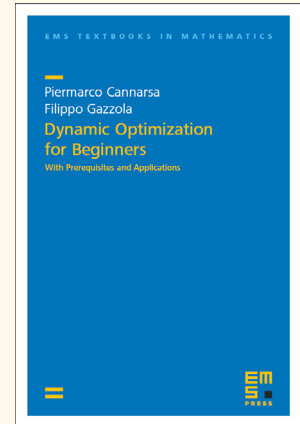
Dynamic Optimization for Beginners

With Prerequisites and Applications

Piermarco Cannarsa (Università di Roma "Tor Vergata", Italy), Filippo Gazzola (Politecnico di Milano, Italy)

ISBN 978-3-98547-012-9 | eISBN 978-3-98547-512-4
2021 | 360 pp. | hardcover | 49 € | 53 \$

The main purpose of this book is to give interested readers a friendly introduction to optimization problems for dynamical systems, providing them with the essential notions needed to handle most of the concrete situations they will be faced with. The main topics covered are calculus of variations, optimal control theory, and dynamic programming, along with many examples and exercises. Its intended readership includes both mathematics students and students or researchers in other disciplines such as economics and data science.



EMS TRACTS IN MATHEMATICS

This series includes advanced texts and monographs covering all fields in pure and applied mathematics. The Tracts will give a reliable introduction and reference to special fields of current research. The books in the series will in most cases be authored monographs, although edited volumes may be published if appropriate. They are addressed to graduate students seeking access to research topics as well as to the experts in the field working at the frontier of research.

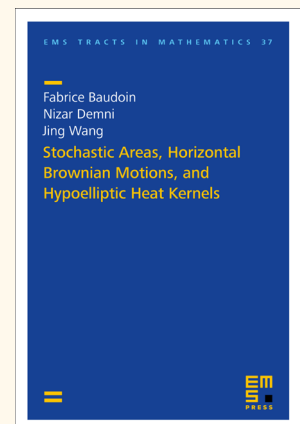
Edited by Yann Bugeaud (Université de Strasbourg), Camillo De Lellis (Institute for Advanced Study), Michael Farber (Queen Mary University), Michael Röckner (Universität Bielefeld and Purdue University), and Alexander Varchenko (University of North Carolina at Chapel Hill)

Stochastic Areas, Horizontal Brownian Motions, and Hypoelliptic Heat Kernels

Fabrice Baudoin (Aarhus University, Denmark), Nizar Demni (New York University Abu Dhabi, United Arab Emirates), Jing Wang (Purdue University West Lafayette, USA)

ISBN 978-3-98547-079-2 | eISBN 978-3-98547-579-7
2024 | 352 pp. | hardcover | 69 € | 75 \$

This book is a self-contained introduction to the theory of Brownian motions and heat kernels on matrix Lie groups and manifolds, with an emphasis on the study of area type functionals. It offers graduate students a systematic account of the subject and serves as a convenient resource and reference for more experienced mathematicians. The book emphasizes methods rather than results and takes the reader to the frontiers of current research, starting with carefully motivated examples and constructions. These aspects are supported by the inclusion of several bibliographic notes at the end of each chapter and appendices at the end of the book.



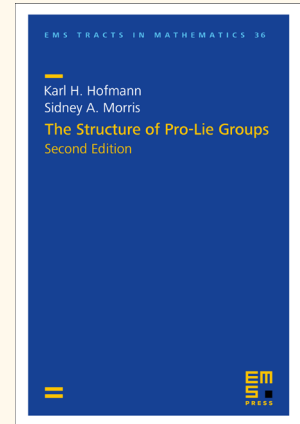
The Structure of Pro-Lie Groups

Second Edition

Karl H. Hofmann (Technische Universität Darmstadt, Germany; Tulane University, New Orleans, USA), Sidney A. Morris (La Trobe University, Bundoora; Federation University Australia, Ballarat, Australia)

ISBN 978-3-98547-048-8 | eISBN 978-3-98547-548-3
2023 | 840 pp. | hardcover | 119 € | 129 \$

This book exposes a Lie theory of almost connected pro-Lie groups (and hence of almost connected locally compact groups) and illuminates the variety of ways in which their structure theory reduces to that of compact groups on the one hand and of finite dimensional Lie groups on the other. It is therefore a continuation of the authors' monograph on the structure of compact groups and is an invaluable tool for researchers and graduate students working in topological groups, Lie theory, harmonic analysis and representation theory.



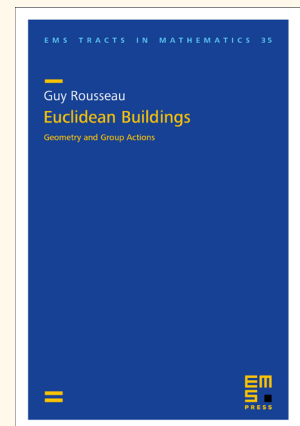
Euclidean Buildings

Geometry and Group Actions

Guy Rousseau (Université de Lorraine, IECL, Vandœuvre-lès-Nancy, France)

ISBN 978-3-98547-039-6 | eISBN 978-3-98547-539-1
2023 | 607 pp. | hardcover | 99 € | 109 \$

The theory of buildings lies at the interplay between geometry and group theory, and is one of the main tools for studying the structure of many groups. The present book develops the general abstract theory of Euclidean buildings (that is, buildings with Euclidean affine spaces as apartments). It is largely self-contained and emphasizes the metric aspects of these objects, as CAT(0) spaces very similar to Riemannian symmetric spaces of non-compact type. The book studies their compactifications, their links with groups, many classical examples, and some applications (for example, to Hecke algebras).



EMS SERIES OF LECTURES IN MATHEMATICS

The *EMS Series of Lectures in Mathematics* is a book series aimed at students, professional mathematicians and scientists. It publishes polished notes arising from seminars or lecture series in all fields of pure and applied mathematics, including the reissue of classic texts of continuing interest. The individual volumes are intended to give a rapid and accessible introduction into their particular subject, guiding the audience to topics of current research and the more advanced and specialized literature.

Edited by Ari Laptev (Imperial College London)

Lecture Notes on Diophantine Analysis

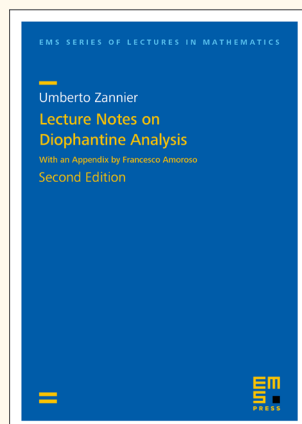
With an Appendix by Francesco Amoroso

Second Edition

Umberto Zannier (Scuola Normale Superiore, Pisa, Italy)

ISBN 978-3-98547-077-8 | eISBN 978-3-98547-577-3
2024 | 411 pp. | softcover | 49 € | 55 \$

The present book is a new, substantially enlarged, version of a previously published set of lecture notes on diophantine analysis. The content mixes a number of rather classical results on diophantine equations and diophantine approximation, with the basic theory of heights and a few more recent results and applications of it. The exposition has been generally kept at an elementary and essentially self-contained level, focusing on some main ideas rather than finer technical results which can be obtained by similar methods. The book is addressed also to readers outside the relevant fields as well as to more expert readers.

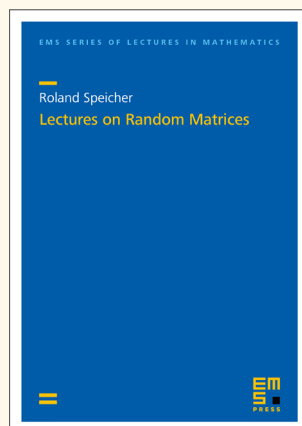


Lectures on Random Matrices

Roland Speicher (Saarland University, Saarbrücken, Germany)

ISBN 978-3-98547-075-4 | eISBN 978-3-98547-575-9
2024 | 131 pp. | softcover | 39 € | 42 \$

This is an introduction to random matrix theory, giving an impression of some of the most important aspects of this modern subject. In particular, it covers the basic combinatorial and analytic theory around Wigner's semicircle law, featuring also concentration phenomena, and the Tracy–Widom distribution of the largest eigenvalue. The circular law and a discussion of Voiculescu's multivariate extension of the semicircle law, as an appetiser for free probability theory, also make an appearance.



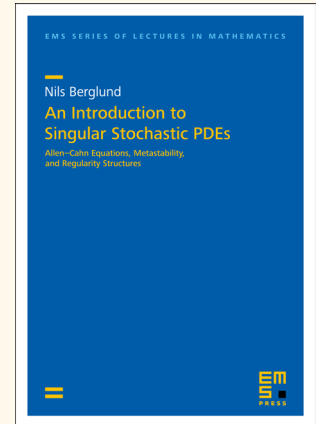
An Introduction to Singular Stochastic PDEs

Allen–Cahn Equations, Metastability, and Regularity Structures

Nils Berglund (Institut Denis Poisson, Université d'Orléans, Université de Tours and CNRS)

ISBN 978-3-98547-014-3 | eISBN 978-3-98547-514-8
2022 | 230 pp. | softcover | 39 € | 42 \$

This book gives a largely self-contained exposition of the subject of regular and singular SPDEs in the particular case of the Allen–Cahn equation. Properties of the equation are discussed successively in one, two and three spatial dimensions, allowing to introduce new difficulties of the theory in an incremental way. In addition to existence and uniqueness of solutions, aspects of long-time dynamics such as invariant measures and metastability are discussed. For the three-dimensional case, the theory of regularity structures developed by Martin Hairer and co-authors is presented.



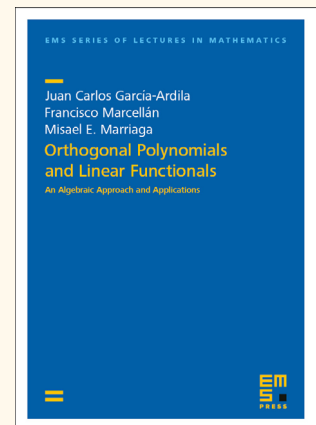
Orthogonal Polynomials and Linear Functionals

An Algebraic Approach and Applications

Juan Carlos García-Ardila (Universidad Politécnica de Madrid, Spain), Francisco Marcellán (Universidad Carlos III de Madrid, Spain), Misaël E. Marriaga (Universidad Rey Juan Carlos, Madrid, Spain)

ISBN 978-3-98547-008-2 | eISBN 978-3-98547-508-7
2021 | 128 pp. | softcover | 39 € | 42 \$

This book presents an introduction to orthogonal polynomials, with an algebraic flavor, based on linear functionals defining the orthogonality and the Jacobi matrices associated with them. The book's structure reflects the fact that its content is based on a set of lectures delivered by one of the authors at the first Orthonet Summer School in Seville, Spain in 2016. The presentation of the material is self-contained and will be valuable to students and researchers interested in a novel approach to the study of orthogonal polynomials, focusing on their analytic properties.

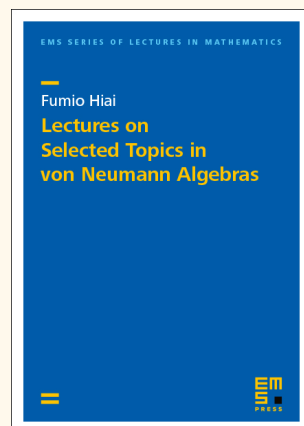


Lectures on Selected Topics in von Neumann Algebras

Fumio Hiai (Tohoku University, Japan)

ISBN 978-3-98547-004-4 | eISBN 978-3-98547-504-9
2021 | 250 pp. | softcover | 39 € | 42 \$

The theory of von Neumann algebras, originating with the work of F. J. Murray and J. von Neumann in the late 1930s, has grown into a rich discipline with connections to different branches of mathematics and physics. These lecture notes aim to present a fast-track study of some important topics in classical parts of von Neumann algebra theory that were developed in the 1970s. The self-contained presentation of the material makes this book useful not only to graduate students and researchers interested in von Neumann algebras, but also to undergraduates with a basic knowledge of functional analysis and measure theory.



HERITAGE OF EUROPEAN MATHEMATICS

This series features the selected or collected works of distinguished mathematicians. Biographies of and correspondence between outstanding mathematicians, as well as other texts of historico-mathematical interest are also included.

Advisory Board: Ciro Ciliberto (Università degli Studi di Roma "Tor Vergata"), Władysław Narkiewicz (Uniwersytet Wrocławski), Samuel J. Patterson (Universität Göttingen), and Rossana Tazzioli (Université de Lille).

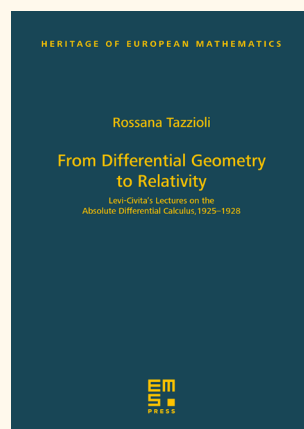
From Differential Geometry to Relativity

Levi-Civita's Lectures on the Absolute Differential Calculus, 1925–1928

Rossana Tazzioli (Université de Lille, Villeneuve d'Ascq, France)

ISBN 978-3-98547-092-1 | eISBN 978-3-98547-592-6
2025 | 527 pp. | hardcover | 99 € | 109 \$

This volume explores the scientific legacy of Tullio Levi-Civita, using his lectures on tensor calculus to illuminate key developments in differential geometry, relativity, and Italian mathematical pedagogy from 1870 to 1930. It traces how Levi-Civita's teaching and research intertwined, emphasizing his role in shaping tensor calculus and its applications in Einstein's theories. Drawing on extensive archival material – including unpublished correspondence and collaborations with figures like Enrico Fermi – the book offers new insights into his influence on students, international scholars, and the early Italian theoretical physics community. It will appeal to historians of mathematics, mathematicians, physicists, and readers interested in the foundations of modern geometry.

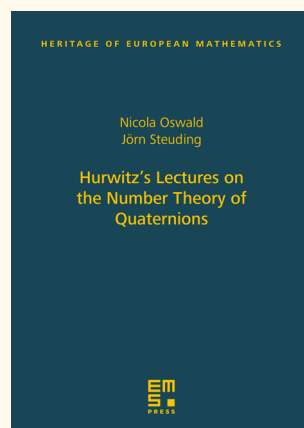


Hurwitz's Lectures on the Number Theory of Quaternions

Nicola Oswald (Bergische Universität Wuppertal, Germany), Jörn Steuding (Julius-Maximilians Universität Würzburg, Germany)

ISBN 978-3-98547-011-2 | eISBN 978-3-98547-511-7
2023 | 311 pp. | hardcover | 79 € | 85 \$

This book contains an English translation of Adolf Hurwitz's 1919 textbook on the number theory of quaternions as well as his famous 1-2-3-4 theorem on composition algebras. In addition, the reader can find commentaries that shed historical light on the development of this number theory of quaternions, for example, the classical preparatory works (of Fermat, Euler, Lagrange and Gauss to name but a few), the different notions of quaternion integers in the works of Lipschitz and Hurwitz, analogies to the theory of algebraic numbers, and the further development (including Dickson's work in particular).



EMS SERIES OF CONGRESS REPORTS

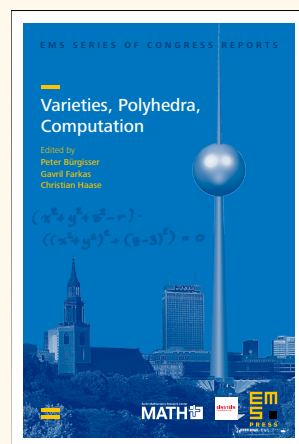
The *EMS Series of Congress Reports* publishes volumes originating from conferences or seminars focusing on any field of pure or applied mathematics. The individual volumes include an introduction into their subject and review of the contributions in this context. Articles are required to undergo a refereeing process and are accepted only if they contain a survey or significant results not published elsewhere in the literature.

Varieties, Polyhedra, Computation

Editors: Peter Bürgisser (Technische Universität Berlin, Germany), Gavril Farkas (Humboldt-Universität zu Berlin, Germany), Christian Haase (Freie Universität Berlin, Germany)

ISBN 978-3-98547-096-9 | eISBN 978-3-98547-596-4
2025 | pp. | hardcover | 99 € | 109 \$

This volume collects contributions from the thematic Einstein semester on algebraic geometry that took place in the winter semester 2019/2020 in Berlin, Germany and was devoted to interactions of algebraic geometry with other fields as well as applications with a potential impact from/on algebraic geometric methods. Following the semester's topics, the present volume includes a selection of important survey and research articles by leading researchers in the field, which will be of interest to both young and experienced mathematicians working in algebraic geometry and its applications.



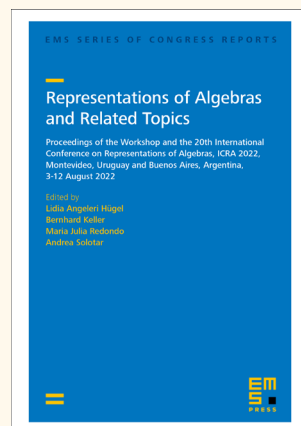
Representations of Algebras and Related Topics

Proceedings of the Workshop and the 20th International Conference on Representations of Algebras, ICRA2022 Montevideo (Uruguay) and Buenos Aires (Argentina), 3-12 August 2022

Editors: Lidia Angeleri Hügel (Università degli Studi di Verona, Italy), Bernhard Keller (Université Paris Cité, France), Maria Julia Redondo (Universidad Nacional del Sur (UNS)-CONICET, Bahía Blanca, Argentina), Andrea Solotar (Universidad de Buenos Aires, Argentina)

ISBN 978-3-98547-083-9 | eISBN 978-3-98547-583-4
2025 | 505 pp. | hardcover | 89 € | 99 \$

This volume gathers fourteen survey articles by leading experts, based on talks from the 2022 International Conference on Representations of Algebras held in Montevideo and Buenos Aires. It highlights current developments in the representation theory of algebras and explores connections with broader areas of mathematics. Written in an expository style, the contributions are accessible to graduate students while offering fresh insights for active researchers. The volume serves both as a reference and as an introduction to ongoing advances in the field.



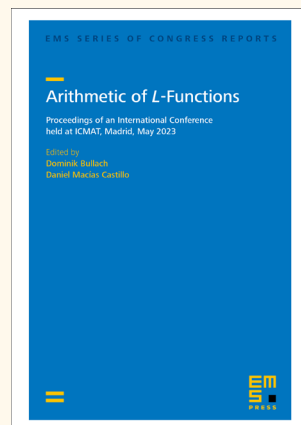
Arithmetic of L -Functions

Proceedings of an International Conference held at ICMAT, Madrid, May 2023

Editors: Dominik Bullach (University College London, UK), Daniel Macías Castillo (Institute of Mathematical Sciences, Madrid, Spain)

ISBN 978-3-98547-084-6 | eISBN 978-3-98547-584-1
2025 | 366 pp. | hardcover | 89 € | 95 \$

This volume presents a curated collection of research and survey articles from a 2023 conference at ICMAT (Madrid), centered on exploring the connections between special values of L -functions and algebraic invariants of Galois representations. Covering themes such as Iwasawa theory, Euler systems, p -adic L -functions, reciprocity laws, and étale cohomology, the contributions reflect current advances in algebraic number theory and arithmetic geometry. Later chapters introduce work on special L -values in positive characteristic, highlighting emerging directions in global function field arithmetic. The volume offers to researchers and advanced students both technical results and comprehensive overviews of active research topics.



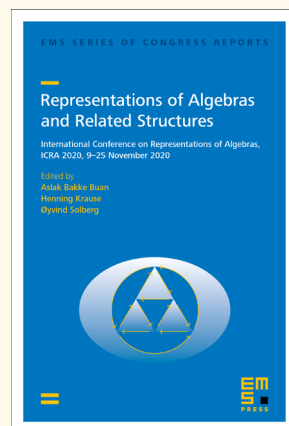
Representations of Algebras and Related Structures

International Conference on Representations of Algebras, ICRA 2020,
9–25 November 2020

Editors: Aslak Bakke Buan (Norwegian University of Science and Technology, Trondheim, Norway), Henning Krause (Universität Bielefeld, Germany), Øyvind Solberg (Norwegian University of Science and Technology, Trondheim, Norway)

ISBN 978-3-98547-054-9 | eISBN 978-3-98547-554-4
2023 | 428 pp. | hardcover | 89 € | 95 \$

This volume presents a collection of articles devoted to representations of algebras and related topics. Distinguished experts in this field presented their work at the International Conference on Representations of Algebras in 2020. The book reflects recent trends in the representation theory of algebras and its interactions with other central branches of mathematics, including combinatorics, commutative algebra, algebraic geometry, topology, data analysis, Lie algebras, quantum groups, homological algebra, and theoretical physics. There are thirteen independent articles, written by leading experts in the field.



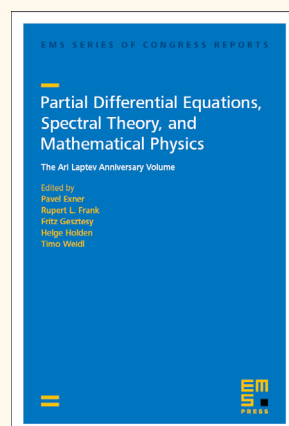
Partial Differential Equations, Spectral Theory, and Mathematical Physics

The Ari Laptev Anniversary Volume

Editors: Pavel Exner (Czech Technical University, Prague and Czech Academy of Sciences, Řež, Czech Republic), Rupert L. Frank (California Institute of Technology, Pasadena, USA and Ludwig-Maximilians-Universität München, Germany), Fritz Gesztesy (Baylor University, Waco, USA), Helge Holden (Norwegian University of Science and Technology, Trondheim, Norway), Timo Weidl (Universität Stuttgart, Germany)

ISBN 978-3-98547-007-5 | eISBN 978-3-98547-507-0
2021 | 494 pp. | hardcover | 89 € | 96 \$

This volume is dedicated to Ari Laptev on the occasion of his 70th birthday. It collects original contributions by his numerous colleagues sharing with him research interests in analysis and spectral theory. Topics covered include, among others, functional and entropy inequalities, eigenvalue bounds and asymptotics, heat kernel estimates, Schrödinger operators, Feshbach–Schur maps, scattering theory, stability of matter, homogenization, Bose–Einstein condensation, Bogoliubov theory, Brezis–Nirenberg problems, electron density estimates etc.

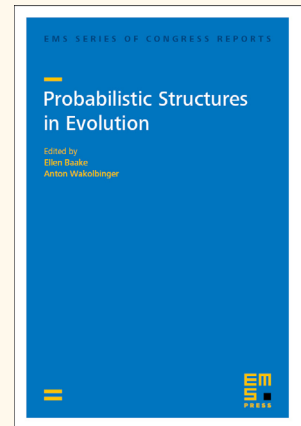


Probabilistic Structures in Evolution

Editors: Ellen Baake (Universität Bielefeld, Germany), Anton Wakolbinger (Goethe-Universität, Frankfurt a.M., Germany)

ISBN 978-3-98547-005-1 | eISBN 978-3-98547-505-6
2021 | 502 pp. | hardcover | 89 € | 96 \$

Evolution is a complex phenomenon driven by various processes with intrinsically random elements which give rise to a wealth of phenomena that cannot be explained by deterministic models. The present volume collects twenty-one survey articles about probabilistic aspects of biological evolution, centred around the stochastic processes in population genetics and population dynamics. The contributions in this volume will be valuable to researchers interested in stochastic processes and their biological applications, or in mathematical population biology.



EMS SERIES IN INDUSTRIAL AND APPLIED MATHEMATICS

The *EMS Series in Industrial and Applied Mathematics* publishes high quality advanced texts and monographs in all areas of industrial and applied mathematics. Books include those of a general nature as well as those dealing with the mathematics of specific applications areas and real-world situations. While it is intended to disseminate scholarship of the highest standard, authors are encouraged to make their work as accessible as possible.

Edited by Alfredo Bermúdez de Castro (Universidade de Santiago de Compostela), Lorenz T. Biegler (Carnegie Mellon University), Annalisa Buffa (École Polytechnique Fédérale de Lausanne), Matthias Heinkenschloss (Rice University), Alexander Martin (Universität Erlangen-Nürnberg), Volker Mehrmann (Technische Universität Berlin), Stephen B. G. O'Brien (University of Limerick)

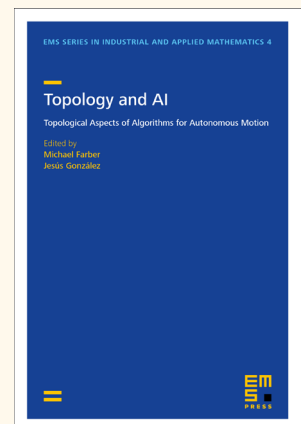
Topology and AI

Topological Aspects of Algorithms for Autonomous Motion

Editors: Michael Farber (Queen Mary University of London, UK), Jesús González (Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico City, Mexico)

ISBN 978-3-98547-076-1 | eISBN 978-3-98547-576-6
2024 | 400 pp. | hardcover | 89 € | 99 \$

The task of programming a machine to move autonomously and to make autonomous decisions is one of the major challenges of AI. The algorithms generating autonomous robot motions and autonomous decisions are sections of certain fibre bundles and their complexity and structure can be understood using tools of algebraic topology. The collection of survey articles gives an overview of the current achievements in the field of topological robotics concerned with motion algorithms, and in particular how their complexity depends on the topology of the configuration space of the system and the external conditions.

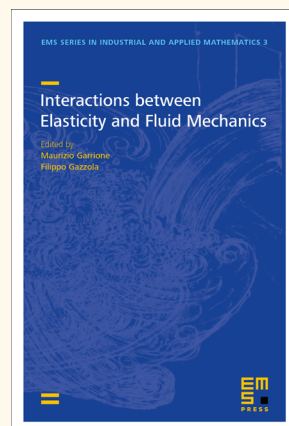


Interactions between Elasticity and Fluid Mechanics

Editors: Maurizio Garrione (Politecnico di Milano, Italy), Filippo Gazzola (Politecnico di Milano, Italy)

ISBN 978-3-98547-027-3 | eISBN 978-3-98547-527-8
2022 | 248 pp. | hardcover | 69 € | 75 \$

This book collects several contributions and points of view on phenomena where fluid mechanics, elasticity, and their interactions are at play. It is addressed both to junior researchers entering the field as well as to experienced professionals aiming to expand their scientific knowledge to closely related disciplines. The book also aims to bring closer the mathematical and engineering communities working on fluid-structure interactions in order to create a common language and to encourage future collaborations.



ESI LECTURES IN MATHEMATICS AND PHYSICS

The *Erwin Schrödinger International Institute for Mathematics and Physics* (ESI) is a meeting place for leading experts in mathematical physics and mathematics, nurturing the development and exchange of ideas in the international community, particularly stimulating intellectual exchange between scientists from Eastern Europe and the rest of the world.

The purpose of the series *ESI Lectures in Mathematics and Physics* is to make selected texts arising from its research programme better known to a wider community and easily available to a worldwide audience. It publishes lecture notes of courses given by internationally renowned experts on highly active research topics. In order to make the series attractive to graduate students as well as researchers, special emphasis is given to concise and lively presentations with a level and focus appropriate to a student's background and at prices commensurate with a student's means.

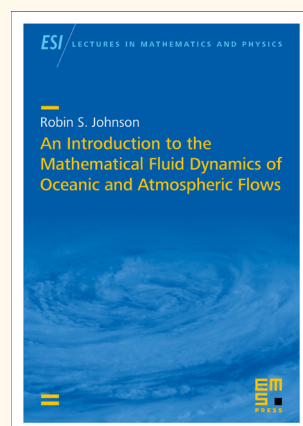
Edited by Christoph Dellago and Ilaria Perugia (Universität Wien)

An Introduction to the Mathematical Fluid Dynamics of Oceanic and Atmospheric Flows

Robin S. Johnson (Newcastle University, United Kingdom)

ISBN 978-3-98547-029-7 | eISBN 978-3-98547-529-2
2023 | 176 pp. | softcover | 49 € | 55 \$

The study of the movement of the atmosphere and the oceans is intriguing, challenging and important, particularly in the context of current concerns about the climate. This text presents a single, over-arching modelling approach which uses the thin-shell approximation – and nothing more – applied to the general equations of fluid dynamics. It is suitable for researchers, and students, in the oceanic and atmospheric sciences, and for mathematicians with an interest in the application of fluid dynamics to more complicated flow scenarios.



This series is devoted to the publication of research monographs, conferences or workshops originating from the Institut de Recherche Mathématique Avancée (Strasbourg, France). The goal is to promote recent advances in mathematics and theoretical physics and make them accessible to a wide circle of professional and aspiring mathematicians and physicists.

Edited by: Olivier Guichard (Institut de Recherche Mathématique Avancée)

Essays in Geometry

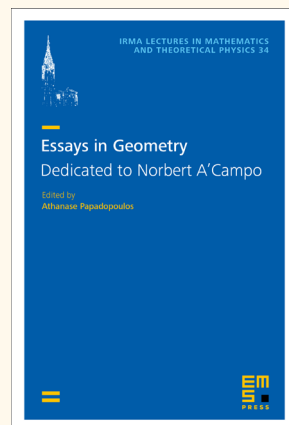
Dedicated to Norbert A'Campo

Editor: Athanase Papadopoulos (University of Strasbourg, France)

ISBN 978-3-98547-024-2 | eISBN 978-3-98547-524-7

2023 | 1028 pp. | hardcover | 129 € | 139 \$

This volume consists in a collection of essays dedicated to Norbert A'Campo on the occasion of his 80th birthday. The subject is geometry in the broadest sense. The topics include hyperbolic and super hyperbolic geometry, 3-manifolds, metric geometry, mapping class groups, linear groups, Riemann surfaces, Teichmüller spaces, high-dimensional complex geometry, differential topology, symplectic geometry, singularity theory, number theory, algebraic geometry, dynamics, mathematical physics and philosophy of mathematics. The book gives a fairly comprehensive overview of the wealth of current research in geometry.



Topology and Geometry

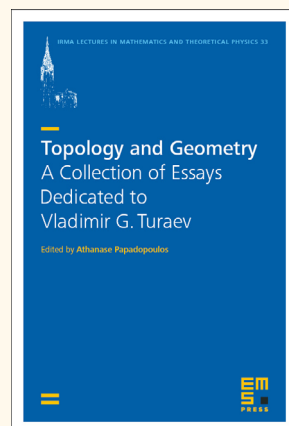
A Collection of Essays Dedicated to Vladimir G. Turaev

Editor: Athanase Papadopoulos (Université de Strasbourg and CNRS, France)

ISBN 978-3-98547-001-3 | eISBN 978-3-98547-501-8

2021 | 698 pp. | hardcover | 99 € | 106 \$

Vladimir Turaev's numerous contributions are revisited and celebrated in this collected volume. The included essays cover the large spectrum of topics in which Turaev has been interested, including knot and link invariants, quantum representations, TQFTs, state sum constructions, geometric structures on knot complements, Kleinian groups, geometric group theory and its relationship with 3-manifolds, mapping class groups, operads, mathematical physics, Grothendieck's program, the philosophy of mathematics, and several other topics.



MÜNSTER LECTURES IN MATHEMATICS

The *Münster Lectures in Mathematics* report on recent developments in mathematics. Material considered for publication includes monographs and lecture notes or seminars on a new field or a new angle at a classical field.

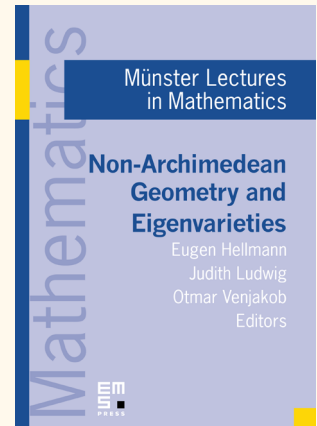
Edited by Christopher Deninger and Linus Kramer (Universität Münster)

Non-Archimedean Geometry and Eigenvarieties

Editors: Eugen Hellmann (University of Münster, Germany), Judith Ludwig (Heidelberg University, Germany), Otmar Venjakob (Heidelberg University, Germany)

ISBN 978-3-98547-081-5 | eISBN 978-3-98547-581-0
2024 | 317 pp. | softcover | 69 € | 75 \$

This book offers an introduction to the theory of adic spaces, with applications to the geometry of automorphic forms. It is comprised of expanded lecture notes for six mini-courses delivered by the contributing authors at the Spring School on “Non-Archimedean Geometry and Eigenvarieties”, held in March 2023 at Heidelberg University. Designed for researchers and students with a background in algebraic geometry, this book serves as an accessible entry point into the theory.

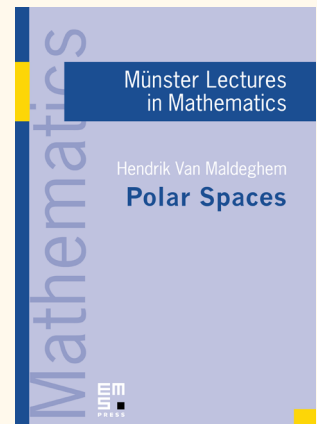


Polar Spaces

Hendrik Van Maldeghem (Ghent University, Belgium)

ISBN 978-3-98547-080-8 | eISBN 978-3-98547-580-3
2024 | 182 pp. | softcover | 49 € | 55 \$

Polar spaces are the natural geometries for the classical groups. Due to the stunning simplicity of an axiom system found by Buekenhout and Shult, they play a central role in incidence geometry and also appear as combinatorial objects in many disciplines such as discrete mathematics, graph theory, finite geometry and coding theory. They can also be viewed as a class of spherical Tits buildings, and generally bridge the areas of group theory, algebra, combinatorics and incidence geometry. The present book is based on lecture notes from a master's course in Ghent, Belgium, taught annually between 2010 and 2024.



ZÜRICH LECTURES IN ADVANCED MATHEMATICS

Mathematics in Zürich has a long and distinguished tradition, in which the writing of lecture notes volumes and research monographs play a prominent part. The *Zürich Lectures in Advanced Mathematics* series aims to make some of these publications better known to a wider audience.

Edited by Habib Ammari (ETH Zürich), Alexander Gorodnik (Universität Zürich, managing editor), Urs Lang (ETH Zürich, managing editor), Michael Struwe (ETH Zürich)

Statistical Mechanics of Mean-Field Disordered Systems

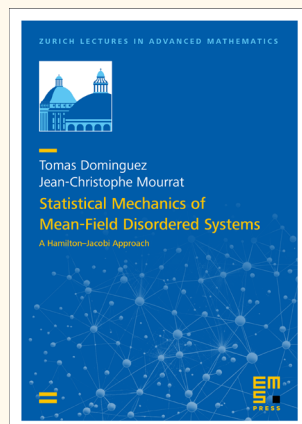
A Hamilton–Jacobi Approach

Tomas Dominguez (University of Toronto, Canada), Jean-Christophe Mourrat (École Normale Supérieure de Lyon, France)

ISBN 978-3-98547-074-7 | eISBN 978-3-98547-574-2

2024 | 367 pp. | softcover | 59 € | 65 \$

The goal of this book is to present new mathematical techniques for studying the behavior of mean-field systems with disordered interactions. The authors mostly focus on certain problems of statistical inference in high dimension, and on spin glasses. The presented techniques aim to determine the free energy of these systems, in the limit of large system size, by showing that they asymptotically satisfy a Hamilton–Jacobi equation.



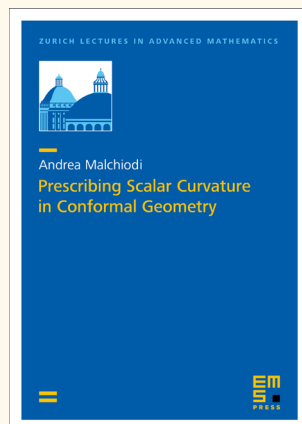
Prescribing Scalar Curvature in Conformal Geometry

Andrea Malchiodi (Scuola Normale Superiore di Pisa, Italy)

ISBN 978-3-98547-052-5 | eISBN 978-3-98547-552-0

2023 | 161 pp. | softcover | 39 € | 45 \$

This book treats the classical problem, posed by Kazdan and Warner, of prescribing a given function on a closed manifold as the scalar curvature of a metric within a conformal class. Since both critical equations and obstructions to the existence of solutions appear, the problem is particularly challenging. Treating different aspects of the subject and containing several references to up-to-date research directions and perspectives, the book will be useful to graduate students and researchers interested in geometric analysis and partial differential equations.

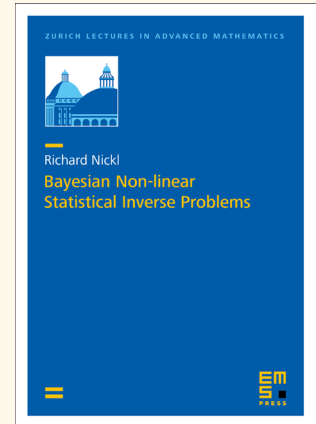


Bayesian Non-linear Statistical Inverse Problems

Richard Nickl (University of Cambridge, UK)

ISBN 978-3-98547-053-2 | eISBN 978-3-98547-553-7
2023 | 171 pp. | softcover | 39 € | 45 \$

This book develops a general theory of Bayesian inference for non-linear forward maps and rigorously considers two PDE model examples arising with Darcy's problem and a Schrödinger equation. Starting with the statistical consistency of Gaussian process methods, it then treats local fluctuations and approximations of posterior distributions by Gaussian or log-concave measures whose curvature is described by PDE mapping properties of underlying 'information operators'. Applications to the algorithmic runtime of gradient-based MCMC methods are discussed as well as computation time lower bounds for worst case performance of some algorithms.

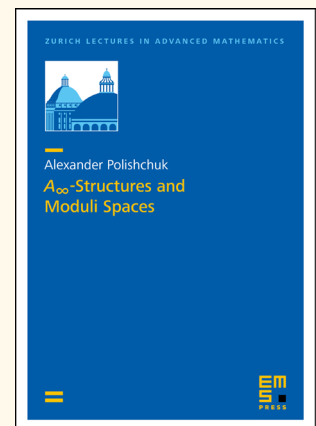


A_∞ -Structures and Moduli Spaces

Alexander Polishchuk (University of Oregon, Eugene, USA)

ISBN 978-3-98547-026-6 | eISBN 978-3-98547-526-1
2022 | 178 pp. | softcover | 39 € | 45 \$

This book discusses certain moduli problems related to A_∞ -structures. These structures can be viewed as a way of recording extra information on cohomology algebras. They are useful in describing derived categories appearing in geometry, and as such, they play an important role in homological mirror symmetry. The author presents some general results on the classification of A_∞ -structures and also considers two concrete moduli problems. The first is related to the moduli spaces of curves, while the second is related to the classification of solutions of an associative version of the Yang–Baxter equation.

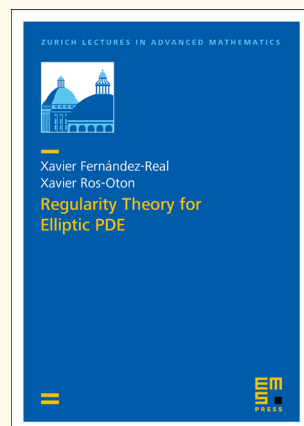


Regularity Theory for Elliptic PDE

Xavier Fernández-Real (École Polytechnique Fédérale de Lausanne, Switzerland), Xavier Ros-Oton (ICREA; Universitat de Barcelona; and Centre de Recerca Matemàtica, Spain)

ISBN 978-3-98547-028-0 | eISBN 978-3-98547-528-5
2022 | 236 pp. | softcover | 49 € | 55 \$

This book aims to provide a self-contained introduction to the regularity theory for elliptic PDE, focusing on the main ideas rather than proving all results in their greatest generality. It can be seen as a bridge between an elementary PDE course and more advanced books. The book starts with a short review of the Laplace operator and harmonic functions. The theory of Schauder estimates is developed next, but presented with various proofs of the results. Nonlinear elliptic PDE are covered in the following, both in the variational and non-variational setting and, finally, the obstacle problem is studied in detail, establishing the regularity of solutions and free boundaries.

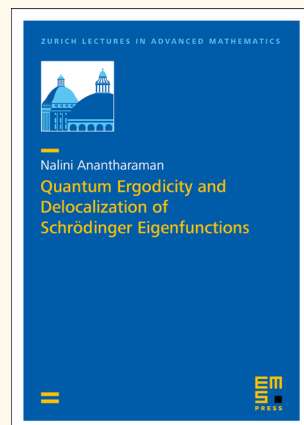


Quantum Ergodicity and Delocalization of Schrödinger Eigenfunctions

Nalini Anantharaman (Université de Strasbourg and CNRS, France)

ISBN 978-3-98547-015-0 | eISBN 978-3-98547-515-5
2022 | 140 pp. | softcover | 39 € | 45 \$

This book deals with quantum chaos, starting with a historical introduction and then focussing on the delocalisation of eigenfunctions of Schrödinger operators for chaotic Hamiltonian systems. It contains a short introduction to microlocal analysis, necessary for the Shnirelman theorem and for the author's work on entropy of eigenfunctions on negatively curved manifolds. It covers further work by the author on quantum ergodicity of eigenfunctions on large graphs, results on eigenfunctions on the round sphere, and an exposition of the Backhausz–Szegedy result on the Gaussian distribution of eigenfunctions on random regular graphs.

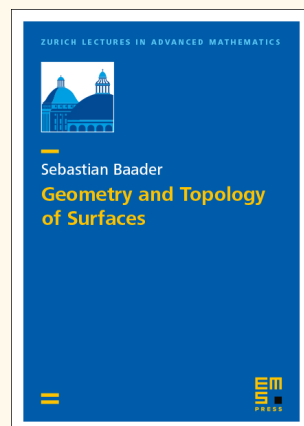


Geometry and Topology of Surfaces

Sebastian Baader (Universität Bern, Switzerland)

ISBN 978-3-98547-000-6 | eISBN 978-3-98547-500-1
2021 | 86 pp. | softcover | 29 € | 32 \$

These lecture notes cover the classification of hyperbolic structures and measured foliations on surfaces in a minimalist way. While the inspiration is obviously taken from the excellent books *Primer on mapping class groups* and *Travaux de Thurston sur les surfaces*, the author aimed at including a little bit more of hyperbolic trigonometry, including a proof of Basmajian's identity on the orthogeodesic spectrum, while keeping the rest short.

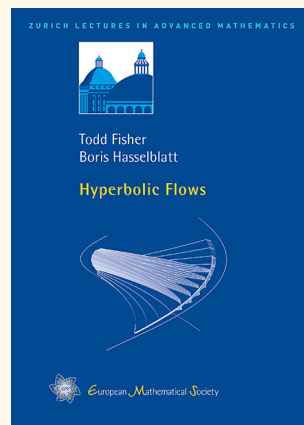


Hyperbolic Flows

Todd Fisher (Brigham Young University, Provo, USA), Boris Hasselblatt (Tufts University, Medford, USA)

ISBN 978-3-03719-200-9 | eISBN 978-3-03719-700-4
2019 | 737 pp. | softcover | 78 € | 84 \$

This book presents the theory of flows, that is, continuous-time dynamical systems from the topological, smooth, and measurable points of view, with an emphasis on the theory of (uniformly) hyperbolic dynamics. It includes both an introduction and an exposition of recent developments in uniformly hyperbolic dynamics, and it can be used as both a textbook and a reference for students and researchers.



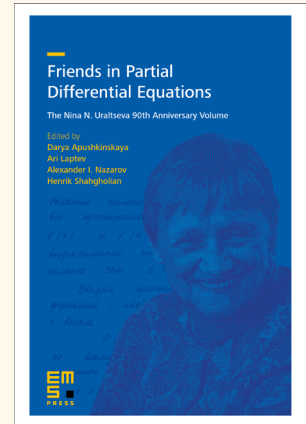
Friends in Partial Differential Equations

The Nina N. Uraltseva 90th Anniversary Volume

Editors: Darya Apushkinskaya (RUDN University, Moscow, Russia), Ari Laptev (Imperial College London, UK and Sirius University of Science and Technology, Sochi, Russia), Alexander I. Nazarov (St. Petersburg Department of Steklov Institute of Mathematics and St. Petersburg State University, Russia), Henrik Shahgholian (KTH Royal Institute of Technology Stockholm, Sweden)

ISBN 978-3-98547-094-5 | eISBN 978-3-98547-594-0
2025 | 387 pp. | hardcover | 89 € | 95 \$

This volume honors Nina N. Uraltseva on her 90th birthday, gathering contributions from colleagues and collaborators working in areas central to her legacy. The chapters reflect current advances in elliptic and parabolic partial differential equations, variational inequalities, and free boundary problems – fields where Uraltseva's work has been foundational. Topics include regularity theory, bifurcation phenomena, geometric and degenerate equations, and applications from transportation networks to population models. The volume also features a biographical overview of Uraltseva's influential role in the mathematical community. It is intended for researchers in analysis, PDEs, and applied mathematics.

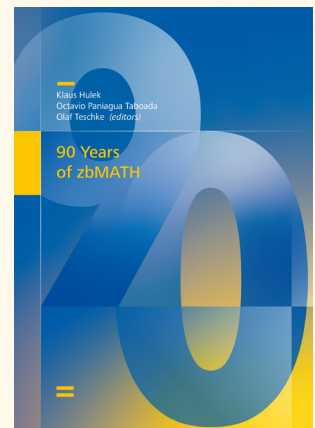


90 Years of zbMATH

Editors: Klaus Hulek (Leibniz University Hannover, Germany), Octavio Paniagua Taboada (FIZ Karlsruhe, Berlin, Germany), Olaf Teschke (FIZ Karlsruhe, Berlin, Germany)

ISBN 978-3-98547-073-0 | eISBN 978-3-98547-573-5
2024 | 110 pp. | softcover | 29 € | 35 \$

This celebratory volume marks the 90th anniversary of zbMATH, the world's oldest abstracting and reviewing service in mathematics, recently relaunched as the open-access platform zbMATH Open. It examines how zbMATH has adapted to the digital era, including the integration of community platforms, APIs, formula and software search (swMATH), and author profiles. The book also addresses broader themes like the gender gap in mathematics, reviewer engagement, and the semantic aspects of mathematical research results. Contributors assess how zbMATH Open strengthens research accessibility, interoperability, and bibliographic infrastructure.



International Congress of Mathematicians

2022 July 6–14

Editors: Dmitry Beliaev (University of Oxford, United Kingdom), Stanislav Smirnov (Université de Genève, Switzerland)

ISBN 978-3-98547-058-7 | eISBN 978-3-98547-558-2
2023 | 5940 pp. | hardcover | 949 € | 999 \$

Following the long and illustrious tradition of the International Congress of Mathematicians, these proceedings include contributions based on the invited talks that were presented at the Congress in 2022. The seven volumes present the most important developments in all fields of mathematics and its applications in the past four years. In particular, they include laudations and presentations of the 2022 Fields Medal winners and of the other prestigious prizes awarded at the Congress.



European Congress of Mathematics

Portorož, 20–26 June, 2021

Editors: Ademir Hujdurović (University of Primorska, Koper, Slovenia), Klavdija Kutnar (University of Primorska, Koper, Slovenia), Dragan Marušič (University of Primorska, Koper, Slovenia), Štefko Miklavič (University of Primorska, Koper, Slovenia), Tomaž Pisanski (University of Primorska, Koper, Slovenia), Primož Šparl (University of Ljubljana, Slovenia)

ISBN 978-3-98547-051-8 | eISBN 978-3-98547-551-3
2023 | 982 pp. | hardcover | 149 € | 159 \$

These proceedings provide a permanent record of current mathematics of highest quality by presenting extended versions of seven plenary, six prize, and fourteen invited lectures as well as eleven lectures from minisymposia keynote speakers, all of which were delivered during the 8th European Congress of Mathematics held in Portorož in 2021.



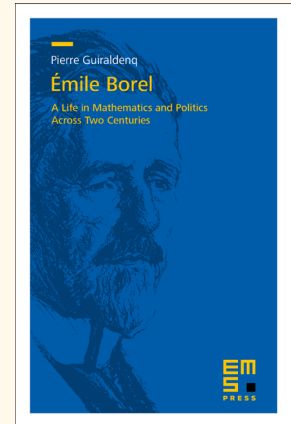
Émile Borel

A Life in Mathematics and Politics Across Two Centuries

Pierre Guiraldenq (École Centrale de Lyon, France)

ISBN 978-3-98547-013-6 | eISBN 978-3-98547-513-1
2022 | 122 pp. | softcover | 19 € | 22 \$

The book follows Borel, one of France's leading scientific and political figures of the first half of the twentieth century, through the various stages and the most significant events of his life, across two centuries and two wars. Originally published in French, this new English edition of the book will appeal primarily to mathematicians and those with an interest in the history of science, but it should not disappoint anyone wishing to explore, through the life of an exceptional scientist and man, a chapter of history from the Franco-Prussian War of 1870 to the beginnings of contemporary Europe.

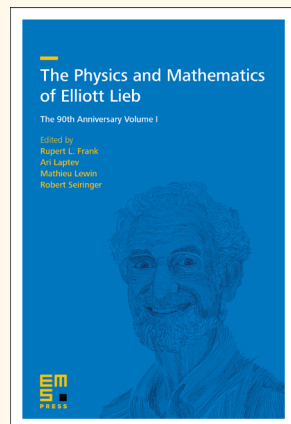


The Physics and Mathematics of Elliott Lieb

Editors: Rupert L. Frank (Ludwig-Maximilians-Universität München, Germany), Ari Laptev (Imperial College London, United Kingdom), Mathieu Lewin (Université Paris Dauphine, France), Robert Seiringer (Institute of Science and Technology Austria, Klosterneuburg, Austria)

ISBN 978-3-98547-019-8 | eISBN 978-3-98547-519-3
2022 | 1372 pp. | hardcover | 179 € | 189 \$

These two volumes are dedicated to Elliott Lieb on the occasion of his 90th birthday. They celebrate his fundamental contributions to the fields of mathematics, physics and chemistry. Around fifty chapters give an extensive account of Lieb's impact on a very broad range of topics and the resulting subsequent developments. Many contributions are of an expository character and are accessible to a non-expert audience of researchers in mathematics, physics and chemistry. A non-exhaustive list of topics covered includes the problem of stability of matter, quantum many-body systems, density functional theory, topics in statistical mechanics, entropy inequalities and matrix analysis, functional inequalities and sharp constants.



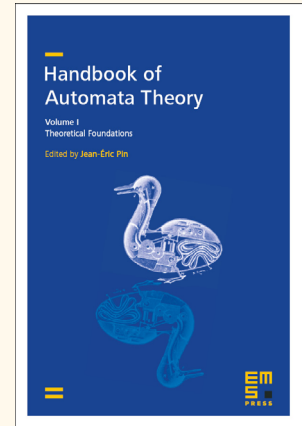
Handbook of Automata Theory

Editor: Jean-Éric Pin (Université de Paris and CNRS, France)

ISBN 978-3-98547-006-8 | eISBN 978-3-98547-506-3

2021 | 1608 pp. | hardcover | 199 € | 213 \$

Automata theory is a subject of study at the crossroads of mathematics, theoretical computer science, and applications, dealing with abstract models of systems whose behavior is based on transitions between states. This important reference work on automata theory gives an authoritative and comprehensive overview of current research, and is aimed at a broad readership of researchers and graduate students in mathematics and computer science.



EMS MONOGRAPHS IN MATHEMATICS

The *EMS Monographs in Mathematics* is a book series aimed at mathematicians and scientists. It publishes research monographs from all fields of mathematics. The individual volumes are intended to give a comprehensive and self-contained account of their particular subject. They present mathematical results that are new or have not been accessible previously in the literature.

Edited by Hugo Duminil-Copin (Université de Genève and Institut des Hautes Études Scientifiques), Gavril Farkas (Humboldt-Universität zu Berlin), Isabelle Gallagher (École normale supérieure de Paris and Université de Paris), and Paul Seidel (Massachusetts Institute of Technology)

From the Vlasov–Maxwell–Boltzmann System to Incompressible Viscous Electro-magneto-hydrodynamics

Diogo Arsénio (Université Paris Diderot, France), Laure Saint-Raymond (École Normale Supérieure, Lyon, France)

ISBN 978-3-03719-193-4 | eISBN: 978-3-03719-693-9
published in 2019 | 418pp | hardcover | 78.00€ | 84.00\$

The Shock Development Problem

Demetrios Christodoulou (ETH Zürich, Switzerland)

ISBN 978-3-03719-192-7 | eISBN: 978-3-03719-692-2
published in 2019 | 932pp | hardcover | 128.00€ | 137.00\$

Quasi-Periodic Solutions of Nonlinear Wave Equations on the d -Dimensional Torus

Massimiliano Berti (SISSA, Trieste, Italy), Philippe Bolle (Avignon Université, France)

ISBN 978-3-03719-211-5 | eISBN: 978-3-03719-711-0
published in 2020 | 374pp | hardcover | 69.00€ | 74.00\$

Foundations of Rigid Geometry I

Kazuhiro Fujiwara (Nagoya University, Japan), Fumiharu Kato (Tokyo Institute of Technology, Japan)

ISBN 978-3-03719-135-4 | eISBN: 978-3-03719-635-9
published in 2018 | 863pp | hardcover | 108.00€ | 116.00\$

Mackey 2-Functors and Mackey 2-Motives

Paul Balmer (University of California, Los Angeles, USA), Ivo Dell'Ambrogio (Université de Lille, France)

ISBN 978-3-03719-209-2 | eISBN: 978-3-03719-709-7
published in 2020 | 235pp | hardcover | 59.00€ | 64.00\$

A Spinorial Approach to Riemannian and Conformal Geometry

Jean-Pierre Bourguignon (IHÉS, Bures-sur-Yvette, France), Oussama Hijazi (Université de Lorraine, Nancy, France), Jean-Louis Milhorat (Université de Nantes, France), Andrei Moroianu (Université de Versailles-St Quentin, France), Sergiu Moroianu (Institutul de Matematică al Academiei Române, București, Romania)

ISBN 978-3-03719-136-1 | eISBN: 978-3-03719-636-6
published in 2015 | 462pp | hardcover | 79.00€ | 85.00\$

EMS MONOGRAPHS IN MATHEMATICS

Concentration Compactness for Critical Wave Maps

Joachim Krieger (EPFL Lausanne, Switzerland), Wilhelm Schlag (University of Chicago, USA)

ISBN 978-3-03719-106-4 | eISBN: 978-3-03719-606-9
published in 2012 | 490pp | hardcover | 99.00€ | 106.00\$

Logarithmic Combinatorial Structures: A Probabilistic Approach

Richard Arratia (University of Southern California, USA), A. D. Barbour (University of Zürich, Switzerland), Simon Tavaré (University of Southern California, USA)

ISBN 978-3-03719-000-5 | eISBN: 978-3-03719-500-0
published in 2003 | 374pp | hardcover | 79.00€ | 85.00\$

The Formation of Black Holes in General Relativity

Demetrios Christodoulou (ETH Zürich, Switzerland)

ISBN 978-3-03719-068-5 | eISBN: 978-3-03719-568-0
published in 2009 | 599pp | hardcover | 109.00€ | 117.00\$

EMS TEXTBOOKS IN MATHEMATICS

The *EMS Textbooks in Mathematics* is a book series aimed at students or professional mathematicians seeking an introduction into a particular field. The individual volumes are intended to provide not only relevant techniques, results and their applications, but afford insight into the motivations and ideas behind the theory. Suitably designed exercises help to master the subject and prepare the reader for the study of more advanced and specialized literature.

Elements of Asymptotic Geometry

Sergei Buyalo (Steklov Institute of Mathematics, St. Petersburg, Russia), Viktor Schroeder (University of Zurich, Switzerland)

ISBN 978-3-03719-036-4 | eISBN: 978-3-03719-536-9
published in 2007 | 212pp | hardcover | 69.00€ | 74.00\$

An Introduction to Kac–Moody Groups over Fields

Timothée Marquis (Université Catholique de Louvain, Louvain-la-Neuve, Belgium)

ISBN 978-3-03719-187-3 | eISBN: 978-3-03719-687-8
published in 2018 | 343pp | hardcover | 48.00€ | 52.00\$

The Formation of Shocks in 3-Dimensional Fluids

Demetrios Christodoulou (ETH Zürich, Switzerland)

ISBN 978-3-03719-031-9 | eISBN: 978-3-03719-531-4
published in 2007 | 1000pp | hardcover | 159.00€ | 171.00\$

A Brief Introduction to Spectral Graph Theory

Bogdan Nica (McGill University, Montreal, Canada)

ISBN 978-3-03719-188-0 | eISBN: 978-3-03719-688-5
published in 2018 | 168pp | hardcover | 38.00€ | 41.00\$

A Course In Error-Correcting Codes

Second edition

Tom Høholdt (Technical University of Denmark, Lyngby, Denmark), Jørn Justesen (Technical University of Denmark, Lyngby, Denmark)

ISBN 978-3-03719-179-8 | eISBN: 978-3-03719-679-3
published in 2017 | 226pp | hardcover | 49.00€ | 53.00\$

Diffusion Processes and Stochastic Calculus

Fabrice Baudoin (Purdue University, West Lafayette, USA)

ISBN 978-3-03719-133-0 | eISBN: 978-3-03719-633-5
published in 2014 | 287pp | hardcover | 59.00€ | 64.00\$

Frobenius Algebras II

Tilted and Hochschild Extension Algebras

Andrzej Skowroński (Nicolaus Copernicus University, Toruń, Poland), Kunio Yamagata (Tokyo University of Agriculture and Technology, Japan)

ISBN 978-3-03719-174-3 | eISBN: 978-3-03719-674-8
published in 2017 | 629pp | hardcover | 69.00€ | 74.00\$

Analytic Projective Geometry

Eduardo Casas-Alvero (Universitat de Barcelona, Spain)

ISBN 978-3-03719-138-5 | eISBN: 978-3-03719-638-0
published in 2014 | 636pp | hardcover | 69.00€ | 74.00\$

Measure and Integration

Dietmar A. Salamon (ETH Zürich, Switzerland)

ISBN 978-3-03719-159-0 | eISBN: 978-3-03719-659-5
published in 2016 | 363pp | hardcover | 59.00€ | 64.00\$

Complex Analysis

Translated from the Catalan by Ignacio Monreal

Joaquim Bruna (Universitat Autònoma de Barcelona, Spain), Julià Cufí (Universitat Autònoma de Barcelona, Spain)

ISBN 978-3-03719-111-8 | eISBN: 978-3-03719-611-3
published in 2013 | 576pp | hardcover | 69.00€ | 74.00\$

Spectral Theory in Riemannian Geometry

Olivier Lablée (Université Joseph Fourier Grenoble 1, Saint Martin d'Hères, France)

ISBN 978-3-03719-151-4 | eISBN: 978-3-03719-651-9
published in 2015 | 197pp | hardcover | 49.00€ | 53.00\$

Frobenius Algebras I

Basic Representation Theory

Andrzej Skowroński (Nicolaus Copernicus University, Toruń, Poland), Kunio Yamagata (Tokyo University of Agriculture and Technology, Japan)

ISBN 978-3-03719-102-6 | eISBN: 978-3-03719-602-1
published in 2011 | 661pp | hardcover | 69.00€ | 74.00\$

Lectures on Dynamical Systems

Hamiltonian Vector Fields and Symplectic Capacities

Eduard Zehnder (ETH Zurich, Switzerland)

ISBN 978-3-03719-081-4 | eISBN: 978-3-03719-581-9
published in 2010 | 363pp | hardcover | 59.00€ | 64.00\$

First Steps in Several Complex Variables: Reinhardt Domains

Marek Jarnicki (Jagiellonian University, Kraków, Poland),
Peter Pflug (University of Oldenburg, Germany)

ISBN 978-3-03719-049-4 | eISBN: 978-3-03719-549-9
published in 2008 | 367pp | hardcover | 69.00€ | 74.00\$

Denumerable Markov Chains

Generating Functions, Boundary Theory, Random Walks
on Trees

Wolfgang Woess (Graz University of Technology, Austria)

ISBN 978-3-03719-071-5 | eISBN: 978-3-03719-571-0
published in 2009 | 368pp | hardcover | 59.00€ | 64.00\$

Introduction to Group Theory

Oleg Bogopolski (TU Dortmund, Germany)

ISBN 978-3-03719-041-8 | eISBN: 978-3-03719-541-3
published in 2008 | 187pp | hardcover | 49.00€ | 53.00\$

Lectures on Curves, Surfaces and Projective Varieties

A Classical View of Algebraic Geometry

Mauro C. Beltrametti (University of Genova, Italy), Ettore
Carletti (University of Genova, Italy), Dionisio Gallarati
(University of Genova, Italy), Giacomo Monti Bragadin
(University of Genova, Italy)

ISBN 978-3-03719-064-7 | eISBN: 978-3-03719-564-2
published in 2009 | 506pp | hardcover | 69.00€ | 74.00\$

An Invitation to Quantum Groups and Duality From Hopf Algebras to Multiplicative Unitaries and Beyond

Thomas Timmermann (University of Münster, Germany)

ISBN 978-3-03719-043-2 | eISBN: 978-3-03719-543-7
published in 2008 | 427pp | hardcover | 69.00€ | 74.00\$

Algebraic Topology

Corrected 2nd printing, 2010

Tammo tom Dieck (University of Göttingen, Germany)

ISBN 978-3-03719-048-7 | eISBN: 978-3-03719-548-2
published in 2008 | 578pp | hardcover | 69.00€ | 74.00\$

Distributions, Sobolev Spaces, Elliptic Equations

Dorothee D. Haroske (University of Jena, Germany), Hans
Triebel (University of Jena, Germany)

ISBN 978-3-03719-042-5 | eISBN: 978-3-03719-542-0
published in 2007 | 303pp | hardcover | 59.00€ | 64.00\$

Locally Compact Groups

Markus Stroppel (University of Stuttgart, Germany)

ISBN 978-3-03719-016-6 | eISBN: 978-3-03719-516-1
published in 2006 | 312pp | hardcover | 69.00€ | 74.00\$

Accuracy of Mathematical Models

Dimension Reduction, Homogenization, and Simplification

Sergey I. Repin (Russian Academy of Sciences, St. Petersburg, Russian Federation), Stefan A. Sauter (Universität Zürich, Switzerland)

ISBN 978-3-03719-206-1 | eISBN: 978-3-03719-706-6
published in 2020 | 333pp | hardcover | 59.00€ | 64.00\$

EMS TRACTS IN MATHEMATICS

This series includes advanced texts and monographs covering all fields in pure and applied mathematics. The Tracts will give a reliable introduction and reference to special fields of current research. The books in the series will in most cases be authored monographs, although edited volumes may be published if appropriate. They are addressed to graduate students seeking access to research topics as well as to the experts in the field working at the frontier of research.

Edited by Yann Bugeaud (Université de Strasbourg), Camillo De Lellis (Institute for Advanced Study), Michael Farber (Queen Mary University), Michael Röckner (Universität Bielefeld and Purdue University), and Alexander Varchenko (University of North Carolina at Chapel Hill)

K3 Surfaces

Shigeyuki Kondō (Nagoya University, Japan)

ISBN 978-3-03719-208-5 | eISBN: 978-3-03719-708-0
published in 2020 | 250pp | hardcover | 78.00€ | 84.00\$

Estimates for Differential Operators in Half-space

Translated from the German by Darya Apushkinskaya

Igor W. Gel'man (Akko, Israel), Vladimir G. Maz'ya (Linköping University, Sweden, and University of Liverpool, UK)

ISBN 978-3-03719-191-0 | eISBN: 978-3-03719-691-5
published in 2019 | 264pp | hardcover | 48.00€ | 52.00\$

Homogenized Models of Suspension Dynamics

Evgen Ya. Khruslov (B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences, Kharkiv, Ukraine)

ISBN 978-3-98547-009-9 | eISBN: 978-3-98547-509-4
published in 2021 | 288pp | hardcover | 59.00€ | 64.00\$

Boundary Behavior of Solutions to Elliptic Equations in General Domains

Vladimir G. Maz'ya (Linköping University, Sweden and University of Liverpool, UK)

ISBN 978-3-03719-190-3 | eISBN: 978-3-03719-690-8
published in 2018 | 441pp | hardcover | 78.00€ | 84.00\$

EMS TRACTS IN MATHEMATICS

Regular, Quasi-regular and Induced Representations of Infinite-dimensional Groups

Alexander V. Kosyak (National Academy of Science of Ukraine, Kiev, Ukraine)

ISBN 978-3-03719-181-1 | eISBN: 978-3-03719-681-6
published in 2018 | 587pp | hardcover | 98.00€ | 105.00\$

Elliptic PDEs, Measures and Capacities

From the Poisson Equation to Nonlinear Thomas–Fermi Problems

Augusto C. Ponce (Université catholique de Louvain, Belgium)

ISBN 978-3-03719-140-8 | eISBN: 978-3-03719-640-3
published in 2016 | 463pp | hardcover | 69.00€ | 74.00\$

Shape Variation and Optimization

A Geometrical Analysis

Antoine Henrot (Université de Lorraine, Vandœuvre-lès-Nancy, France), Michel Pierre (ENS Cachan Bretagne, Bruz, France)

ISBN 978-3-03719-178-1 | eISBN: 978-3-03719-678-6
published in 2018 | 379pp | hardcover | 68.00€ | 73.00\$

Metric Geometry of Locally Compact Groups

Yves Cornuier (Université Paris-Sud, Orsay, France), Pierre de la Harpe (Université de Genève, Switzerland)

ISBN 978-3-03719-166-8 | eISBN: 978-3-03719-666-3
published in 2016 | 243pp | hardcover | 69.00€ | 74.00\$

Degenerate Complex Monge–Ampère Equations

Vincent Guedj (Université Paul Sabatier, Toulouse, France), Ahmed Zeriahi (Université Paul Sabatier, Toulouse, France)

ISBN 978-3-03719-167-5 | eISBN: 978-3-03719-667-0
published in 2017 | 496pp | hardcover | 99.00€ | 106.00\$

Foundations of Garside Theory

Patrick Dehornoy (Université de Caen, France), François Digne (Université de Picardie Jules-Verne, Amiens, France), Eddy Godelle (Université de Caen, France), Daan Krammer (University of Warwick, Coventry, UK), Jean Michel (Université Denis Diderot Paris 7, France)

ISBN 978-3-03719-139-2 | eISBN: 978-3-03719-639-7
published in 2015 | 710pp | hardcover | 119.00€ | 128.00\$

Bound States of the Magnetic Schrödinger Operator

Nicolas Raymond (Université de Rennes, France)

ISBN 978-3-03719-169-9 | eISBN: 978-3-03719-669-4
published in 2017 | 394pp | hardcover | 69.00€ | 74.00\$

Hybrid Function Spaces, Heat and Navier-Stokes Equations

Hans Triebel (University of Jena, Germany)

ISBN 978-3-03719-150-7 | eISBN: 978-3-03719-650-2
published in 2015 | 196pp | hardcover | 59.00€ | 64.00\$

Invariant Manifolds in Discrete and Continuous Dynamical Systems

Kaspar Nipp (ETH Zürich, Switzerland), Daniel Stoffer (ETH Zürich, Switzerland)

ISBN 978-3-03719-124-8 | eISBN: 978-3-03719-624-3
published in 2013 | 225pp | hardcover | 69.00€ | 74.00\$

Nonlinear Potential Theory on Metric Spaces

Anders Björn (Linköping University, Sweden), Jana Björn (Linköping University, Sweden)

ISBN 978-3-03719-099-9 | eISBN: 978-3-03719-599-4
published in 2011 | 415pp | hardcover | 69.00€ | 74.00\$

Local Function Spaces, Heat and Navier–Stokes Equations

Hans Triebel (University of Jena, Germany)

ISBN 978-3-03719-123-1 | eISBN: 978-3-03719-623-6
published in 2013 | 241pp | hardcover | 69.00€ | 74.00\$

Nonabelian Algebraic Topology

Filtered Spaces, Crossed Complexes, Cubical Homotopy Groupoids

Ronald Brown (Bangor University, UK), Philip J. Higgins (Durham University, UK), Rafael Sivera (Universitat de València, Spain)

ISBN 978-3-03719-083-8 | eISBN: 978-3-03719-583-3
published in 2011 | 703pp | hardcover | 109.00€ | 117.00\$

Infinitesimal Geometry of Quasiconformal and Bi-Lipschitz Mappings in the Plane

Bogdan Bojarski (IM PAN, Warsaw, Poland), Vladimir Gutlyanskii (National Academy of Science of Ukraine, Donetsk, Ukraine), Olli Martio (Finnish Academy of Science and Letters, Helsinki, Finland), Vladimir Ryazanov (National Academy of Science of Ukraine, Donetsk, Ukraine)

ISBN 978-3-03719-122-4 | eISBN: 978-3-03719-622-9
published in 2013 | 214pp | hardcover | 69.00€ | 74.00\$

Separately Analytic Functions

Marek Jarnicki (Jagiellonian University, Kraków, Poland), Peter Pflug (University of Oldenburg, Germany)

ISBN 978-3-03719-098-2 | eISBN: 978-3-03719-598-7
published in 2011 | 306pp | hardcover | 69.00€ | 74.00\$

Tractability of Multivariate Problems Volume III

Erich Novak (University of Jena, Germany), Henryk Woźniakowski (Columbia University, New York, USA, and University of Warsaw, Poland)

ISBN 978-3-03719-116-3 | eISBN: 978-3-03719-616-8
published in 2012 | 604pp | hardcover | 109.00€ | 117.00\$

Efficient Numerical Methods for Non-local Operators

$\mathcal{H}^2$ -Matrix Compression, Algorithms and Analysis

Steffen Börm (Kiel University, Germany)

ISBN 978-3-03719-091-3 | eISBN: 978-3-03719-591-8
published in 2010 | 441pp | hardcover | 69.00€ | 74.00\$

EMS TRACTS IN MATHEMATICS

Geometrisation of 3-Manifolds

Laurent Bessières (Université Joseph Fourier, Grenoble, France), Gérard Besson (Université Joseph Fourier, Grenoble, France), Michel Boileau (Université Paul Sabatier, Toulouse, France), Sylvain Maillot (Université Montpellier II, France), Joan Porti (Universitat Autònoma de Barcelona, Spain)

ISBN 978-3-03719-082-1 | eISBN: 978-3-03719-582-6
published in 2010 | 247pp | hardcover | 59.00€ | 64.00\$

Tractability of Multivariate Problems

Volume II

Erich Novak (University of Jena, Germany), Henryk Woźniakowski (Columbia University, New York, USA, and University of Warsaw, Poland)

ISBN 978-3-03719-084-5 | eISBN: 978-3-03719-584-0
published in 2010 | 675pp | hardcover | 109.00€ | 117.00\$

Bases in Function Spaces, Sampling, Discrepancy, Numerical integration

Hans Triebel (University of Jena, Germany)

ISBN 978-3-03719-085-2 | eISBN: 978-3-03719-585-7
published in 2010 | 305pp | hardcover | 69.00€ | 74.00\$

Homotopy Quantum Field Theory

With Appendices by Michael Müger and Alexis Virelizier

Vladimir Turaev (Indiana University, Bloomington, USA)

ISBN 978-3-03719-086-9 | eISBN: 978-3-03719-586-4
published in 2010 | 290pp | hardcover | 69.00€ | 74.00\$

Cohomological Theory of Crystals over Function Fields

Gebhard Böckle (Interdisciplinary Center for Scientific Computing, Heidelberg, Germany), Richard Pink (ETH Zürich, Switzerland)

ISBN 978-3-03719-074-6 | eISBN: 978-3-03719-574-1
published in 2009 | 195pp | hardcover | 59.00€ | 64.00\$

The Statistical Mechanics of Quantum Lattice Systems

A Path Integral Approach

Sergio Albeverio (University of Bonn, Germany), Yuri Kondratiev (University of Bielefeld, Germany), Yuri Kozitsky (Maria Curie-Skłodowska University, Lublin, Poland), Michael Röckner (University of Bielefeld, Germany)

ISBN 978-3-03719-070-8 | eISBN: 978-3-03719-570-3
published in 2009 | 392pp | hardcover | 69.00€ | 74.00\$

Tractability of Multivariate Problems

Volume I

Erich Novak (University of Jena, Germany), Henryk Woźniakowski (Columbia University, New York, USA, and University of Warsaw, Poland)

ISBN 978-3-03719-026-5 | eISBN: 978-3-03719-526-0
published in 2008 | 395pp | hardcover | 79.00€ | 85.00\$

Function Spaces and Wavelets on Domains

Hans Triebel (University of Jena, Germany)

ISBN 978-3-03719-019-7 | eISBN: 978-3-03719-519-2
published in 2008 | 265pp | hardcover | 69.00€ | 74.00\$

Functional Equations and Characterization Problems on Locally Compact Abelian Groups

Gennadiy Feldman (B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences, Kharkov, Ukraine)

ISBN 978-3-03719-045-6 | eISBN: 978-3-03719-545-1
published in 2008 | 268pp | hardcover | 69.00€ | 74.00\$

Elliptic Mixed, Transmission and Singular Crack Problems

Gohar Harutyunyan (University of Oldenburg, Germany),
B.-Wolfgang Schulze (University of Potsdam, Germany)

ISBN 978-3-03719-040-1 | eISBN: 978-3-03719-540-6
published in 2007 | 777pp | hardcover | 119.00€ | 128.00\$

Local and Analytic Cyclic Homology

Ralf Meyer (University of Göttingen, Germany)

ISBN 978-3-03719-039-5 | eISBN: 978-3-03719-539-0
published in 2007 | 368pp | hardcover | 69.00€ | 74.00\$

Degenerate Diffusions Initial Value Problems and Local Regularity Theory

Panagioti Daskalopoulos (Columbia University, New York, USA),
Carlos E. Kenig (University of Chicago, USA)

ISBN 978-3-03719-033-3 | eISBN: 978-3-03719-533-8
published in 2007 | 207pp | hardcover | 59.00€ | 64.00\$

EMS SERIES OF LECTURES IN MATHEMATICS

The *EMS Series of Lectures in Mathematics* is a book series aimed at students, professional mathematicians and scientists. It publishes polished notes arising from seminars or lecture series in all fields of pure and applied mathematics, including the reissue of classic texts of continuing interest. The individual volumes are intended to give a rapid and accessible introduction into their particular subject, guiding the audience to topics of current research and the more advanced and specialized literature.

Edited by Ari Laptev (Imperial College London)

Classification of Complex Algebraic Surfaces

Ciro Ciliberto (Università di Roma Tor Vergata, Italy)

ISBN 978-3-03719-210-8 | eISBN: 978-3-03719-710-3
published in 2020 | 143pp | softcover | 36.00€ | 39.00\$

Function Spaces with Dominating Mixed Smoothness

Hans Triebel (Friedrich-Schiller Universität Jena, Germany)

ISBN 978-3-03719-195-8 | eISBN: 978-3-03719-695-3
published in 2019 | 210pp | softcover | 36.00€ | 39.00\$

Local Representation Theory and Simple Groups

Editors: Radha Kessar (City University of London, UK),
Gunter Malle (Universität Kaiserslautern, Germany),
Donna Testerman (EPF Lausanne, Switzerland)

ISBN 978-3-03719-185-9 | eISBN: 978-3-03719-685-4
published in 2018 | 369pp | softcover | 44.00€ | 48.00\$

Higher-Dimensional Knots According to Michel Kervaire

Françoise Michel (Université Paul Sabatier, Toulouse, France),
Claude Weber (Université de Genève, Switzerland)

ISBN 978-3-03719-180-4 | eISBN: 978-3-03719-680-9
published in 2017 | 144pp | softcover | 39.00€ | 42.00\$

PDE Models for Chemotaxis and Hydrodynamics in Supercritical Function Spaces

Hans Triebel (University of Jena, Germany)

ISBN 978-3-03719-172-9 | eISBN: 978-3-03719-672-4
published in 2017 | 140pp | softcover | 39.00€ | 42.00\$

Dynamics Done with Your Bare Hands

Lecture notes by Diana Davis, Bryce Weaver, Roland K. W. Roeder, Pablo Lessa

Editors: Françoise Dal'Bo (Université de Rennes I, France),
François Ledrappier (University of Notre Dame, USA),
Amie Wilkinson (University of Chicago, USA)

ISBN 978-3-03719-168-2 | eISBN: 978-3-03719-668-7
published in 2016 | 214pp | softcover | 39.00€ | 42.00\$

Geometry, Analysis and Dynamics on sub-Riemannian Manifolds

Volume II

Editors: Davide Barilari (Université Paris 7 Denis Diderot, Paris, France),
Ugo Boscain (École Polytechnique, Palaiseau, France),
Mario Sigalotti (École Polytechnique, Palaiseau, France)

ISBN 978-3-03719-163-7 | eISBN: 978-3-03719-663-2
published in 2016 | 307pp | softcover | 49.00€ | 53.00\$

Geometry, Analysis and Dynamics on sub-Riemannian Manifolds

Volume I

Editors: Davide Barilari (Université Paris 7 Denis Diderot, Paris, France),
Ugo Boscain (École Polytechnique, Palaiseau, France),
Mario Sigalotti (École Polytechnique, Palaiseau, France)

ISBN 978-3-03719-162-0 | eISBN: 978-3-03719-662-5
published in 2016 | 332pp | softcover | 49.00€ | 53.00\$

Higher-Dimensional Generalized Manifolds: Surgery and Constructions

Alberto Cavicchioli (Università degli Studi di Modena e Reggio Emilia, Italy),
Friedrich Hegenbarth (Università degli Studi di Milano, Italy),
Dušan Repovš (University of Ljubljana, Slovenia)

ISBN 978-3-03719-156-9 | eISBN: 978-3-03719-656-4
published in 2016 | 154pp | softcover | 39.00€ | 42.00\$

Four Faces of Number Theory

Kathrin Bringmann (Universität zu Köln, Germany), Yann Bugeaud (IRMA Strasbourg, France),
Titus Hilberdink (University of Reading, UK), Jürgen W. Sander (Universität Hildesheim, Germany)

ISBN 978-3-03719-142-2 | eISBN: 978-3-03719-642-7
published in 2015 | 198pp | softcover | 39.00€ | 42.00\$

Tempered Homogeneous Function Spaces

Hans Triebel (University of Jena, Germany)

ISBN 978-3-03719-155-2 | eISBN: 978-3-03719-655-7
published in 2015 | 143pp | softcover | 39.00€ | 42.00\$

Basic Noncommutative Geometry

Second edition

Masoud Khalkhali (The University of Western Ontario,
London, Canada)

ISBN 978-3-03719-128-6 | eISBN: 978-3-03719-628-1
published in 2013 | 257pp | softcover | 49.00€ | 53.00\$

3-Manifold Groups

Matthias Aschenbrenner (University of California Los
Angeles, USA), Stefan Friedl (Universität Regensburg,
Germany), Henry Wilton (University of Cambridge, UK)

ISBN 978-3-03719-154-5 | eISBN: 978-3-03719-654-0
published in 2015 | 230pp | softcover | 39.00€ | 42.00\$

A Course on Elation Quadrangles

Koen Thas (Ghent University, Belgium)

ISBN 978-3-03719-110-1 | eISBN: 978-3-03719-610-6
published in 2012 | 129pp | softcover | 29.00€ | 32.00\$

Lectures on Universal Teichmüller Space

Armen Sergeev (Steklov Mathematical Institute, Moscow,
Russia)

ISBN 978-3-03719-141-5 | eISBN: 978-3-03719-641-0
published in 2014 | 111pp | softcover | 29.00€ | 32.00\$

Faber Systems and Their Use in Sampling, Discrepancy, Numerical Integration

Hans Triebel (University of Jena, Germany)

ISBN 978-3-03719-107-1 | eISBN: 978-3-03719-607-6
published in 2012 | 115pp | softcover | 29.00€ | 32.00\$

The Defocusing NLS Equation and Its Normal Form

Benoît Grébert (Université de Nantes, France), Thomas
Kappeler (University of Zürich, Switzerland)

ISBN 978-3-03719-131-6 | eISBN: 978-3-03719-631-1
published in 2014 | 175pp | softcover | 39.00€ | 42.00\$

Mathematical Foundations of Supersymmetry

Claudio Carmeli (University of Genova, Italy), Lauren
Caston (RAND Corporation, Santa Monica, CA, USA), Rita
Fioresi (University of Bologna, Italy)

ISBN 978-3-03719-097-5 | eISBN: 978-3-03719-597-0
published in 2011 | 300pp | softcover | 49.00€ | 53.00\$

EMS SERIES OF LECTURES IN MATHEMATICS

Lectures on Duflo Isomorphisms in Lie Algebra and Complex Geometry

Damien Calaque (ETH Zurich, Switzerland), Carlo A. Rossi (Max Planck Institute for Mathematics, Bonn, Germany)

ISBN 978-3-03719-096-8 | eISBN: 978-3-03719-596-3
published in 2011 | 114pp | softcover | 29.00€ | 32.00\$

Finite Generalized Quadrangles

Second Edition

Stanley E. Payne (University of Colorado Denver, Denver, USA), Joseph A. Thas (Ghent University, Ghent, Belgium)

ISBN 978-3-03719-066-1 | eISBN: 978-3-03719-566-6
published in 2009 | 299pp | softcover | 49.00€ | 53.00\$

Lectures on Gaussian Integral Operators and Classical Groups

Yurii A. Neretin (University of Vienna, Austria, and Moscow State University, Russia)

ISBN 978-3-03719-080-7 | eISBN: 978-3-03719-580-2
published in 2011 | 571pp | softcover | 69.00€ | 74.00\$

Wavelets, Their Friends, and What They Can Do for You

Martin J. Mohlenkamp (Ohio University, Athens, USA), María Cristina Pereyra (University of New Mexico, Albuquerque, USA)

ISBN 978-3-03719-018-0 | eISBN: 978-3-03719-518-5
published in 2008 | 119pp | softcover | 29.00€ | 32.00\$

"Moonshine" of Finite Groups

Koichiro Harada (The Ohio State University, Columbus, OH, USA)

ISBN 978-3-03719-090-6 | eISBN: 978-3-03719-590-1
published in 2010 | 83pp | softcover | 29.00€ | 32.00\$

Lectures on Differential Geometry

Iskander A. Taimanov (Sobolev Institute of Mathematics, Novosibirsk, Russia)

ISBN 978-3-03719-050-0 | eISBN: 978-3-03719-550-5
published in 2008 | 219pp | softcover | 39.00€ | 42.00\$

Splitting Methods for Partial Differential Equations with Rough Solutions

Analysis and MATLAB programs

Helge Holden (Norwegian University of Science and Technology, Trondheim, Norway), Kenneth Hvistendahl Karlsen (University of Oslo, Norway), Knut-Andreas Lie (University of Oslo, Norway), Nils Henrik Risebro (University of Oslo, Norway)

ISBN 978-3-03719-078-4 | eISBN: 978-3-03719-578-9
published in 2010 | 234pp | softcover | 39.00€ | 42.00\$

Lectures on Empirical Processes

Theory and Statistical Applications

Paul Deheuvels (Université de Paris VI, France), Eustasio del Barrio (Universidad de Valladolid, Spain), Sara van de Geer (ETH Zürich, Switzerland)

ISBN 978-3-03719-027-2 | eISBN: 978-3-03719-527-7
published in 2007 | 263pp | softcover | 49.00€ | 53.00\$

Differential Harnack Inequalities and the Ricci Flow

Reto Müller (ETH Zürich)

ISBN 978-3-03719-030-2 | eISBN: 978-3-03719-530-7
published in 2006 | 99pp | softcover | 29.00€ | 32.00\$

Uhlenbeck Compactness

Katrin Wehrheim (MIT, Cambridge, USA)

ISBN 978-3-03719-004-3 | eISBN: 978-3-03719-504-8
published in 2004 | 219pp | softcover | 49.00€ | 53.00\$

An Introduction to Noncommutative Geometry

Joseph C. Várilly (Universidad de Costa Rica)

ISBN 978-3-03719-024-1 | eISBN: 978-3-03719-524-6
published in 2006 | 121pp | softcover | 29.00€ | 32.00\$

Lectures on Algebraic Topology

Sergey V. Matveev (Chelyabinsk State University, Russia)

ISBN 978-3-03719-023-4 | eISBN: 978-3-03719-523-9
published in 2006 | 106pp | softcover | 29.00€ | 32.00\$

One Semester of Elliptic Curves

Torsten Ekedahl (University of Stockholm, Sweden)

ISBN 978-3-03719-015-9 | eISBN: 978-3-03719-515-4
published in 2006 | 138pp | softcover | 39.00€ | 42.00\$

HERITAGE OF EUROPEAN MATHEMATICS

... il me paraît que si l'on veut faire des progrès dans les mathématiques il faut étudier les maîtres ...

... it appears to me that if one wants to make progress in mathematics one should study the masters ...

– Niels Henrik Abel, in his Paris notebook dated 6 August 1826

This series features the selected or collected works of distinguished mathematicians. Biographies of and correspondence between outstanding mathematicians, as well as other texts of historico-mathematical interest are also included.

Advisory Board: Ciro Ciliberto (Università degli Studi di Roma "Tor Vergata"), Władysław Narkiewicz (Uniwersytet Wrocławski), Samuel J. Patterson (Universität Göttingen), and Rossana Tazzioli (Université de Lille).

Gösta Mittag-Leffler and Vito Volterra. 40 Years of Correspondence

Editors: Frédéric Jaëck (Ecole Normale Supérieure, Paris, France), Laurent Mazliak (Université Pierre et Marie Curie, Paris, France), Emma Sallent Del Colombo (Universitat de Barcelona, Spain), Rossana Tazzioli (Université Lille 1, Villeneuve-d'Ascq, France)

ISBN 978-3-03719-199-6 | eISBN: 978-3-03719-699-1
published in 2019 | 438pp | hardcover | 88.00€ | 95.00\$

HERITAGE OF EUROPEAN MATHEMATICS

Uniformization of Riemann Surfaces

Revisiting a hundred-year-old theorem

Henri Paul de Saint-Gervais (Paris)

ISBN 978-3-03719-145-3 | eISBN: 978-3-03719-645-8
published in 2016 | 512pp | hardcover | 79.00€ | 85.00\$

Contributions to the History of Number Theory in the 20th Century

Peter Roquette (University of Heidelberg, Germany)

ISBN 978-3-03719-113-2 | eISBN: 978-3-03719-613-7
published in 2013 | 289pp | hardcover | 79.00€ | 85.00\$

Karl Löwner and His Student Lipman Bers – Pre-war Prague Mathematicians

Martina Bečvářová (Czech Technical University, Prague, Czech Republic), Ivan Netuka (Charles University, Prague, Czech Republic)

ISBN 978-3-03719-144-6 | eISBN: 978-3-03719-644-1
published in 2015 | 310pp | hardcover | 79.00€ | 85.00\$

The mathematical writings of Évariste Galois Corrected 2nd printing, September 2013

Peter M. Neumann (University of Oxford, UK)

ISBN 978-3-03719-104-0 | eISBN: 978-3-03719-604-5
published in 2011 | 421pp | hardcover | 79.00€ | 85.00\$

Emil Artin and Beyond – Class Field Theory and L-Functions

Della Dumbaugh (University of Richmond, USA), Joachim Schwermer (University of Vienna, Austria)

ISBN 978-3-03719-146-0 | eISBN: 978-3-03719-646-5
published in 2015 | 245pp | hardcover | 79.00€ | 85.00\$

From Cardano's great art to Lagrange's reflections: filling a gap in the history of algebra

Jacqueline Stedall (University of Oxford, UK)

ISBN 978-3-03719-092-0 | eISBN: 978-3-03719-592-5
published in 2011 | 236pp | hardcover | 79.00€ | 85.00\$

Jacques Tits, Œuvres – Collected Works

Editors: Francis Buekenhout (Université libre de Bruxelles, Belgium), Bernhard Mühlherr (Justus Liebig University Giessen, Germany), Jean-Pierre Tignol (Université catholique de Louvain, Belgium), Hendrik van Maldeghem (Ghent University, Belgium)

ISBN 978-3-03719-126-2 | eISBN: 978-3-03719-626-7
published in 2013 | 3963pp | hardcover | 650.00€ | 696.00\$

Nikolai I. Lobachevsky, Pangeometry

Editor: Athanase Papadopoulos (IRMA, Strasbourg, France)

ISBN 978-3-03719-087-6 | eISBN: 978-3-03719-587-1
published in 2010 | 322pp | hardcover | 79.00€ | 85.00\$

Hans Freudenthal, *Selecta*

Editors: Tonny A. Springer (Utrecht University, The Netherlands), Dirk van Dalen (Utrecht University, The Netherlands)

ISBN 978-3-03719-058-6 | eISBN: 978-3-03719-558-1
published in 2009 | 661pp | hardcover | 139.00€ | 149.00\$

Thomas Harriot's Doctrine of Triangular Numbers: the 'Magisteria Magna'

Editors: Janet Beery (University of Redlands, USA), Jacqueline Stedall (University of Oxford, UK)

ISBN 978-3-03719-059-3 | eISBN: 978-3-03719-559-8
published in 2008 | 144pp | hardcover | 69.00€ | 74.00\$

Andrzej Schinzel, *Selecta*

Editors: Henryk Iwaniec (Rutgers University, USA), Władysław Narkiewicz (University of Wrocław, Poland), Jerzy Urbanowicz (IM PAN, Warsaw, Poland)

ISBN 978-3-03719-038-8 | eISBN: 978-3-03719-538-3
published in 2007 | 1417pp | hardcover | 179.00€ | 192.00\$

EMS SERIES OF CONGRESS REPORTS

The *EMS Series of Congress Reports* publishes volumes originating from conferences or seminars focusing on any field of pure or applied mathematics. The individual volumes include an introduction into their subject and review of the contributions in this context. Articles are required to undergo a refereeing process and are accepted only if they contain a survey or significant results not published elsewhere in the literature.

t-Motives: Hodge Structures, Transcendence and Other Motivic Aspects

Editors: Gebhard Böckle (Universität Heidelberg, Germany), David Goss, Urs Hartl (Universität Münster, Germany), Matthew A. Papanikolas (Texas A&M University, College Station, USA)

ISBN 978-3-03719-198-9 | eISBN: 978-3-03719-698-4
published in 2020 | 473pp | hardcover | 89.00€ | 96.00\$

Spectral Structures and Topological Methods in Mathematics

Editors: Michael Baake (Universität Bielefeld, Germany), Friedrich Götze (Universität Bielefeld, Germany), Werner Hoffmann (Universität Bielefeld, Germany)

ISBN 978-3-03719-197-2 | eISBN: 978-3-03719-697-7
published in 2019 | 433pp | hardcover | 88.00€ | 95.00\$

Non-Linear Partial Differential Equations, Mathematical Physics, and Stochastic Analysis The Helge Holden Anniversary Volume

Editors: F. Gesztesy (Baylor University, USA), H. Hanche-Olsen (The Norwegian University of Science and Technology), E. R. Jakobsen (The Norwegian University of Science and Technology), Y. I. Lyubarskii (The Norwegian University of Science and Technology), N. H. Risebro (University of Oslo, Norway), K. Seip (Norwegian University of Science and Technology)

ISBN 978-3-03719-186-6 | eISBN: 978-3-03719-686-1
published in 2018 | 502pp | hardcover | 98.00€ | 105.00\$

Schubert Varieties, Equivariant Cohomology and Characteristic Classes

Impanga 15

Editors: Jarosław Buczyński (Polish Academy of Sciences and University of Warsaw, Poland), Mateusz Michałek (Polish Academy of Sciences, Warsaw, Poland and Max Planck-Institute, Leipzig, Germany), Elisa Postinghel (Loughborough University, UK)

ISBN 978-3-03719-182-8 | eISBN: 978-3-03719-682-3
published in 2018 | 354pp | hardcover | 78.00€ | 84.00\$

EMS SERIES OF CONGRESS REPORTS

Functional Analysis and Operator Theory for Quantum Physics

The Pavel Exner Anniversary Volume

Editors: Jaroslav Dittrich (Czech Academy of Sciences, Rez-Prague, Czech Republic), Hynek Kovařík (Università degli Studi di Brescia, Italy), Ari Laptev (Imperial College London, UK)

ISBN 978-3-03719-175-0 | eISBN: 978-3-03719-675-5
published in 2017 | 595pp | hardcover | 109.00€ | 117.00\$

Representation Theory – Current Trends and Perspectives

Editors: Henning Krause (Universität Bielefeld, Germany), Peter Littelmann (Universität Köln, Germany), Gunter Malle (Universität Kaiserslautern, Germany), Karl-Hermann Neeb (FAU Erlangen-Nürnberg, Germany), Christoph Schweigert (Universität Hamburg, Germany)

ISBN 978-3-03719-171-2 | eISBN: 978-3-03719-671-7
published in 2017 | 773pp | hardcover | 109.00€ | 117.00\$

Valuation Theory in Interaction

Editors: Antonio Campillo (Universidad de Valladolid, Spain), Franz-Viktor Kuhlmann (University of Saskatchewan, Saskatoon, Canada), Bernard Teissier (Institut de Mathématiques de Jussieu, Paris, France)

ISBN 978-3-03719-149-1 | eISBN: 978-3-03719-649-6
published in 2014 | 670pp | hardcover | 109.00€ | 117.00\$

Advances in Representation Theory of Algebras

Editors: David J. Benson (University of Aberdeen, UK), Henning Krause (University of Bielefeld, Germany), Andrzej Skowroński (Nicolaus Copernicus University, Toruń, Poland)

ISBN 978-3-03719-125-5 | eISBN: 978-3-03719-625-0
published in 2014 | 378pp | hardcover | 79.00€ | 85.00\$

Derived Categories in Algebraic Geometry

Tokyo 2011

Editor: Yujiro Kawamata (University of Tokyo, Japan)

ISBN 978-3-03719-115-6 | eISBN: 978-3-03719-615-1
published in 2013 | 354pp | hardcover | 79.00€ | 85.00\$

Geometry and Arithmetic

Editors: Robin de Jong (University of Leiden, The Netherlands), Carel Faber (Royal Institute of Technology, Stockholm, Sweden), Gavril Farkas (Humboldt-Universität zu Berlin, Berlin, Germany)

ISBN 978-3-03719-119-4 | eISBN: 978-3-03719-619-9
published in 2012 | 383pp | hardcover | 79.00€ | 85.00\$

Contributions to Algebraic Geometry

Impanga Lecture Notes

Editor: Piotr Pragacz (IM PAN, Warsaw, Poland)

ISBN 978-3-03719-114-9 | eISBN: 978-3-03719-614-4
published in 2012 | 516pp | hardcover | 109.00€ | 117.00\$

Representations of Algebras and Related Topics

Editors: Andrzej Skowroński (Nicolaus Copernicus University, Toruń, Poland), Kunio Yamagata (Tokyo University of Agriculture and Technology, Japan)

ISBN 978-3-03719-101-9 | eISBN: 978-3-03719-601-4
published in 2011 | 740pp | hardcover | 109.00€ | 117.00\$

Surveys in Stochastic Processes

Editors: Jochen Blath (Technical University of Berlin, Germany), Peter Imkeller (Humboldt University of Berlin, Germany), Sylvie Roelly (University of Potsdam, Germany)

ISBN 978-3-03719-072-2 | eISBN: 978-3-03719-572-7
published in 2011 | 263pp | hardcover | 79.00€ | 85.00\$

Classification of Algebraic Varieties

Editors: Carel Faber (Royal Institute of Technology, Stockholm, Sweden), Eduard Looijenga (University of Utrecht, The Netherlands), Gerard van der Geer (University of Amsterdam, The Netherlands)

ISBN 978-3-03719-007-4 | eISBN: 978-3-03719-507-9
published in 2010 | 346pp | hardcover | 79.00€ | 85.00\$

K-Theory and Noncommutative Geometry

Editors: Guillermo Cortias (Universidad de Buenos Aires, Argentina), Joachim Cuntz (University of Münster, Germany), Max Karoubi (Université Paris 7, France), Ryszard Nest (University of Copenhagen, Denmark), Charles A. Weibel (Rutgers University, USA)

ISBN 978-3-03719-060-9 | eISBN: 978-3-03719-560-4
published in 2008 | 454pp | hardcover | 99.00€ | 106.00\$

Trends in Representation Theory of Algebras and Related Topics

Editor: Andrzej Skowroński (Nicolaus Copernicus University, Toruń, Poland)

ISBN 978-3-03719-062-3 | eISBN: 978-3-03719-562-8
published in 2008 | 722pp | hardcover | 109.00€ | 117.00\$

EMS SERIES IN INDUSTRIAL AND APPLIED MATHEMATICS

The *EMS Series in Industrial and Applied Mathematics* publishes high quality advanced texts and monographs in all areas of industrial and applied mathematics. Books include those of a general nature as well as those dealing with the mathematics of specific applications areas and real-world situations. While it is intended to disseminate scholarship of the highest standard, authors are encouraged to make their work as accessible as possible.

Edited by Alfredo Bermúdez de Castro (Universidade de Santiago de Compostela), Lorenz T. Biegler (Carnegie Mellon University), Annalisa Buffa (École Polytechnique Fédérale de Lausanne), Matthias Heinkenschloss (Rice University), Alexander Martin (Technische Universität Nürnberg), Volker Mehrmann (Technische Universität Berlin), Stephen B. G. O'Brien (University of Limerick)

Decision Support Systems for Water Supply Systems

Smart Water System to Improve the Operation of Water Supply Systems by Using Applied Mathematics

Editors: Antonio Morsi (Universität Erlangen-Nürnberg, Germany), Andreas Pirsing (Siemens AG, Berlin, Germany)

ISBN 978-3-03719-207-8 | eISBN: 978-3-03719-707-3
published in 2020 | 243pp | hardcover | 69.00€ | 74.00\$

MATHEON – Mathematics for Key Technologies

Editors: P. Deufilhard (Konrad-Zuse-Zentrum, Germany), M. Grötschel (Konrad-Zuse-Zentrum, Germany), D. Hömberg (TU Berlin, Germany), U. Horst (Humboldt-Universität zu Berlin, Germany), J. Kramer (Humboldt-Universität zu Berlin, Germany), V. Mehrmann (TU Berlin, Germany), K. Polthier (FU Berlin, Germany), F. Schmidt (Konrad-Zuse-Zentrum, Germany), C. Schütte (FU Berlin, Germany), M. Skutella (TU Berlin, Germany), J. Sprekels (Weierstraß Institut für Angewandte Analysis und Stochastik, Germany)

ISBN 978-3-03719-137-8 | eISBN: 978-3-03719-637-3
published in 2014 | 466pp | hardcover | 59.00€ | 64.00\$

ESI LECTURES IN MATHEMATICS AND PHYSICS

The *Erwin Schrödinger International Institute for Mathematics and Physics* (ESI) is a meeting place for leading experts in mathematical physics and mathematics, nurturing the development and exchange of ideas in the international community, particularly stimulating intellectual exchange between scientists from Eastern Europe and the rest of the world.

The purpose of the series *ESI Lectures in Mathematics and Physics* is to make selected texts arising from its research programme better known to a wider community and easily available to a worldwide audience. It publishes lecture notes of courses given by internationally renowned experts on highly active research topics. In order to make the series attractive to graduate students as well as researchers, special emphasis is given to concise and lively presentations with a level and focus appropriate to a student's background and at prices commensurate with a student's means.

Edited by Christoph Dellago and Ilaria Perugia (Universität Wien)

Noncommutative Geometry and Physics: Renormalisation, Motives, Index Theory

Editor: Alan L. Carey (Australian National University, Canberra)

ISBN 978-3-03719-008-1 | eISBN: 978-3-03719-508-6
published in 2011 | 280pp | softcover | 69.00€ | 74.00\$

Lectures on the $\mathcal{L}^2$ -Sobolev Theory of the $\bar{\partial}$ -Neumann problem

Emil J. Straube (Texas A&M University, College Station, USA)

ISBN 978-3-03719-076-0 | eISBN: 978-3-03719-576-5
published in 2010 | 214pp | softcover | 49.00€ | 53.00\$

Microlocal Analysis of Quantum Fields on Curved Spacetimes

Christian Gérard (Université de Paris 11, Orsay, France)

ISBN 978-3-03719-094-4 | eISBN: 978-3-03719-594-9
published in 2019 | 228pp | softcover | 48.00€ | 52.00\$

The Cauchy Problem in General Relativity

Hans Ringström (KTH Mathematics, Stockholm, Sweden)

ISBN 978-3-03719-053-1 | eISBN: 978-3-03719-553-6
published in 2009 | 307pp | softcover | 49.00€ | 53.00\$

Erwin Schrödinger – 50 Years After

Editors: Wolfgang L. Reiter (University of Vienna, Austria), Jakob Yngvason (University of Vienna, Austria)

ISBN 978-3-03719-121-7 | eISBN: 978-3-03719-621-2
published in 2013 | 195pp | softcover | 69.00€ | 74.00\$

Boltzmann's Legacy

Editors: Giovanni Gallavotti (Università di Roma "La Sapienza", Italy), Wolfgang L. Reiter (University of Vienna, Austria), Jakob Yngvason (University of Vienna, Austria)

ISBN 978-3-03719-057-9 | eISBN: 978-3-03719-557-4
published in 2008 | 284pp | softcover | 69.00€ | 74.00\$

Recent Developments in Pseudo-Riemannian Geometry

Editors: Dmitri V. Alekseevsky (School of Mathematics, The University of Edinburgh, UK), Helga Baum (Humboldt-Universität, Berlin, Germany)

ISBN 978-3-03719-051-7 | eISBN: 978-3-03719-551-2
published in 2008 | 549pp | softcover | 69.00€ | 74.00\$

Wave Equations on Lorentzian Manifolds and Quantization

Christian Bär (University of Potsdam, Germany), Nicolas Ginoux (University of Regensburg, Germany), Frank Pfäffle (University of Potsdam, Germany)

ISBN 978-3-03719-037-1 | eISBN: 978-3-03719-537-6
published in 2007 | 202pp | softcover | 49.00€ | 53.00\$

Lectures on Kähler Manifolds

Werner Ballmann (University of Bonn, Germany)

ISBN 978-3-03719-025-8 | eISBN: 978-3-03719-525-3
published in 2006 | 182pp | softcover | 49.00€ | 53.00\$

Lectures on Real Semisimple Lie Algebras and Their Representations

Arkady L. Onishchik (Yaroslavl State University, Russia)

ISBN 978-3-03719-002-9 | eISBN: 978-3-03719-502-4
published in 2004 | 95pp | softcover | 29.00€ | 32.00\$

IRMA LECTURES IN MATHEMATICS AND THEORETICAL PHYSICS

This series is devoted to the publication of research monographs, conferences or workshops originating from the Institut de Recherche Mathématique Avancée (Strasbourg, France). The goal is to promote recent advances in mathematics and theoretical physics and make them accessible to a wide circle of professional and aspiring mathematicians and physicists.

Edited by: Olivier Guichard (Institut de Recherche Mathématique Avancée)

Algebraic Combinatorics, Resurgence, Moulds and Applications (CARMA)

Volume II

Editors: Frédéric Chapoton (Université de Strasbourg, France), Frédéric Fauvet (Université de Strasbourg, France), Claudia Malvenuto (Università di Roma La Sapienza, Italy), Jean-Yves Thibon (Université Paris-Est Marne-la-Vallée, France)

ISBN 978-3-03719-204-7 | eISBN: 978-3-03719-704-2
published in 2020 | 354pp | softcover | 58.00€ | 63.00\$

Algebraic Combinatorics, Resurgence, Moulds and Applications (CARMA)

Volume I

Editors: Frédéric Chapoton (Université de Strasbourg, France), Frédéric Fauvet (Université de Strasbourg, France), Claudia Malvenuto (Università di Roma La Sapienza, Italy), Jean-Yves Thibon (Université Paris-Est Marne-la-Vallée, France)

ISBN 978-3-03719-205-4 | eISBN: 978-3-03719-705-9
published in 2020 | 396pp | softcover | 58.00€ | 63.00\$

Handbook of Teichmüller Theory, Volume VII

Editor: Athanase Papadopoulos (Université de Strasbourg, France)

ISBN 978-3-03719-203-0 | eISBN: 978-3-03719-703-5
published in 2020 | 626pp | hardcover | 88.00€ | 95.00\$

IRMA LECTURES IN MATHEMATICS AND THEORETICAL PHYSICS

Eighteen Essays in Non-Euclidean Geometry

Editors: Vincent Alberge (Fordham University, Bronx, USA), Athanase Papadopoulos (Université de Strasbourg, France)

ISBN 978-3-03719-196-5 | eISBN: 978-3-03719-696-0
published in 2019 | 475pp | hardcover | 78.00€ | 84.00\$

Linear Forms in Logarithms and Applications

Yann Bugeaud (Université de Strasbourg, France)

ISBN 978-3-03719-183-5 | eISBN: 978-3-03719-683-0
published in 2018 | 240pp | softcover | 38.00€ | 41.00\$

Handbook of Teichmüller Theory, Volume VI

Editor: Athanase Papadopoulos (Université de Strasbourg, France)

ISBN 978-3-03719-161-3 | eISBN: 978-3-03719-661-8
published in 2016 | 652pp | hardcover | 99.00€ | 106.00\$

Handbook of Teichmüller Theory, Volume V

Editor: Athanase Papadopoulos (Université de Strasbourg, France)

ISBN 978-3-03719-160-6 | eISBN: 978-3-03719-660-1
published in 2016 | 596pp | hardcover | 99.00€ | 106.00\$

Metric Measure Geometry

Gromov's Theory of Convergence and Concentration of Metrics and Measures

Takashi Shioya (Tohoku University, Sendai, Japan)

ISBN 978-3-03719-158-3 | eISBN: 978-3-03719-658-8
published in 2016 | 194pp | hardcover | 49.00€ | 53.00\$

Free Loop Spaces in Geometry and Topology Including the monograph Symplectic cohomology and Viterbo's theorem by Mohammed Abouzaid

Editors: Janko Latschev (Universität Hamburg, Germany), Alexandru Oancea (Sorbonne Universités, Paris, France)

ISBN 978-3-03719-153-8 | eISBN: 978-3-03719-653-3
published in 2015 | 500pp | hardcover | 79.00€ | 85.00\$

Faà di Bruno Hopf Algebras, Dyson–Schwinger Equations, and Lie–Butcher Series

Editors: Kurusch Ebrahimi-Fard (Universidad Autónoma de Madrid, Spain), Frédéric Fauvet (Université de Strasbourg, France)

ISBN 978-3-03719-143-9 | eISBN: 978-3-03719-643-4
published in 2015 | 466pp | softcover | 59.00€ | 64.00\$

Sophus Lie and Felix Klein: The Erlangen Program and Its Impact in Mathematics and Physics

Editors: Lizhen Ji (University of Michigan, Ann Arbor, USA), Athanase Papadopoulos (Université de Strasbourg, France)

ISBN 978-3-03719-148-4 | eISBN: 978-3-03719-648-9
published in 2015 | 348pp | hardcover | 59.00€ | 64.00\$

Handbook of Hilbert Geometry

Editors: Athanase Papadopoulos (Université de Strasbourg, France), Marc Troyanov (École Polytechnique Fédérale de Lausanne, Switzerland)

ISBN 978-3-03719-147-7 | eISBN: 978-3-03719-647-2
published in 2014 | 460pp | hardcover | 79.00€ | 85.00\$

Handbook of Teichmüller Theory, Volume III

Editor: Athanase Papadopoulos (IRMA, Strasbourg, France)

ISBN 978-3-03719-103-3 | eISBN: 978-3-03719-603-8
published in 2012 | 874pp | hardcover | 109.00€ | 117.00\$

Handbook of Teichmüller Theory, Volume IV

Editor: Athanase Papadopoulos (IRMA, Strasbourg, France)

ISBN 978-3-03719-117-0 | eISBN: 978-3-03719-617-5
published in 2014 | 838pp | hardcover | 109.00€ | 117.00\$

Strasbourg Master Class on Geometry

Editor: Athanase Papadopoulos (IRMA, Strasbourg, France)

ISBN 978-3-03719-105-7 | eISBN: 978-3-03719-605-2
published in 2012 | 461pp | softcover | 59.00€ | 64.00\$

Metric Spaces, Convexity and Nonpositive Curvature

Second edition

Athanase Papadopoulos (IRMA, Strasbourg, France)

ISBN 978-3-03719-132-3 | eISBN: 978-3-03719-632-8
published in 2014 | 320pp | softcover | 59.00€ | 64.00\$

Handbook of Pseudo-Riemannian Geometry and Supersymmetry

Editor: Vicente Cortés (University of Hamburg, Germany)

ISBN 978-3-03719-079-1 | eISBN: 978-3-03719-579-6
published in 2010 | 964pp | hardcover | 129.00€ | 139.00\$

Singularities in Geometry and Topology Strasbourg 2009

Editors: Vincent Blanlœil (IRMA, Strasbourg, France), Toru Ohmoto (Hokkaido University, Sapporo, Japan)

ISBN 978-3-03719-118-7 | eISBN: 978-3-03719-618-2
published in 2012 | 370pp | softcover | 59.00€ | 64.00\$

Renormalization and Galois Theories

Editors: Alain Connes (IHÉS, Bures-sur-Yvette, France), Frédéric Fauvet (IRMA, Strasbourg, France), Jean-Pierre Ramis (Institut de Mathématiques de Toulouse, France)

ISBN 978-3-03719-073-9 | eISBN: 978-3-03719-573-4
published in 2009 | 279pp | softcover | 49.00€ | 53.00\$

IRMA LECTURES IN MATHEMATICS AND THEORETICAL PHYSICS

Dynamical Systems and Processes

Michel Weber (IRMA, Strasbourg, France)

ISBN 978-3-03719-046-3 | eISBN: 978-3-03719-546-8
published in 2009 | 773pp | hardcover | 109.00€ | 117.00\$

Differential Equations and Quantum Groups

Andrey A. Bolibrukh Memorial Volume

Editors: Daniel Bertrand (Université Pierre et Marie Curie, Paris, France), Benjamin Enriquez (IRMA, Strasbourg, France), Claude Mitschi (IRMA, Strasbourg, France), Claude Sabbah (Ecole Polytechnique, Palaiseau, France), Reinhard Schäfke (IRMA, Strasbourg, France)

ISBN 978-3-03719-020-3 | eISBN: 978-3-03719-520-8
published in 2006 | 302pp | softcover | 49.00€ | 53.00\$

Handbook of Teichmüller Theory, Volume II

Editor: Athanase Papadopoulos (IRMA, Strasbourg, France)

ISBN 978-3-03719-055-5 | eISBN: 978-3-03719-555-0
published in 2009 | 883pp | hardcover | 109.00€ | 117.00\$

Physics and Number Theory

Editor: Louise Nyssen (Université Montpellier, France)

ISBN 978-3-03719-028-9 | eISBN: 978-3-03719-528-4
published in 2006 | 274pp | softcover | 49.00€ | 53.00\$

Quantum Groups

Editor: Benjamin Enriquez (IRMA, Strasbourg, France)

ISBN 978-3-03719-047-0 | eISBN: 978-3-03719-547-5
published in 2008 | 140pp | softcover | 49.00€ | 53.00\$

AdS/CFT Correspondence: Einstein Metrics and Their Conformal Boundaries

Editor: Olivier Biquard (IRMA, Strasbourg, France)

ISBN 978-3-03719-013-5 | eISBN: 978-3-03719-513-0
published in 2005 | 259pp | softcover | 49.00€ | 53.00\$

Handbook of Teichmüller Theory, Volume I

Editor: Athanase Papadopoulos (IRMA, Strasbourg, France)

ISBN 978-3-03719-029-6 | eISBN: 978-3-03719-529-1
published in 2007 | 802pp | hardcover | 109.00€ | 117.00\$

Numerical Methods for Hyperbolic and Kinetic Problems

Editors: Stéphane Cordier (Orléans, France), Thierry Goudon (Lille, France), Michael Gutnic (Strasbourg, France), Eric Sonnendrücker (Strasbourg, France)

ISBN 978-3-03719-012-8 | eISBN: 978-3-03719-512-3
published in 2005 | 367pp | softcover | 49.00€ | 53.00\$

THE QGM MASTER CLASS SERIES

The Center for the Quantum Geometry of Moduli Spaces (QGM) in Aarhus, Denmark, focuses on collaborative cutting-edge research and training in the quantum geometry of moduli spaces. This discipline lies at the interface between mathematics and theoretical physics combining ideas and techniques developed over the last decades for resolving the big challenge to provide solid mathematical foundations for a large class of quantum field theories.

As part of its mission, QGM organizes a series of master classes each year continuing the tradition initiated by the former Center for the Topology and Quantization of Moduli Spaces. In these events, prominent scientists lecture on their research speciality starting from first principles. The courses are typically centered around various aspects of quantization and moduli spaces as well as other related subjects such as topological quantum field theory and quantum geometry and topology in more general contexts.

This series contains lecture notes, textbooks and monographs arising from the master classes held at QGM. The guiding theme can be characterized as the study of geometrical aspects and mathematical foundations of quantum field theory and string theory.

Edited by Jørgen Ellegaard Andersen (Aarhus Universitet), Henning Haahr Andersen (Aarhus Universitet), Nigel Hitchin (University of Oxford), Maxim Kontsevich (Institut des Hautes Études Scientifiques), Robert Penner (California Institute of Technology) and Nicolai Reshetikhin (University of California, Berkeley)

Decorated Teichmüller Theory

Robert C. Penner (Centre for Quantum Geometry of Moduli Spaces, Aarhus, Denmark, and Caltech, Pasadena, USA)

ISBN 978-3-03719-075-3 | eISBN: 978-3-03719-575-8
published in 2012 | 377pp | hardcover | 69.00€ | 74.00\$

MÜNSTER LECTURES IN MATHEMATICS

The *Münster Lectures in Mathematics* report on recent developments in mathematics. Material considered for publication includes monographs and lecture notes or seminars on a new field or a new angle at a classical field.

Edited by Christopher Deninger and Linus Kramer (Universität Münster)

Lectures in Model Theory

Editors: Franziska Jahnke (Universität Münster, Germany), Daniel Palacín (The Hebrew University of Jerusalem, Israel), Katrin Tent (Universität Münster, Germany)

ISBN 978-3-03719-184-2 | eISBN: 978-3-03719-684-7
published in 2018 | 222pp | softcover | 38.00€ | 41.00\$

Lectures on Algebraic Categorification

Volodymyr Mazorchuk (Uppsala University, Sweden)

ISBN 978-3-03719-108-8 | eISBN: 978-3-03719-608-3
published in 2012 | 128pp | softcover | 29.00€ | 32.00\$

Free Probability and Operator Algebras

Editors: Nicolai Stammeier (University of Oslo, Norway), Dan-Virgil Voiculescu (University of California, Berkeley, USA), Moritz Weber (Universität Saarbrücken, Germany)

ISBN 978-3-03719-165-1 | eISBN: 978-3-03719-665-6
published in 2016 | 142pp | softcover | 39.00€ | 42.00\$

ZÜRICH LECTURES IN ADVANCED MATHEMATICS

Mathematics in Zürich has a long and distinguished tradition, in which the writing of lecture notes volumes and research monographs play a prominent part. The *Zürich Lectures in Advanced Mathematics* series aims to make some of these publications better known to a wider audience.

The series has three main constituents: lecture notes on advanced topics given by internationally renowned experts, in particular lecture notes of “Nachdiplomvorlesungen”, organized jointly by the Department of Mathematics and the Institute for Research in Mathematics (FIM) at ETH, graduate text books designed for the joint graduate program in Mathematics of the ETH and the University of Zürich, as well as contributions from researchers in residence.

Moderately priced, concise and lively in style, the volumes of this series will appeal to researchers and students alike, who seek an informed introduction to important areas of current research.

Edited by Habib Ammari (ETH Zürich), Alexander Gorodnik (Universität Zürich, managing editor), Urs Lang (ETH Zürich, managing editor), Michael Struwe (ETH Zürich)

Geometric and Topological Aspects of Coxeter Groups and Buildings

Anne Thomas (The University of Sydney, Australia)

ISBN 978-3-03719-189-7 | eISBN: 978-3-03719-689-2
published in 2018 | 160pp | softcover | 34.00€ | 37.00\$

Asymptotic Theory of Transaction Costs

Walter Schachermayer (Universität Wien, Austria)

ISBN 978-3-03719-173-6 | eISBN: 978-3-03719-673-1
published in 2017 | 160pp | softcover | 39.00€ | 42.00\$

The Monge–Ampère Equation and Its Applications

Alessio Figalli (ETH Zürich, Switzerland)

ISBN 978-3-03719-170-5 | eISBN: 978-3-03719-670-0
published in 2017 | 210pp | softcover | 39.00€ | 42.00\$

Coulomb Gases and Ginzburg–Landau Vortices

Sylvia Serfaty (Université Pierre et Marie Curie (Paris VI), France)

ISBN 978-3-03719-152-1 | eISBN: 978-3-03719-652-6
published in 2015 | 165pp | softcover | 39.00€ | 42.00\$

Compactness and Stability for Nonlinear Elliptic Equations

Emmanuel Hebey (Université de Cergy-Pontoise, France)

ISBN 978-3-03719-134-7 | eISBN: 978-3-03719-634-2
published in 2014 | 301pp | softcover | 49.00€ | 53.00\$

Lecture Notes on Cluster Algebras

Robert J. Marsh (University of Leeds, UK)

ISBN 978-3-03719-130-9 | eISBN: 978-3-03719-630-4
published in 2014 | 121pp | softcover | 29.00€ | 32.00\$

From Newton to Boltzmann: Hard Spheres and Short-range Potentials

Isabelle Gallagher (Université Paris-Diderot France), Laure Saint-Raymond (Ecole Normale Supérieure, France), Benjamin Texier (Université Paris Diderot - Paris 7, France)

ISBN 978-3-03719-129-3 | eISBN: 978-3-03719-629-8
published in 2014 | 148pp | softcover | 39.00€ | 42.00\$

Invariant Manifolds and Dispersive Hamiltonian Evolution Equations

Kenji Nakanishi (Kyoto University, Japan), Wilhelm Schlag (University of Chicago, USA)

ISBN 978-3-03719-095-1 | eISBN: 978-3-03719-595-6
published in 2011 | 258pp | softcover | 49.00€ | 53.00\$

Lectures on Representations of Surface Groups

François Labourie (Université Paris Sud, Orsay, France)

ISBN 978-3-03719-127-9 | eISBN: 978-3-03719-627-4
published in 2013 | 145pp | softcover | 39.00€ | 42.00\$

Nonlinear Discrete Optimization

An Algorithmic Theory

Shmuel Onn (Technion - Israel Institute of Technology, Haifa, Israel)

ISBN 978-3-03719-093-7 | eISBN: 978-3-03719-593-2
published in 2010 | 147pp | softcover | 39.00€ | 42.00\$

Topics in Occupation Times and Gaussian Free Fields

Alain-Sol Sznitman (ETH Zürich, Switzerland)

ISBN 978-3-03719-109-5 | eISBN: 978-3-03719-609-0
published in 2012 | 121pp | softcover | 29.00€ | 32.00\$

From Quantum to Classical Molecular Dynamics: Reduced Models and Numerical Analysis

Christian Lubich (University of Tübingen, Germany)

ISBN 978-3-03719-067-8 | eISBN: 978-3-03719-567-3
published in 2008 | 153pp | softcover | 39.00€ | 42.00\$

Geometric Numerical Integration and Schrödinger Equations

Erwan Faou (ENS Cachan Bretagne, France)

ISBN 978-3-03719-100-2 | eISBN: 978-3-03719-600-7
published in 2012 | 146pp | softcover | 39.00€ | 42.00\$

Integer Points in Polyhedra

Alexander Barvinok (University of Michigan, Ann Arbor, USA)

ISBN 978-3-03719-052-4 | eISBN: 978-3-03719-552-9
published in 2008 | 199pp | softcover | 39.00€ | 42.00\$

Invitation to Topological Robotics

Michael Farber (Durham University, United Kingdom)

ISBN 978-3-03719-054-8 | eISBN: 978-3-03719-554-3
published in 2008 | 143pp | softcover | 39.00€ | 42.00\$

Mathematical Problems of General Relativity I

Demetrios Christodoulou (ETH Zurich, Switzerland)

ISBN 978-3-03719-005-0 | eISBN: 978-3-03719-505-5
published in 2008 | 157pp | softcover | 29.00€ | 32.00\$

Geometric Invariant Theory and Decorated Principal Bundles

Alexander H.W. Schmitt (Freie Universität Berlin, Germany)

ISBN 978-3-03719-065-4 | eISBN: 978-3-03719-565-9
published in 2008 | 396pp | softcover | 59.00€ | 64.00\$

High Risk Scenarios and Extremes

A geometric approach

Guus Balkema (University of Amsterdam, The Netherlands), Paul Embrechts (ETH Zurich, Switzerland)

ISBN 978-3-03719-035-7 | eISBN: 978-3-03719-535-2
published in 2007 | 389pp | softcover | 59.00€ | 64.00\$

Fukaya Categories and Picard–Lefschetz Theory

Paul Seidel (Massachusetts Institute of Technology, Cambridge, USA)

ISBN 978-3-03719-063-0 | eISBN: 978-3-03719-563-5
published in 2008 | 334pp | softcover | 49.00€ | 53.00\$

Calogero–Moser systems and representation theory

Pavel Etingof (Massachusetts Institute of Technology, Cambridge, USA)

ISBN 978-3-03719-034-0 | eISBN: 978-3-03719-534-5
published in 2007 | 101pp | softcover | 29.00€ | 32.00\$

Rectifiable Sets, Densities, and Tangent Measures

Camillo De Lellis (University of Zurich)

ISBN 978-3-03719-044-9 | eISBN: 978-3-03719-544-4
published in 2008 | 133pp | softcover | 29.00€ | 32.00\$

Randomly forced nonlinear PDEs and statistical hydrodynamics in 2 space dimensions

Sergei B. Kuksin (Heriot-Watt University, Edinburgh, UK)

ISBN 978-3-03719-021-0 | eISBN: 978-3-03719-521-5
published in 2006 | 102pp | softcover | 29.00€ | 32.00\$

Non-linear Elliptic Equations in Conformal Geometry

Sun-Yung Alice Chang (Princeton University, USA)

ISBN 978-3-03719-006-7 | eISBN: 978-3-03719-506-2
published in 2004 | 100pp | softcover | 29.00€ | 32.00\$

Absolute Arithmetic and $\mathbb{F}_1$ -Geometry

Editor: Koen Thas (University of Gent, Belgium)

ISBN 978-3-03719-157-6 | eISBN: 978-3-03719-657-1
published in 2016 | 397pp | hardcover | 79.00€ | 85.00\$

Lectures on partial hyperbolicity and stable ergodicity

Yakov B. Pesin (Pennsylvania State University, USA)

ISBN 978-3-03719-003-6 | eISBN: 978-3-03719-503-1
published in 2004 | 128pp | softcover | 29.00€ | 32.00\$

Mathematics and Society

Editor: Wolfgang König (WIAS Berlin and Technical University Berlin, Germany)

ISBN 978-3-03719-164-4 | eISBN: 978-3-03719-664-9
published in 2016 | 314pp | hardcover | 49.00€ | 53.00\$

STANDALONE TITLES

European Congress of Mathematics

Berlin, July 18–22, 2016

Editors: Volker Mehrmann (Technische Universität Berlin, Germany), Martin Skutella (Technische Universität Berlin, Germany)

ISBN 978-3-03719-176-7 | eISBN: 978-3-03719-676-2
published in 2018 | 901pp | hardcover | 118.00€ | 127.00\$

European Congress of Mathematics

Kraków, 2 – 7 July, 2012

Editors: Rafał Łatała (University of Warsaw, Poland), Andrzej Ruciński (A. Mickiewicz University, Poznań, Poland), Paweł Strzelecki (University of Warsaw, Poland), Jacek Świątkowski (University of Wrocław, Poland), Dariusz Wrzosek (University of Warsaw, Poland), Piotr Zakrzewski (University of Warsaw, Poland)

ISBN 978-3-03719-120-0 | eISBN: 978-3-03719-620-5
published in 2014 | 824pp | hardcover | 119.00€ | 128.00\$

Interviews with the Abel Prize Laureates 2003–2016

Editors: Martin Raussen (Aalborg University, Denmark), Christian F. Skau (Norwegian University of Science and Technology (NTNU), Trondheim, Norway)

ISBN 978-3-03719-177-4 | eISBN: 978-3-03719-677-9
published in 2017 | 302pp | softcover | 29.00€ | 32.00\$

The Blind Spot

Lectures on Logic

Jean-Yves Girard (Institut de Mathématiques de Luminy, Marseille, France)

ISBN 978-3-03719-088-3 | eISBN: 978-3-03719-588-8
published in 2011 | 550pp | hardcover | 79.00€ | 85.00\$

STANDALONE TITLES

math.ch/100

Schweizerische Mathematische Gesellschaft – Société
Mathématique Suisse – Swiss Mathematical Society 1910

Editors: Bruno Colbois (University of Neuchâtel,
Switzerland), Christine Riedtmann (University of Bern,
Switzerland), Viktor Schroeder (University of Zurich,
Switzerland)

ISBN 978-3-03719-089-0 | eISBN: 978-3-03719-589-5
published in 2010 | 526pp | hardcover | 79.00€ | 85.00\$

European Congress of Mathematics

Amsterdam, 14–18 July, 2008

Editors: A.C.M. Ran (Vrije Universiteit Amsterdam, The
Netherlands), Herman te Riele (Centrum Wiskunde
en Informatica, Amsterdam, The Netherlands), Jan
Wiegerinck (University of Amsterdam, The Netherlands)

ISBN 978-3-03719-077-7 | eISBN: 978-3-03719-577-2
published in 2010 | 488pp | hardcover | 79.00€ | 85.00\$

Essays on the Complexity of Continuous Problems

Erich Novak (University of Jena, Germany), Ian H. Sloan
(University of New South Wales, Sydney, Australia), Joseph
F. Traub (Columbia University, New York, USA), Henryk
Woźniakowski (Columbia University, New York, USA)

ISBN 978-3-03719-069-2 | eISBN: 978-3-03719-569-7
published in 2009 | 105pp | hardcover | 29.00€ | 32.00\$

6th International Congress on Industrial and Applied Mathematics

Zürich, Switzerland, 16-20 July 2007, Invited Lectures

Editors: Rolf Jeltsch (ETH Zürich, Switzerland), Gerhard
Wanner (University of Geneva, Switzerland)

ISBN 978-3-03719-056-2 | eISBN: 978-3-03719-556-7
published in 2009 | 530pp | hardcover | 119.00€ | 128.00\$

Proceedings of the International Congress of Mathematicians Madrid, August 22–30, 2006

Editors: Marta Sanz-Solé (Universitat de Barcelona, Spain),
Javier Soria (Universitat de Barcelona, Spain), Juan L.
Varona (Universidad de La Rioja, Logroo, Spain), Joan
Verdera (Universitat Autònoma de Barcelona, Spain)

ISBN 978-3-03719-022-7 | eISBN: 978-3-03719-522-2
published in 2007 | 4392pp | hardcover | 380.00€ | 407.00\$

Dynamics on the Riemann Sphere

A Bodil Branner Festschrift

Editors: Poul G. Hjorth (University of Southern Denmark,
Odense, Denmark), Carsten Lunde Petersen (University of
Roskilde, Denmark)

ISBN 978-3-03719-011-1 | eISBN: 978-3-03719-511-6
published in 2006 | 226pp | hardcover | 79.00€ | 85.00\$

Writing Mathematical Papers in English a practical guide

Jerzy Trzeciak (Polish Academy of Sciences, Warszawa,
Poland)

ISBN 978-3-03719-014-2 | eISBN: 978-3-03719-514-7
published in 2005 | 51pp | softcover | 15.00€ | 17.00\$

European Congress of Mathematics

Stockholm, June 27 – July 2, 2004

Editor: Ari Laptev (Royal Institute of Technology,
Stockholm, Sweden)

ISBN 978-3-03719-009-8 | eISBN: 978-3-03719-509-3
published in 2005 | 897pp | hardcover | 129.00€ | 139.00\$



EMS Press is an imprint of the European Mathematical
Society – EMS – Publishing House GmbH

Straße des 17. Juni 136 | 10623 Berlin | Germany
<https://ems.press> | info@ems.press