New Publications Offered by the AMS

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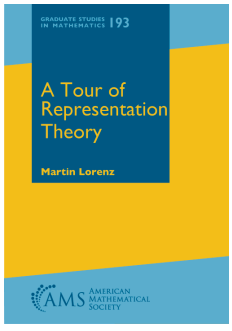
Algebra and Algebraic Geometry



A Tour of Representation Theory

Martin Lorenz, *Temple University, Philadelphia, PA*

Representation theory investigates the different ways in which a given algebraic object—such as a group or a Lie algebra—can act on a vector space. Besides being a subject of great intrinsic beauty, the theory enjoys the additional benefit of having applications in myriad contexts outside pure mathematics, including quantum field theory and the study of molecules in chemistry.

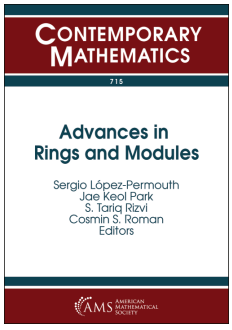
Adopting a panoramic viewpoint, this book offers an introduction to four different flavors of representation theory: representations of algebras, groups, Lie algebras, and Hopf algebras. A separate part of the book is devoted to each of these areas and they are all treated in sufficient depth to enable and hopefully entice the reader to pursue research in representation theory.

The book is intended as a textbook for a course on representation theory, which could immediately follow the standard graduate abstract algebra course, and for subsequent more advanced reading courses. Therefore, more than 350 exercises at various levels of difficulty are included. The broad range of topics covered will also make the text a valuable reference for researchers in algebra and related areas and a source for graduate and postgraduate students wishing to learn more about representation theory by self-study.

Contents: *Algebras:* Representations of algebras; Further topics on algebras; *Groups:* Groups and group algebras; Symmetric groups; *Lie algebras:* Lie algebras and enveloping algebras; Semisimple Lie algebras; Root systems; Representations of semisimple Lie algebras; *Hopf algebras:* Coalgebras, bialgebras, and Hopf algebras; Representations and actions; Affine algebraic groups; Finite-dimensional Hopf algebras; *Appendices:* The language of categories and functors; Background from linear algebra; Some commutative algebra; The Diamond Lemma; The symmetric ring of quotients; Bibliography; Subject index; Index of names; Notation.

Graduate Studies in Mathematics, Volume 193

October 2018, 654 pages, Hardcover, ISBN: 978-1-4704-3680-3, LC 2018016461, 2010 *Mathematics Subject Classification:* 16Gxx, 16Txx, 17Bxx, 20Cxx, 20Gxx, **AMS members US$75.20**, List US$94, Order code GSM/193



Advances in Rings and Modules

Sergio R. López-Permouth, *Ohio University, Athens, OH*, **Jae Keol Park**, *Busan National University, South Korea*, **S. Tariq Rizvi** and **Cosmin S. Roman**, *The Ohio State University, Lima, OH*, Editors

This volume, dedicated to Bruno J. Müller, a renowned algebraist, is a collection of papers that provide a snapshot of the diversity of themes and applications that interest algebraists today.

The papers highlight the latest progress in ring and module research and present work done on the frontiers of the topics discussed.

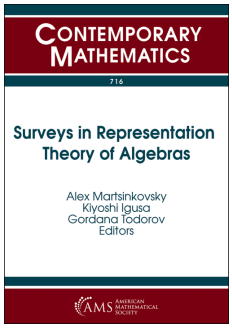
In addition, selected expository articles are included to give algebraists and other mathematicians, including graduate students, an accessible introduction to areas that may be outside their own expertise.

Contents: **G. Abrams**, **B. Greenfeld**, **Z. Mesyan**, and **K. M. Rangaswamy**, Chains of semiprime and prime ideals in Leavitt path algebras; **T. Albu**, The conditions $(C_i), i = 1, 2, 3, 11, 12$, in rings, modules, categories, and lattices; **A. Y. Ammar**, **A. S. El-Araby**, **M. A. Kamal**, and **N. S. Mahmoud**, On K-semi discrete modules; **M. Ashraf** and **A. Jabeen**, Nonlinear Lie triple higher derivation on triangular algebras; **J. A. Beachy** and **C. M. Leroux**, On universal localization of Noetherian rings; **G. F. Birkenmeier** and **E. K. S. Lee**, A survey of intrinsic extensions of rings; **W. D. Burgess** and **R. Raphael**, The reduced ring order and lower semi-lattices; **F. Campanini** and **A. Facchini**, On a category of extensions whose endomorphism rings have at most four maximal ideals; **N. V. Dung** and **J. L. García**, Tilting cotorsion pairs and pure semisimple rings; **K. R. Goodearl** and **M. T. Yakimov**, Twist invariants of graded algebras; **P. A. Guil Asensio**, **D. K. Keskin Tütüncü**, and **A. K. Srivastava**, Modules invariant under monomorphisms of their envelopes; **D. V. Huynh** and

D. D. Tai, Some results and questions on left-right symmetry; **A. Karimi-Mansoub**, **T. Koşan**, and **Y. Zhou**, Rings in which every unit is a sum of a nilpotent and an idempotent; **D. Khurana** and **T. Y. Lam**, Commutators and anti-commutators of idempotents in rings; **S. López-Permouth** and **L. H. Rowen**, Distributive hierarchies of binary operations; **H. Marubayashi** and **A. Ueda**, Idealizers in differential polynomial rings and generalized HNP rings; **J. K. Park** and **S. T. Rizvi**, Module hulls—similarities and contrasts; **S. Singh**, Direct sums of completely almost self-injective modules.

Contemporary Mathematics, Volume 715

October 2018, approximately 283 pages, Softcover, ISBN: 978-1-4704-3555-4, LC 2018007403, 2010 *Mathematics Subject Classification:* 16Dxx, 16Sxx, 16Wxx, 16Exx, 16Gxx, 16Nxx, 16Pxx, 16Uxx, 06Cxx, 15Bxx, **AMS members US$93.60**, List US$117, Order code CONM/715



Surveys in Representation Theory of Algebras

Alex Martsinkovsky, *Northeastern University, Boston, MA*, **Kiyoshi Igusa**, *Brandeis University, Waltham, MA*, and **Gordana Todorov**, *Northeastern University, Boston, MA*, Editors

This volume contains selected expository lectures delivered at the annual Maurice Auslander Distinguished Lectures and International Conference over the last several years.

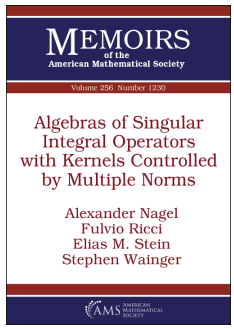
Reflecting the diverse landscape of modern representation theory of algebras, the selected articles include: a quick introduction to silting modules; a survey on the first decade of co-t-structures in triangulated categories; a functorial approach to the notion of module; a representation-theoretic approach to recollements in abelian categories; new examples of applications of relative homological algebra; connections between Coxeter groups and quiver representations; and recent progress on limits of approximation theory.

Contents: L. Angeleri Hügel, On the abundance of silting modules; **P. Jørgensen**, Co-t-structures: The first decade; **M. Prest**, Modules as exact functors; **C. Psaroudakis**, A representation-theoretic approach to recollements of abelian categories; **Ø. Solberg**, Going relative with Maurice—A survey; **H. Thomas**, Coxeter groups and quiver representations; **J. Trlifaj**, Tree modules and limits of the approximation theory.

Contemporary Mathematics, Volume 716

October 2018, 203 pages, Softcover, ISBN: 978-1-4704-3679-7, LC 2018018535, 2010 *Mathematics Subject Classification:* 16E30, 18E30, 18E10, 16G99, 18G25, 16G20, 16G70, **AMS members US$93.60**, List US$117, Order code CONM/716

Analysis



Algebras of Singular Integral Operators with Kernels Controlled by Multiple Norms

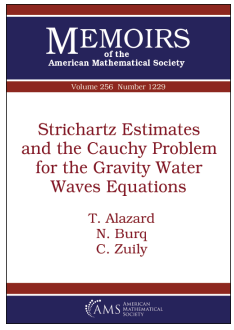
Alexander Nagel, *University of Wisconsin-Madison, WI*, **Fulvio Ricci**, *Scuola Normale Superiore, Pisa, Italy*, **Elias M. Stein**, *Princeton University, NJ*, and **Stephen Wainger**, *University of Wisconsin-Madison, WI*

Contents: Introduction; The Classes $\mathcal{P}(\mathbf{E})$ and $\mathcal{M}(\mathbf{E})$; Marked partitions and decompositions of $\mathbb{R}^N$; Fourier transform duality of kernels and multipliers; Dyadic sums of Schwartz functions; Decomposition of multipliers and kernels; The rank of $\mathbf{E}$ and integrability at infinity; Convolution operators on homogeneous nilpotent Lie groups; Composition of operators; Convolution of Calderón-Zygmund kernels; Two-flag kernels and multipliers; Extended kernels and operators; The role of pseudo-differential operators; Appendix I: Properties of cones $\Gamma(\mathbf{A})$; Appendix II: Estimates for homogeneous norms; Appendix III: Estimates for geometric sums; Bibliography.

Memoirs of the American Mathematical Society, Volume 256, Number 1230

October 2018, 141 pages, Softcover, ISBN: 978-1-4704-3438-0, 2010 *Mathematics Subject Classification:* 42B20, 35S05, **Individual member US$46.80**, List US$78, Institutional member US$62.40, Order code MEMO/256/1230

Differential Equations



Strichartz Estimates and the Cauchy Problem for the Gravity Water Waves Equations

T. Alazard, *École Normale Supérieure, Paris, France*, **N. Burq**, *Université Paris-Sud, Orsay, France*, and **C. Zuily**, *Université Paris-Sud, Orsay, France*

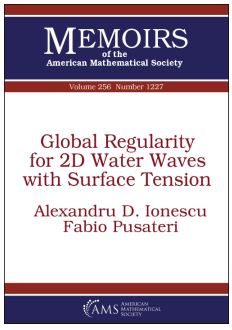
This item will also be of interest to those working in applications.

Contents: Introduction; Strichartz estimates; Cauchy problem; Appendix A. Paradifferential calculus; Appendix B. Tame estimates

for the Dirichlet-Neumann operator; Appendix C. Estimates for the Taylor coefficient; Appendix D. Sobolev estimates; Appendix E. Proof of a technical result; Bibliography.

Memoirs of the American Mathematical Society, Volume 256, Number 1229

October 2018, 108 pages, Softcover, ISBN: 978-1-4704-3203-4, 2010 *Mathematics Subject Classification:* 35Q35, 35S50, 35S15, 76B15, **Individual member US$46.80**, List US$78, Institutional member US$62.40, Order code MEMO/256/1229



Global Regularity for 2D Water Waves with Surface Tension

Alexandru D. Ionescu, *Princeton University, NJ*, and **Fabio Pusateri**, *Princeton University, NJ*

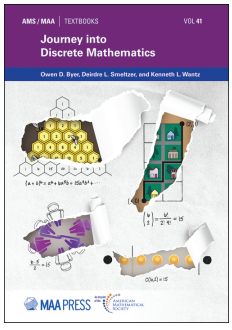
This item will also be of interest to those working in applications.

Contents: Introduction; Preliminaries; Derivation of the main scalar equation; Energy estimates I: high Sobolev estimates; Energy estimates II: low frequencies; Energy estimates III: weighted estimates for high frequencies; Energy estimates IV: weighted estimates for low frequencies; Decay estimates; Proof of Lemma 8.6; Modified scattering; Appendix A. Analysis of symbols; Appendix B. The Dirichlet-Neumann operator; Appendix C. Elliptic bounds; Bibliography.

Memoirs of the American Mathematical Society, Volume 256, Number 1227

October 2018, 119 pages, Softcover, ISBN: 978-1-4704-3103-7, 2010 *Mathematics Subject Classification:* 76B15; 35Q35, **Individual member US$46.80**, List US$78, Institutional member US$62.40, Order code MEMO/256/1227

Discrete Mathematics and Combinatorics



Journey into Discrete Mathematics

Owen D. Byer, *Eastern Mennonite University, Harrisonburg, VA*, **Deirdre L. Smeltzer**, *Eastern Mennonite University, Harrisonburg, VA*, and **Kenneth L. Wantz**, *Regent University, Virginia Beach, VA*

Journey into Discrete Mathematics is designed for use in a first course in mathematical abstraction for early-career undergraduate mathematics majors. The important ideas of discrete mathematics are included—logic, sets, proof writing, relations, counting, number theory, and graph theory—in a manner that promotes development of a mathematical mindset and prepares students for further study. While the treatment is designed to prepare the student reader for the mathematics major, the book remains attractive and appealing to students of computer science and other problem-solving disciplines.

The exposition is exquisite and engaging and features detailed descriptions of the thought processes that one might follow to attack the problems of mathematics. The problems are appealing and vary widely in depth and difficulty. Careful design of the book helps the student reader learn to think like a mathematician through the exposition and the problems provided. Several of the core topics, including counting, number theory, and graph theory, are visited twice: once in an introductory manner and then again in a later chapter with more advanced concepts and with a deeper perspective.

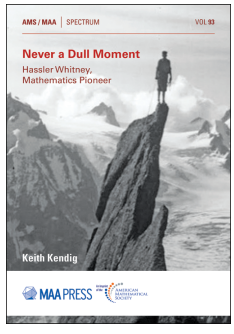
Owen D. Byer and Deirdre L. Smeltzer are both Professors of Mathematics at Eastern Mennonite University. Kenneth L. Wantz is Professor of Mathematics at Regent University. Collectively the authors have specialized expertise and research publications ranging widely over discrete mathematics and have over fifty semesters of combined experience in teaching this subject.

Contents: Convince me!; Mini-theories; Logic and sets; Logic and proof; Relations and functions; Induction; Number theory; Counting; Graph theory; Invariants and monovariants; Topics in counting; Topics in number theory; Topics in graph theory; Hints; List of names; Bibliography; Index.

AMS/MAA Textbooks, Volume 41

December 2018, approximately 389 pages, Hardcover, ISBN: 978-1-4704-4696-3, LC 2018023584, 2010 *Mathematics Subject Classification:* 97K20, 97K30, 97F60, 97N70, 97E30, **Individual member US$56.25**, List US$75, Institutional member US$60, Order code TEXT/41

General Interest



Never a Dull Moment

Hassler Whitney, Mathematics Pioneer

Keith Kendig, *Cleveland State University, OH*

Hassler Whitney was a giant of twentieth-century mathematics. This biography paints a picture of him and includes dozens of revealing anecdotes. Mathematically, he had a rare detector that went off whenever he spotted a piece of mathematical gold, and he would then draw countless pictures, gradually forging a path from hunch to proof. This geometric path is seldom reflected in the rigor of his formal papers, but thanks to a close friendship and many conversations over decades, author Kendig was able to see how he actually worked. This book shows this through accessible accounts of his major mathematical contributions, with figures copiously supplied.

Whitney is probably best known for introducing the grandfather of today's innumerable embedding theorems—his strong embedding theorem stating that any smooth manifold can be smoothly embedded in a Euclidean space of twice the manifold's dimension.

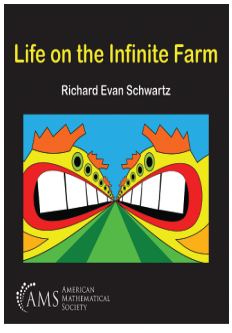
This in turn led to several standard techniques used every day in algebraic topology. Whitney also established the fundamentals of graph theory, the four-color problem, matroids, extending smooth functions, and singularities of smooth functions. He almost never used complicated technical machinery, so most of his work is accessible to a general reader with a modest mathematical background.

His math-music connection was intense: He played piano, violin, and viola and won "best composition of the year" while earning a Bachelor's degree in music at Yale. He was an accomplished mountain climber, and as a tinkerer, at age sixteen he built the large-format camera used to take this book's cover photograph. Whitney's family generously provided dozens of photographs appearing here for the very first time. This biography is a revealing portrait of a fascinating personality and a titan of twentieth-century mathematics.

Contents: Permissions; Some snapshots; How Hassler chose his genes; Growing up; Hassler goes to college; Early days at Harvard; The four-color problem: Some history and Whitney's contributions to it; Whitney and the four-color problem: A closer look; Whitney discovers a big brother to the matrix: The matroid; Topology: Its beginnings; Topology grows into a branch of mathematics; Whitney helped revolutionize algebraic topology; Whitney's extension theorems; Whitney's weak embedding theorem; Whitney's strong embedding theorem; World War II; From Harvard to the Institute, and insights on smooth mappings; Are there decomposition theorems for nonmanifolds?; After research; Evolution or revolution?; Other happenings at the Institute; The unspeakable was about to happen; Sometimes you get to know people through the little things; Parting shots: A gallery of photos; Notes; Bibliography; Index.

Spectrum, Volume 93

November 2018, approximately 381 pages, Softcover, ISBN: 978-1-4704-4828-8, LC 2018023363, 2010 *Mathematics Subject Classification:* 01-XX, 05C10, 57-XX, 58Axx, 37C05, 57N80, 97Dxx, **Individual member US$45**, List US$60, Institutional member US$48, Order code SPEC/93



Life on the Infinite Farm

Richard Evan Schwartz, *Brown University, Providence, RI*

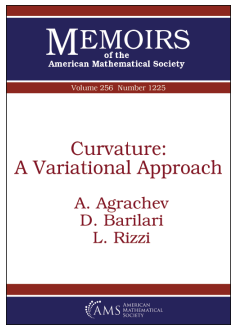
Pay a visit to the Infinite Farm!

In *Life on the Infinite Farm*, mathematician and award-winning children's book author Richard Schwartz teaches about infinity and curved space through stories of whimsical farm animals. Join Gracie, the shoe-loving cow with infinitely many feet, Hammerwood, the gum-loving crocodile with an endless mouth, and their friends as they navigate the challenges that come with being infinitely large.

Children as young as 5 will enjoy the lighthearted illustrations and the fanciful approach to infinity. Older students (and even adult professional mathematicians) will also appreciate the more advanced ideas and geometric references. The two approaches are woven together to appeal to a wide audience, from budding mathematicians to hardcore geometers.

October 2018, 176 pages, Softcover, ISBN: 978-1-4704-4736-6, LC 2018017358, 2010 *Mathematics Subject Classification:* 97A80, **AMS members US$20**, List US$25, Order code MBK/115

Geometry and Topology



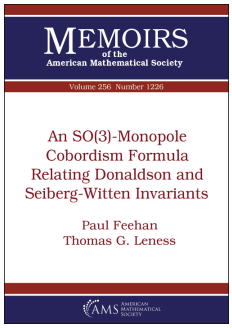
Curvature: A Variational Approach

A. Agrachev, *SISSA, Trieste, Italy, and Sobolev Institute of Mathematics, Novosibirsk, Russia*, **D. Barilari**, *École Polytechnique, Paris, France, and INRIA GECO Saclay-Ile-de-France, Paris, France*, and **L. Rizzi**, *SISSA, Trieste, Italy*

Contents: Introduction; *Part 1. Statements of the results:* General setting; Flag and growth vector of an admissible curve; Geodesic cost and its asymptotics; Sub-Riemannian geometry; *Part 2. Technical tools and proofs:* Jacobi curves; Asymptotics of the Jacobi curve: equiregular case; Sub-Laplacian and Jacobi curves; *Part 3. Appendices:* Appendix A. Smoothness of value function (Theorem 2.19); Appendix B. Convergence of approximating Hamiltonian systems (Proposition 5.15); Appendix C. Invariance of geodesic growth vector by dilations (Lemma 5.20); Appendix D. Regularity of $C(t,s)$ for the Heisenberg group (Proposition 5.51); Appendix E. Basics on curves in Grassmannians (Lemmas 3.5 and 6.5); Appendix F. Normal conditions for the canonical frame; Appendix G. Coordinate representation of flat, rank 1 Jacobi curves (Proposition 7.7); Appendix H. A binomial identity (Lemma 7.8); Appendix I. A geometrical interpretation of $\dot{c}_t$; Bibliography; Index.

Memoirs of the American Mathematical Society, Volume 256, Number 1225

October 2018, 116 pages, Softcover, ISBN: 978-1-4704-2646-0, 2010 *Mathematics Subject Classification:* 49-02, 53C17, 49J15, 58B20, **Individual member US$46.80**, List US$78, Institutional member US$62.40, Order code MEMO/256/1225



An SO(3)-Monopole Cobordism Formula Relating Donaldson and Seiberg-Witten Invariants

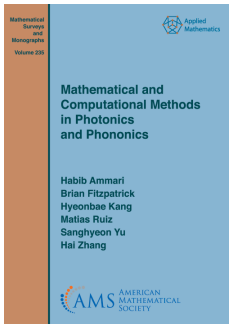
Paul Feehan, *Rutgers, The State University of New Jersey, Piscataway, NJ*, and **Thomas G. Leness**, *Florida International University, Miami, FL*

Contents: Preface; Introduction; Preliminaries; Diagonals of symmetric products of manifolds; A partial Thom–Mather structure on symmetric products; The instanton moduli space with spliced ends; The space of global splicing data; Obstruction bundle; Link of an ideal Seiberg–Witten moduli space; Cohomology and duality; Computation of the intersection numbers; Kotschick–Morgan conjecture; Glossary of notation; Index; Bibliography.

Memoirs of the American Mathematical Society, Volume 256, Number 1226

October 2018, 228 pages, Softcover, ISBN: 978-1-4704-1421-4, 2010 *Mathematics Subject Classification:* 57N13, 57R57, 58D27, 58D29; 53C07, 53C27, 58J05, 58J20, **Individual member US$46.80**, List US$78, Institutional member US$62.40, Order code MEMO/256/1226

Mathematical Physics



Mathematical and Computational Methods in Photonics and Phononics

Habib Ammari, *ETH, Zürich, Switzerland*, **Brian Fitzpatrick**, *ETH, Zürich, Switzerland*, **Hyeonbae Kang**, *Inha University, Incheon, Korea*, **Matias Ruiz**, *École Normale Supérieure, Paris, France*, **Sanghyeon Yu**, *ETH, Zürich, Switzerland*, and **Hai Zhang**, *HKUST, Clear Water Bay, Hong Kong*

The fields of photonics and phononics encompass the fundamental science of light and sound propagation and interactions in complex structures, as well as its technological applications. This book reviews new and fundamental mathematical tools, computational approaches, and inversion and optimal design methods to address challenging problems in photonics and phononics.

An emphasis is placed on analyzing sub-wavelength resonators, super-focusing and super-resolution of electromagnetic and acoustic waves, photonic and phononic crystals, electromagnetic cloaking, and electromagnetic and elastic metamaterials and metasurfaces. Throughout this book, the authors demonstrate the power of layer potential techniques for solving challenging problems in photonics and phononics when they are combined with asymptotic analysis. This book might be of interest to researchers and graduate students working in the fields of applied and computational mathematics, partial differential equations, electromagnetic theory, elasticity, integral equations, and inverse and optimal design problems in photonics and phononics.

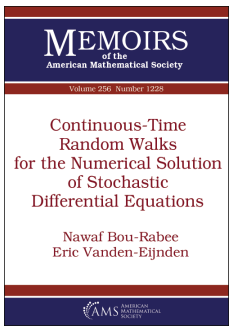
This item will also be of interest to those working in differential equations.

Contents: Introduction; *Part 1. Mathematical and computation tools:* Generalized argument principle and Rouché's theorem; Layer potentials; Perturbations of cavities and resonators; *Part 2. Diffraction gratings and band-gap materials:* Diffraction gratings; Photonic band gaps; Phononic band gaps; *Part 3. Sub-wavelength resonant structures and super-resolution:* Plasmonic resonances for nanoparticles; Imaging of small particles; Super-resolution imaging; *Part 4. Metamaterials:* Near-cloaking; Anomalous resonance cloaking and shielding; Plasmonic metasurfaces; *Part 5. Sub-wavelength phonics:* Helmholtz resonator; Minnaert resonances for bubbles; Appendix A. Spectrum of self-adjoint operators; Appendix B. Optimal control and level set representation; Bibliography; Index.

Mathematical Surveys and Monographs, Volume 235

October 2018, approximately 500 pages, Hardcover, ISBN: 978-1-4704-4800-4, 2010 *Mathematics Subject Classification:* 47A55, 47A75, 31A10, 34A55, 35R30, 35B34, 45Q05, 30E25, **AMS members US$108**, List US$135, Order code SURV/235

Probability and Statistics



Continuous-Time Random Walks for the Numerical Solution of Stochastic Differential Equations

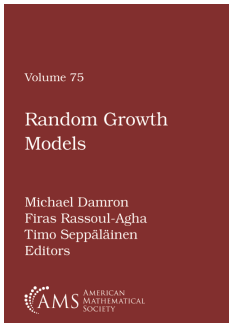
Nawaf Bou-Rabee, *Rutgers University Camden, NJ*, and **Eric Vanden-Eijnden**, *Courant Institute of Mathematical Sciences, New York University, NY*

Contents: Introduction; Algorithms; Examples and applications; Analysis on gridded state spaces; Analysis on gridless state spaces; Tridiagonal case; Conclusion and outlook; Bibliography.

Memoirs of the American Mathematical Society, Volume 256, Number 1228

October 2018, 124 pages, Softcover, ISBN: 978-1-4704-3181-5, 2010 *Mathematics Subject Classification:* 65C30; 60J25, 60J75,

Individual member US$46.80, List US$78, Institutional member US$62.40, Order code MEMO/256/1228



Random Growth Models

Michael Damron, *Georgia Institute of Technology, Atlanta, GA*, **Firas Rassoul-Agha**, *University of Utah, Salt Lake City, UT*, and **Timo Seppäläinen**, *University of Wisconsin, Madison, WI*, Editors

The study of random growth models began in probability theory about 50 years ago, and today this area occupies a central place in the subject. The considerable challenges posed by these models have spurred the development of innovative probability theory and opened up connections with several other parts of mathematics, such as partial differential equations, integrable systems, and combinatorics. These models also have applications to fields such as computer science, biology, and physics.

This volume is based on lectures delivered at the 2017 AMS Short Course "Random Growth Models", held January 2–3, 2017, in Atlanta, GA.

The articles in this book give an introduction to the most-studied models; namely, first- and last-passage percolation, the Eden model of cell growth, and particle systems, focusing on the main research questions and leading up to the celebrated Kardar-Parisi-Zhang equation. Topics covered include asymptotic properties of infection times, limiting shape results, fluctuation bounds, and geometrical properties of geodesics, which are optimal paths for growth.

This item will also be of interest to those working in mathematical physics.

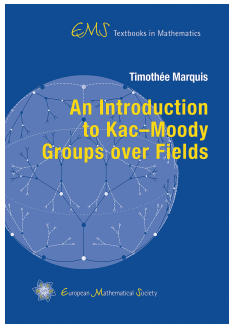
Contents: M. Damron, Random growth models: Shape and convergence rate; **J. Hanson**, Infinite geodesics, asymptotic directions, and Busemann functions in first-passage percolation; **P. Sosoe**, Fluctuations in first-passage percolation; **F. Rassoul-Agha**, Busemann functions, geodesics, and the competition interface for directed last-passage percolation; **T. Seppäläinen**, The corner growth model with exponential weights; **I. Corwin**, Exactly solving the KPZ equation; Index.

Proceedings of Symposia in Applied Mathematics, Volume 75

October 2018, approximately 260 pages, Hardcover, ISBN: 978-1-4704-3553-0, 2010 *Mathematics Subject Classification:* 60K35, 60K37, 82B43, **AMS members US$88**, List US$110, Order code PSAPM/75

New AMS-Distributed Publications

Algebra and Algebraic Geometry



An Introduction to Kac–Moody Groups over Fields

Timothée Marquis, *Université Catholique de Louvain, Louvain-la-Neuve, Belgium*

The interest in Kac–Moody algebras and groups has grown exponentially in the past decades, both in the mathematical and physics communities, and with it the need for an introductory textbook on the topic.

The aim of this book is twofold: (1) to offer an accessible, reader-friendly, and self-contained introduction to Kac–Moody algebras and groups; and (2) to "clean the foundations" and provide a unified treatment of the theory.

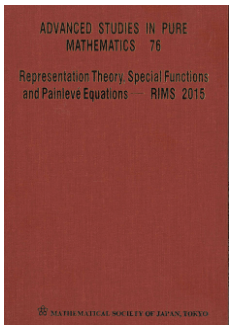
The book starts with an outline of the classical Lie theory, used to set the scene. Part II provides a self-contained introduction to Kac–Moody algebras. The heart of the book is Part III, which develops an intuitive approach to the construction and fundamental properties of Kac–Moody groups. It is complemented by two appendices that offer introductions to affine group schemes and to the theory of buildings.

A publication of the European Mathematical Society (EMS). Distributed within the Americas by the American Mathematical Society.

EMS Textbooks in Mathematics, Volume 22

August 2018, 343 pages, Hardcover, ISBN: 978-3-03719-187-3, 2010 *Mathematics Subject Classification:* 20G44, 20E42, 17B67, **AMS members US$46.40**, List US$58, Order code EMSTEXT/22

Differential Equations



Representation Theory, Special Functions and Painvlevé Equations—RIMS 2015

Hitoshi Konno, *Tokyo University of Marine Science and Technology, Japan*, **Hidetaka Sakai**, *University of Tokyo, Japan*, **Junichi Shiraishi**, *University of Tokyo, Japan*, **Takao Suzuki**, *Kindai University, Japan*, and **Yasuhiko Yamada**, *Kobe University, Japan*, Editors

To celebrate Masatoshi Noumi's 60th birthday, the international conference "Representation Theory, Special Functions and Painlevé Equations" was held at the Research Institute for Mathematical Sciences, Kyoto University, from March 3–March 6, 2015.

This volume is the proceedings of the conference. It contains 15 papers covering a variety of topics in the research fields where Noumi has made many significant contributions over the years—representation theory, special functions, Painlevé equations, among others.

This item will also be of interest to those working in algebra and algebraic geometry.

Published for the Mathematical Society of Japan by Kinokuniya, Tokyo, and distributed worldwide, except in Japan, by the AMS.

Advanced Studies in Pure Mathematics, Volume 76

June 2018, 541 pages, Hardcover, ISBN: 978-4-86497-050-1, 2010 *Mathematics Subject Classification:* 39-06; 20G42, 20C08, 33-06, 34M55, **AMS members US$77.60**, List US$97, Order code ASPM/76

General Interest

European Congress of Mathematics

Berlin, July 18–22, 2016

Volker Mehrmann, *Technical University of Berlin, Germany*, and **Martin Skutella**, *Technical University of Berlin, Germany*, Editors

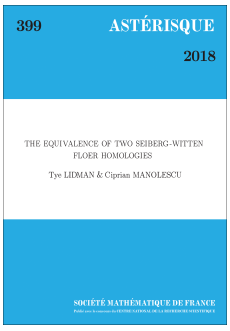
The European Congress of Mathematics, held every four years, is a well-established major international mathematical event. The Seventh European Congress of Mathematics (7ECM) took place in Berlin, Germany, July 18–22, 2016, with about 1100 participants from all over the world.

Ten plenary, thirty-three invited, and four special lectures formed the core of the program. As at all the previous EMS congresses, ten outstanding young mathematicians received the EMS prizes in recognition of their research achievements. In addition, two more prizes were awarded: The Felix Klein Prize for a remarkable solution of an industrial problem, and—for the second time—the Otto Neugebauer Prize for a highly original and influential piece of work in the history of mathematics. The program was complemented by forty-three minisymposia with about 160 talks as well as contributed talks that ranged over all areas of mathematics. Several panel discussions and meetings were organized, covering a variety of issues ranging from the future of mathematical publishing to public awareness of mathematics.

These proceedings present extended versions of most of the plenary and invited lectures delivered during the congress, providing a permanent record of the best of what mathematics offers today.

August 2018, 901 pages, Hardcover, ISBN: 978-3-03719-176-7, 2010 *Mathematics Subject Classification:* 00Bxx, **AMS members US$110.40**, List US$138, Order code EMSEMC/2016

Geometry and Topology



The Equivalence of Two Seiberg-Witten Floer Homologies

Tye Lidman, *North Carolina State University, Raleigh, NC*, and **Ciprian Manolescu**, *University of California, Los Angeles*

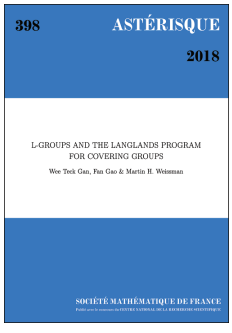
The authors show that monopole Floer homology (as defined by Kronheimer and Mrowka) is isomorphic to the S^1-equivariant homology of the Seiberg-Witten Floer spectrum constructed by Ciprian Manolescu, the co-author of this book.

A publication of the Société Mathématique de France, Marseilles (SMF), distributed by the AMS in the U.S., Canada, and Mexico. Orders from other countries should be sent to the SMF. Members of the SMF receive a 30% discount from list.

Astérisque, Number 399

June 2018, 220 pages, Softcover, ISBN: 978-2-85629-883-1, 2010 *Mathematics Subject Classification:* 57R58, **AMS members US$53.60**, List US$67, Order code AST/399

Number Theory



L-Groups and the Langlands Program for Covering Groups

Wee Teck Gan, *National University of Singapore*, **Fan Gao**, *Purdue University, West Lafayette, IN*, and **Martin H. Weissman**, *University of California, Santa Cruz, CA*

This volume proposes an extension of the Langlands program to covers of quasisplit groups, where covers are those that arise from central extensions of reductive groups by K_2. By constructing an L-group for any such cover, the authors can conjecture a parameterization of genuine irreducible representations by Langlands parameters. Two constructions of the L-group are given and related to each other in a final note.

A publication of the Société Mathématique de France, Marseilles (SMF), distributed by the AMS in the U.S., Canada, and Mexico.

Astérisque, Number 398

June 2018, 286 pages, Softcover, ISBN: 978-2-85629-881-7, 2010 *Mathematics Subject Classification:* 11F70, 22E50, **AMS members US$60**, List US$75, Order code AST/398