

NEW & FORTHCOMING from Birkhäuser

Mathematical Bridges

TITU ANDREESCU, *University of Texas at Dallas, Richardson, TX, USA*; CRISTINEL MORTICI, *University of Targoviste, Romania*

Building bridges between classical results and contemporary nonstandard problems, *Mathematical Bridges* embraces important topics in analysis and algebra from a problem-solving perspective. Blending old and new techniques, tactics and strategies used in solving challenging mathematical problems, readers will discover numerous genuine mathematical gems throughout that will heighten their appreciation of the inherent beauty of mathematics. Most of the problems are original to the authors and are intertwined in a well-motivated exposition driven by representative examples.

The book is structured to assist the reader in formulating and proving conjectures, as well as devising solutions to important mathematical problems by making connections between various concepts and ideas from different areas of mathematics.

2008/APPROX. 300 PP., 20 ILLUS./SOFTCOVER
ISBN 978-0-8176-4394-2/\$59.95 (TENT.)

Holomorphic Functions in the Plane and n -dimensional Space

KLAUS GÜRLEBECK, *Bauhaus University Weimar, Germany*; KLAUS HABETHA, *RWTH Aachen, Germany*; WOLFGANG SPRÖSSIG, *TU Freiberg, Germany*

"The present book is very well and enthusiastically written and in many details marvellously elaborated. This is in particular the case for the typographically exposed historical remarks including photos of some of the main initiators of the number systems etc. involved... This book is recommended as a textbook for basic courses in complex analysis and also for self studies".

—ZENTRALBLATT MATH
(Review of the German edition)

Complex analysis nowadays has higher-dimensional analogs: the algebra of complex numbers is replaced by the non-commutative algebra of real quaternions or by Clifford algebras. During the last 30 years the so-called quaternionic and Clifford or hypercomplex analysis successfully developed into a powerful theory with many applications in analysis, engineering, and mathematical physics.

This textbook introduces both classical and higher-dimensional results based on a uniform notion of holomorphy. Historical remarks and many examples, figures and exercises accompany each chapter. The accompanying CD-ROM contains an extensive literature database and a Maple package with comments and procedures of tools and methods explained in the book.

2008/APPROX. 410 PP. WITH CD-ROM/SOFTCOVER
ISBN 978-3-7643-8271-1/\$39.95

Algebra, Arithmetic and Geometry

In Honor of Y.I. Manin

YURI TSCHINKEL, *New York University, NY, USA*;
YURI G. ZARHIN, *Pennsylvania State University, University Park, PA, USA* (Eds)

The two volumes of *Algebra, Arithmetic and Geometry: In Honor of Y.I. Manin* consist of invited expository articles and surveys detailing Manin's contributions to the subjects.

In celebration of Manin's 70th birthday, the following well-respected and distinguished contributors include: K. Behrend, V. Berkovich, J. Bost, P. Bressler, D. Calaque, J. Carlson, A. Chambert-Loir, E. Colombo, A. Connes, C. Consani, A. Dambrowski, C. Deninger, I. Dolgachev, S.K. Donaldson, T. Ekedahl, A.-S. Elsenhans, B. Enriquez, P. Etingof, B. Fantechi, V. Fock, E. Friedlander, B. van Geemen, G. van der Geer, E. Getzler, A. Goncharov, M. Harris, A. Iskovskikh, J. Jahnel, D. Kaledin, M. Kapranov, N. Katz, R. Kaufmann, J. Kollár, M. Kontsevich, M. Larsen, E. Looijenga, M. Marcolli, M. Markl, L. Merel, S. Merkulov, M. Movshev, E. Mukhin, J. Nekovář, V. Nikulin, O. Ogievetsky, F. Oort, D. Orlov, A. Pantchichkin, I. Penkov, A. Polishchuk, P. Sarnak, V. Schechtman, V. Tarasov, S. Tikhomirov, J. Tsimmerman, B. Tsygan, K. Vankov, A. Varchenko, E. Vasserot, A. Vishik, A. Voronov, M. Wodzicki, Y. Zarhin, T. Zink.

2008/APPROX. 600 PP. EACH VOL./HARDCOVER
VOLUME I: ISBN 978-0-8176-4744-5/\$79.95 (TENT.)
PROGRESS IN MATHEMATICS, VOL. 269
VOLUME II: ISBN 978-0-8176-4746-9/\$79.95 (TENT.)
PROGRESS IN MATHEMATICS, VOL. 270

Representations, Wavelets and Frames

A Celebration of the Mathematical Work of Lawrence Baggett

PALLE E.T. JORGENSEN, *University of Iowa, IA, USA*;
KATHY D. MERRILL, *Colorado College, CO, USA*;
JUDITH PACKER, *University of Colorado at Boulder, CO, USA* (Eds)

The work of Lawrence Baggett has had a profound impact on the field of abstract harmonic analysis and the many areas of mathematics that use its techniques. His sphere of influence ranges from purely theoretical results regarding the representations of locally compact groups to recent applications of wavelets and frames as well as to problems in sampling theory and image compression.

Contributors include: C. Benson, M. Bownik, V. Furst, V. Guillemin, B. Han, C. Heil, J. Hogan, P. Jorgensen, K. Kornelson, J. Lakey, D. Larson, K. Merrill, J. Packer, G. Ratcliff, K. Shuman, M.-S. Song, D. Stroock, K. Taylor, E. Weber, X. Zhang.

2008/APPROX. 350 PP., 10 ILLUS./HARDCOVER
ISBN 978-0-8176-4682-0/\$79.95 (TENT.)
APPLIED AND NUMERICAL HARMONIC ANALYSIS

New and forthcoming in Modern Birkhäuser Classics

Intersection Cohomology

A. BOREL

1ST ED. 1984/2ND PRINTING/ISBN 978-0-8176-4764-3/\$39.95

Differentiable Manifolds

LAWRENCE CONLON, *Washington University, St. Louis, MO, USA*

2ND ED. 2001/2ND PRINTING/ISBN 978-0-8176-4766-7/\$39.95

Discriminants, Resultants, and Multidimensional Determinants

ISRAEL M. GELFAND, *Rutgers University, New Brunswick, NJ, USA*; MIKHAIL KAPRANOV, *Yale, New Haven, CT, USA*; ANDREI ZELEVINSKY, *Northeastern University, Boston, MA, USA*

1ST ED. 1994/2ND PRINTING/ISBN 978-0-8176-4770-4/\$39.95

Indiscrete Thoughts

G.-C. ROTA

Edited by FABRIZIO PALOMBI, *University of Torino, Italy*

1ST ED. 1996/2ND PRINTING/ISBN 978-0-8176-4780-3/\$39.95

Perspectives on the History of Mathematical Logic

THOMAS DRUCKER, *Carlisle, PA, USA* (Ed)

1ST ED. 1991/2ND PRINTING/ISBN 978-0-8176-4768-1/\$39.95

The Non-Euclidean Revolution

R.J. TRUDEAU

1ST ED. 2001/2ND PRINTING/ISBN 978-0-8176-4782-7/\$39.95

Bernhard Riemann 1826-1866

Turning Points in the Conception of Mathematics

DETLEF LAUGWITZ

Translated by ABE SHENITZER, *York University, Canada*

1ST ED. 1999/2ND PRINTING/ISBN 978-0-8176-4776-6/\$39.95

Riemann, Topology, and Physics

MICHAEL I. MONASTYRSKY, *Institute for Theoretical and Experimental Physics, Moscow, Russia*

2ND ED. 1999/2ND PRINTING/ISBN 978-0-8176-4778-0/\$39.95

Linear Differential Equations and Group Theory from Riemann to Poincaré

JEREMY J. GRAY, *The Open University, Milton Keynes, UK*

2ND ED. 2000/2ND PRINTING/ISBN 978-0-8176-4772-8/\$39.95

Discrete Thoughts

Essays on Mathematics, Science, and Philosophy

M. KAC; G.-C. ROTA; JACOB SCHWARTZ, *Professor Emeritus, New York University, NY, USA*

2ND ED. 1993/2ND PRINTING/ISBN 978-0-8176-4774-2/\$39.95

All volumes softcover

CALL: 1-800-777-4643 • FAX: (201) 348-4505 • E-MAIL: orders@birkhauser.com • www.birkhauser.com

Please mention promotion #013430 when ordering. Prices are valid in the Americas only and are subject to change without notice. For price and ordering information outside the Americas, please contact Birkhäuser Verlag AG by E-mail: birkhauser@springer.de