

# NEW & FORTHCOMING from Birkhäuser

## Frames and Bases in Mathematics and Engineering

### An Introductory Course

OLE CHRISTENSEN, *Technical University of Denmark, Lyngby, Denmark*

Based on a streamlined presentation of the author's successful work *An Introduction to Frames and Riesz Bases*, this new textbook fills a gap in the literature, developing frame theory as part of a dialogue between mathematicians and engineers. Newly added sections on applications will help mathematically oriented readers to see where frames are used in practice and engineers to discover the mathematical background for applications in their field. The primary focus of the work is on basic topics without too many side remarks making it easier for students to follow the presentation.

2008/APPROX. 335 PP., 14 ILLUS./SOFTCOVER  
ISBN 978-0-8176-4677-6/\$42.95  
APPLIED AND NUMERICAL HARMONIC ANALYSIS

## Approximation Theory

### From Taylor Polynomials to Wavelets

OLE CHRISTENSEN; KHADIJA L. CHRISTENSEN, *both Technical University of Denmark, Lyngby, Denmark*

*"This well-written textbook provides an elementary introduction to approximation theory. The authors concentrate on the presentation of main ideas and demonstrate the great influence of classical approximation theory on modern applied mathematics."*

—Zentralblatt MATH

1ST PRINTING 2004/CORR. 3RD PRINTING 2006  
XI, 165 PP., 40 ILLUS./SOFTCOVER  
ISBN 978-0-8176-3600-5/\$34.95  
APPLIED AND NUMERICAL HARMONIC ANALYSIS

## Ideal Sequence Design in Time-Frequency Space

### Applications to Radar, Sonar, and Communication Systems

MYOUNG AN, *Prometheus, Inc., Newport, RI, USA*; ANDRZEJ K. BRODZIK, *The MITRE Corporation, Bedford, MA, USA*; RICHARD TOLIMIERI, *Prometheus, Inc., Newport, RI, USA*

This book develops theory and algorithms leading to systematic waveform design in time-frequency space. The key tool employed in the work is the Zak transform, which provides a two-dimensional image for sequences, the Fourier transform, convolution, and correlation, and allows for the design of sequences directly in Zak space. Topics and features include a rigorous mathematical development of the theory; numerous tables; applications in pulse radars and sonars, multibeam radar and sonar imaging systems, remote dielectric material identification, and code division multiple-access communication systems.

2008/APPROX. 210 PP., 40 ILLUS./HARDCOVER  
ISBN 978-0-8176-4737-7/\$59.95 (TENT.)  
APPLIED AND NUMERICAL HARMONIC ANALYSIS

## Representations, Wavelets and Frames

### A Celebration of the Mathematical Work of Lawrence Baggett

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

Contributors include: Marcin Bownik, Victor Guillemin, Bin Han, Christopher Heil, Jeff Hogan, Palle Jorgensen, Joe Lakey, Dave Larson, Gail Ratcliff, Daniel Stroock, Keith Taylor.

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

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

Please mention promotion #13537 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](mailto:birkhauser@springer.de)