Real Analysis with an Introduction to Wavelets and Applications

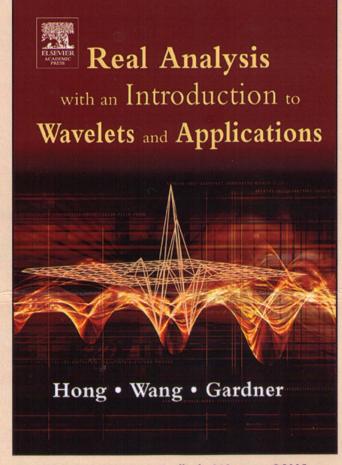
Don Hong, East Tennessee State University, Johnson City, USA **Jianzhong Wang,** Sam Houston State University, Huntsville, Texas, USA **Robert Gardner,** East Tennessee State University, Johnson City, USA

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New!

- Provides a thorough introduction to real analysis and its applications
- Begins on a relatively elementary level, slowly increasing the level of difficulty
- Contains many clear and detailed examples, case studies, and exercises
- Includes real world applications relating to measure theory and pure analysis



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This unique text provides an in-depth look at real analysis and its applications, including an introduction to wavelet analysis, a popular topic in "applied real analysis." It makes a very natural connection between classic pure analysis and the applied topics, including measure theory, Lebesgue Integral, harmonic analysis and wavelet theory with many associated applications.

Students studying real analysis come from different backgrounds and have diverse objectives. Real Analysis with an Introduction to Wavelets and Applications will serve both advanced undergraduate and graduate students in mathematics, statistics, engineering, and the sciences. It can be used for a one-year course in Real Analysis that covers several applied topics. Alternatively, instructors could use the material from Chapters 1-3 and select material in Chapters 4 and 5 to conduct a one-semester Real Analysis course. In addition, the material in Chapters 5-9 could be used as the basis for a one-semester course on Applied Analysis or Introduction to Wavelets.

Praise from reviewers:

- "...the wavelet treatment makes it attractive and gives it an edge over many texts."
- David Ruch
 Metropolitan State College
- "The exercises I looked at were at a much more appropriate level than my current text. This book provides more exposition and more applications than traditional real analysis texts."
- Doug Hardin
 Vanderbilt University

Contents:

Preface

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- 2. Measure Theory
- 3. The Lebesgue Integral
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- Vector Spaces, Hilbert Spaces, and the L² Space
- 6. Fourier Analysis
- 7. Orthonormal Wavelet Bases
- 8. Compactly Supported Wavelets
- 9. Wavelets in Signal Processing Appendix: List of Symbols Bibliography Index

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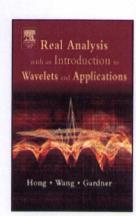
By

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Description

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Overview of al

Audience

The book is intended for a one year senior undergraduate or beginning graduate course in Real Analysis, Applied Analysis or Applied Mathematics found in mathematics, statistics, engineering and physics departments.

Contents

Fundamentals; Measure Theory; The Lebesgue Integral; Special Topics of Lebesgue Integral & Applications; Vector Spaces, Hilbert Spaces, and the L2 Space; Fourier Analysis; Orthonormal Wavelet Bases; Compactly Supported Wavelets; Wavelets in Signal Processing

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