

# Contents

## Part V Measure Theory

<b>Absolute Continuity and Singularity of Measures Without Measure Theory</b> .....	5
R.B. Burckel	
<b>Visible and Invisible Cantor Sets</b> .....	11
Carlos Cabrelli, Udayan B. Darji, and Ursula Molter	
<b>Convolution Inequalities for Positive Borel Measures on <math>\mathbb{R}^d</math> and Beurling Density</b> .....	23
Jean-Pierre Gabardo	
<b>Positive-Operator-Valued Measures: A General Setting for Frames</b> .....	49
Bill Moran, Stephen Howard, and Doug Cochran	

## Part VI Filtering

<b>Extending Wavelet Filters: Infinite Dimensions, the Nonrational Case, and Indefinite Inner Product Spaces</b> .....	69
Daniel Alpay, Palle Jorgensen, and Izchak Lewkowicz	
<b>On the Group-Theoretic Structure of Lifted Filter Banks</b> .....	113
Christopher M. Brislawn	
<b>Parametric Optimization of Biorthogonal Wavelets and Filterbanks via Pseudoframes for Subspaces</b> .....	137
Shidong Li and Michael Hoffman	
<b>On the Convergence of Iterative Filtering Empirical Mode Decomposition</b> .....	157
Yang Wang and Zhengfang Zhou	

**Wavelet Transforms by Nearest Neighbor Lifting** ..... 173  
 Wei Zhu and M. Victor Wickerhauser

**Part VII Operator Theory**

**On the Heat Kernel of a Left Invariant Elliptic Operator** ..... 197  
 Ovidiu Calin, Der-Chen Chang, and Yutian Li

**Mixed-Norm Estimates for the  $k$ -Plane Transform** ..... 211  
 Javier Duoandikoetxea and Virginia Naibo

**Representation of Linear Operators by Gabor Multipliers** ..... 229  
 Peter C. Gibson, Michael P. Lamoureux, and Gary F. Margrave

**Extension of Berezin–Lieb Inequalities** ..... 251  
 John R. Klauder and Bo-Sture K. Skagerstam

**Bilinear Calderón–Zygmund Operators** ..... 267  
 Diego Maldonado

**Weighted Inequalities and Dyadic Harmonic Analysis** ..... 281  
 María Cristina Pereyra

**Part VIII Biomathematics**

**Enhancement and Recovery in Atomic Force Microscopy Images** ..... 311  
 Alex Chen, Andrea L. Bertozzi, Paul D. Ashby, Pascal Getreuer,  
 and Yifei Lou

**Numerical Harmonic Analysis and Diffusions on the  
 3D-Motion Group** ..... 333  
 Gregory S. Chirikjian

**Quantification of Retinal Chromophores Through  
 Autofluorescence Imaging to Identify Precursors of  
 Age-Related Macular Degeneration**..... 355  
 M. Ehler, J. Dobrosotskaya, E.J. King, and R.F. Bonner

**Simple Harmonic Oscillator Based Reconstruction and  
 Estimation for One-Dimensional  $q$ -Space Magnetic Resonance  
 (1D-SHORE)**..... 373  
 Evren Özarıslan, Cheng Guan Koay, and Peter J. Basser

**Fourier Blues: Structural Coloration of Biological Tissues** ..... 401  
 Richard O. Prum and Rodolfo H. Torres

**A Harmonic Analysis View on Neuroscience Imaging** ..... 423  
Paul Hernandez–Herrera, David Jiménez, Ioannis A. Kakadiaris,  
Andreas Koutsogiannis, Demetrio Labate, Fernanda Laezza,  
and Manos Papadakis

**Index** ..... 451



<http://www.springer.com/978-0-8176-8378-8>

Excursions in Harmonic Analysis, Volume 2  
The February Fourier Talks at the Norbert Wiener  
Center

Andrews, T.D.; Balan, R.; Benedetto, J.J.; Czaja, W.;  
Okoudjou, K.A. (Eds.)

2013, XIX, 456 p. 56 illus., 21 illus. in color., Hardcover

ISBN: 978-0-8176-8378-8

A product of Birkhäuser Basel