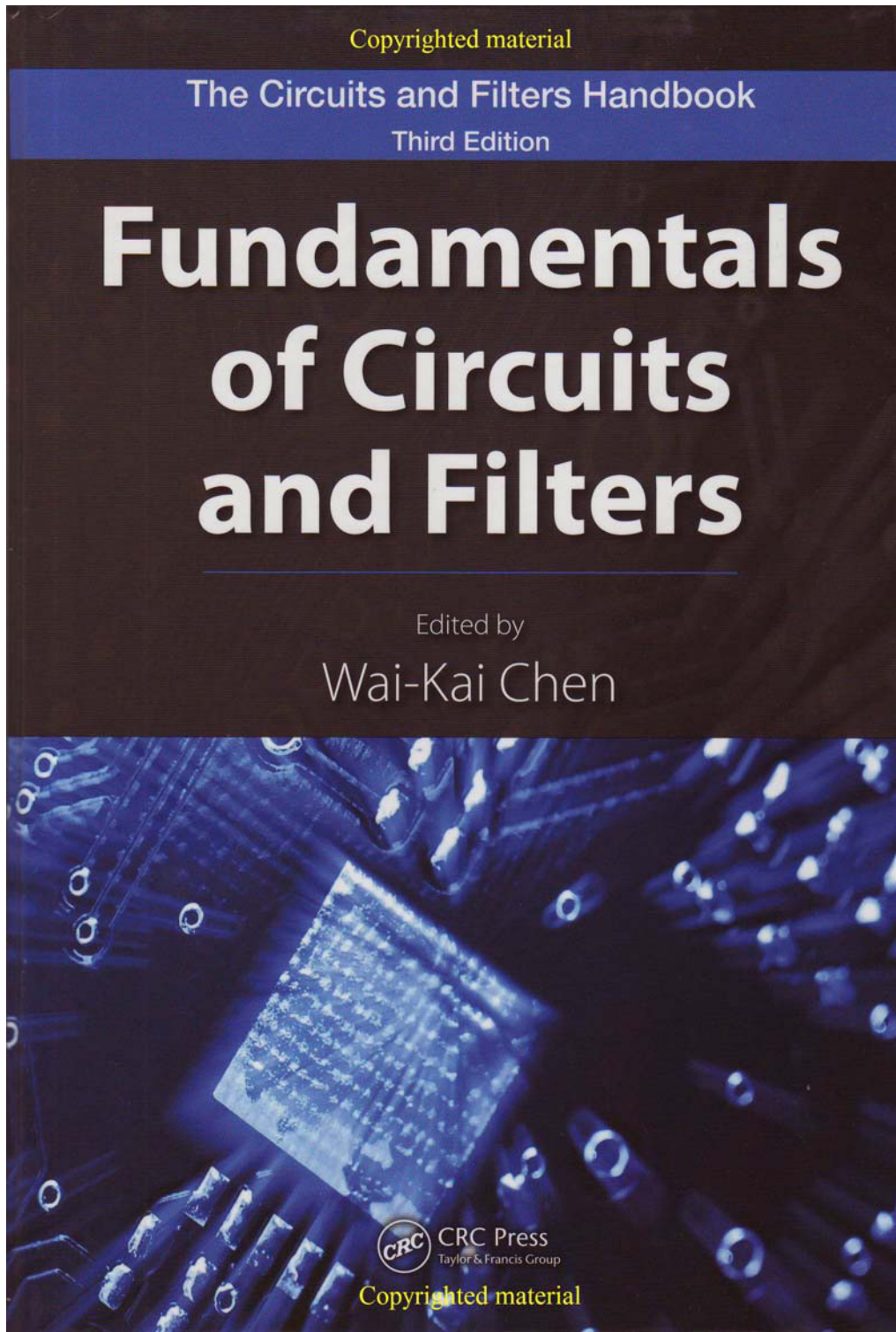Dr. Sergio Franco has contributed the Section *Frequency- and Time-Domain Considerations* to Chapter 16 of the handbook *Fundamentals of Circuits and Filters, The Circuits and Filters Handbook*, 3/E, Edited by Wai-Kai Chen, CRC Press, Taylor and Francis Group, 2009. ISBN 978-1-4200-5887-1.

Electrical Engineering

Upon its initial publication, *The Circuits and Filters Handbook* broke new ground. It quickly became **the** resource for comprehensive coverage of issues and practical information that can be put to immediate use. Not content to rest on his laurels, in addition to updating the second edition, editor Wai-Kai Chen divided it into tightly focused texts that made the information easily accessible and digestible. These texts have been revised, updated, and expanded so that they continue to provide solid coverage of standard practices and enlightened perspectives on new and emerging techniques.

Fundamentals of Circuits and Filters draws together international contributors who provide a unified view of key concepts in the theory of linear circuits and filters, emphasizing interrelated concepts and providing a mathematical reference to the handbook itself. They include a brief introduction to the theory and application of the z-transform, explain the advantages of the wavelet transform and the reason for its recent popularity, present a self-contained development of graph theory, and develop signal flow graphs following the closely related methods of Coates and Mason. The book describes the limited palette of options available in passive energy storage elements and how to make the most use out of what is available. It presents amplifier designs, terminal and port representations of circuits, and an overview of the different approaches to network analysis, highlighting the advantages and disadvantages of each.

Revised chapters:
- Linear Operators and Matrices
- Bilinear Operators and Matrices
- Fourier Methods for Signal Analysis and Processing
- Application of Symmetry: Two-Dimensional Polynomials, Fourier Transforms, and Filter Design
- Passive Circuit Elements
- Bipolar Junction Transistor Amplifiers
- Operational Amplifiers
- Terminal and Port Representations
- Symbolic Analysis

This volume will undoubtedly take its place as the engineer's first choice in looking for solutions to problems encountered in the analysis and behavior predictions of circuits and filters.