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THE HANDBOOK OF Formulas and Tables for Signal Processing

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About The Author

Alexander D. Poularikas is a professor in the Department of Electrical and Computer Engineering at the University of Alabama in Huntsville. He received a B.S. degree in Electrical Engineering in 1960, an M.S. degree in Physics in 1963, and a Ph.D. in 1965, all at the University of Arkansas, Fayetteville.

He has held positions as assistant, associate, and professor at the University of Rhode Island (1965–1983), professor and Chairman of the Engineering Department at the University of Denver (1983–1985), and professor (1985–) and Chairman (1985–1989) at the University of Alabama in Huntsville. Dr. Poularikas was a visiting scientist at MIT (1971–1972), and summer faculty fellow at NASA (1968, 1972), at Stanford University (1966), and at Underwater Systems Center (1971, 1973, 1974).

He has coauthored the books *Electromagnetics* (Marcel Dekker, 1997), *Electrical Engineering: Introduction and Concepts* (Matrix Publishers, 1982), *Workbook for Electrical Engineers* (Matrix Publishers, 1983), *Signals and Systems* (Brooks/Cole, 1985), *Elements of Signals and Systems* (PWS-KENT, 1987), and *Signals and Systems* (2nd edition) (PWS-KENT, 1992). He is Editor-in-Chief for the books *Transforms and Applications Handbook* (CRC Press, 1995) and *Handbook of Formulas and Tables for Signal Processing* (CRC Press, 1999).

Dr. Poularikas is a senior member of the IEEE, was a Fulbright scholar and was awarded the Outstanding Educator's Award by the IEEE Huntsville Section in 1990 and 1996. His main interest is in the area of signal processing.

PREFACE

The purpose of *The Handbook of Formulas and Tables for Signal Processing* is to include in a single volume the most important and most useful tables and formulas that are used by engineers and students involved in signal processing. This includes deterministic as well as statistical signal processing applications. The handbook contains a large number of standard mathematical tables, so it can also be used as a mathematical formulas handbook.

The handbook is organized into 45 chapters. Each contains tables, formulas, definitions, and other information needed for the topic at hand. Each chapter also contains numerous examples to explain how to use the tables and formulas. Some of the figures were created using MATLAB and MATHEMATICA.

The editor and CRC Press would be grateful if readers would send their opinions about the handbook, any error they may detect, suggestions for additional material for future editions, and suggestions for deleting material.

The handbook is testimony to the efforts of colleagues whose contributions were invaluable, Nora Konopka, Associate Editor at CRC Press, the commitment of the Editor-in-Chief of the series, Dr. Richard Dorf, and others. Special thanks go to Dr. Yunlong Sheng for contributing Chapter 42.

Alexander D. Poularikas Huntsville, Alabama July 1998

CONTENTS

- **1** Fourier Series
- 2 Laplace Transforms
- 3 Fourier Transform
- 4 Discrete-Time Fourier Transform, One- and Two-Dimensional
- 5 Distributions, Delta Function
- 6 The Z-Transform
- 7 Windows
- 8 Two-Dimensional Z-Transform
- 9 Analytical Methods
- 10 Signals and Their Characterization
- 11 Discrete Fourier Transform
- 12 Analog Filter Approximations
- 13 Sine and Cosine Transforms
- 14 The Hartley Transform
- 15 The Hilbert Transform
- 16 The Radon and Abel Transform
- 17 The Hankel Transform
- 18 The Mellin Transform

- **19** Time-Frequency Transformations
- 20 Complex Variable Analysis
- 21 Legendre Polynomials
- 22 Hermite Polynomials
- 23 Laguere Polynomials
- 24 Chebyshev Polynomials
- 25 Bessell Functions
- 26 Zernike Polynomials
- 27 Special Functions
- 28 Asymptotic Expansions
- 29 Non-Recursive Filters
- **30** Recursive Filters
- 31 Recursive Filters Satisfying Prescribed Specifications
- 32 Statistics
- 33 Matrices
- 34 Random Variables and Stochastic Processes
- 35 Random Digital Signal Processing
- 36 Spectral Estimation of Random Discrete Signals
- 37 Adaptive Filters
- 38 Band-Limited Functions and Sampling Theorem
- **39** Higher-Order Statistical Analysis
- 40 Stochastic Simulations

- 41 Nonlinear Digital Filtering
- 42 Wavelet Transforms
- 43 Trigonometric and Hyperbolic Functions
- 44 Algebra
- 45 Calculus