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Descrizione fisica	1 online resource (264 p.)
Collana	Digital signal and image processing series
Altri autori (Persone)	CastanieFrancis
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Spectral Analysis; Table of Contents; Preface; Specific Notations; PART I. Tools and Spectral Analysis; Chapter 1. Fundamentals; 1.1. Classes of signals; 1.1.1. Deterministic signals; 1.1.2. Random signals; 1.2. Representations of signals; 1.2.1. Representations of deterministic signals; 1.2.1.1. Complete representations; 1.2.1.2. Partial representations; 1.2.2. Representations of random signals; 1.2.2.1. General approach; 1.2.2.2. 2nd order representations; 1.2.2.3. Higher order representations; 1.3. Spectral analysis: position of the problem; 1.4. Bibliography Chapter 2. Digital Signal Processing2.1. Introduction; 2.2. Transform properties; 2.2.1. Some useful functions and series; 2.2.2. Fourier transform; 2.2.3. Fundamental properties; 2.2.4. Convolution sum; 2.2.5. Energy conservation (Parseval's theorem); 2.2.6. Other properties; 2.2.7. Examples; 2.2.8. Sampling; 2.2.9. Practical calculation, FFT; 2.3. Windows; 2.4. Examples of application; 2.4.1. LTI systems identification; 2.4.2. Monitoring spectral lines; 2.4.3. Spectral analysis of the coefficient of tide fluctuation; 2.5. Bibliography; Chapter

3. Estimation in Spectral Analysis

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3.1.2. Cramer-Rao bounds; 3.1.3. Sequence of estimators; 3.1.4. Maximum likelihood estimation;
3.2. Estimation of 1st and 2nd order moments;
3.3. Periodogram analysis;
3.4. Analysis of estimators based on $c_{xx}(m)$; 3.4.1. Estimation of parameters of an AR model; 3.4.2. Estimation of a noisy cosine by MUSIC;
3.5. Conclusion;
3.6. Bibliography;
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7.3. Link with the Fourier estimators

Sommario/riassunto

This book deals with these parametric methods, first discussing those based on time series models, Capon's method and its variants, and then estimators based on the notions of sub-spaces. However, the book also deals with the traditional "analog" methods, now called non-parametric methods, which are still the most widely used in practical spectral analysis.
