

1. Record Nr.	UNINA9910458399803321
Autore	Koopmans Lambert Herman <1930->
Titolo	The spectral analysis of time series [[electronic resource] /] / Lambert H. Koopmans
Pubbl/distr/stampa	San Diego, : Academic Press, c1995
ISBN	1-281-74938-9 9786611749385 0-08-054156-9
Edizione	[[2nd ed.].]
Descrizione fisica	1 online resource (385 p.)
Collana	Probability and mathematical statistics ; ; v. 22
Disciplina	519.5/5 519.55
Soggetti	Spectral theory (Mathematics) Time-series analysis Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 354-358) and index.
Nota di contenuto	Front Cover; The Spectral Analysis of Time Series; Copyright Page; Contents; Preface; Acknowledgements; Preface to the Second Edition; Chapter 1. Preliminaries; 1.1 Introduction; 1.2 Time Series and Spectra; 1.3 Summary of Vector Space Geometry; 1.4 Some Probability Notations and Properties; Chapter 2. Models for Spectral Analysis-The Univariate Case; 2.1 Introduction; 2.2 The Wiener Theory of Spectral Analysis; 2.3 Stationary and Weakly Stationary Stochastic Processes; 2.4 The Spectral Representation for Weakly Stationary Stochastic Processes-A Special Case 2.5 The General Spectral Representation for Weakly Stationary Processes 2.6 The Discrete and Continuous Components of the Process; 2.7 Physical Realization of the Different Kinds of Spectra; 2.8 The Real Spectral Representation; 2.9 Ergodicity and the Connection between the Wiener and Stationary Process Theories; 2.10 Statistical Estimation of the Autocovariance and the Mean Ergodic Theorem; Appendix to Chapter 2; Chapter 3. Sampling, Aliasing, and Discrete-Time Models; 3.1 Introduction; 3.2 Sampling and the Aliasing Problem; 3.3 The Spectral Model for Discrete-Time Series

Chapter 4. Linear Filters-General Properties with Applications to Continuous-Time Processes 4.1 Introduction; 4.2 Linear Filters; 4.3 Combining Linear Filters; 4.4 Inverting Linear Filters; 4.5 Nonstationary Processes Generated by Time Varying Linear Filters; Appendix to Chapter 4; Chapter 5. Multivariate Spectral Models and Their Applications; 5.1 Introduction; 5.2 The Spectrum of a Multivariate Time Series-Wiener Theory; 5.3 Multivariate Weakly Stationary Stochastic Processes; 5.4 Linear Filters for Multivariate Time Series 5.5 The Bivariate Spectral Parameters, Their Interpretations and Uses 5.6 The Multivariate Spectral Parameters, Their Interpretations and Uses; Appendix to Chapter 5; Chapter 6. Digital Filters; 6.1 Introduction; 6.2 General Properties of Digital Filters; 6.3 The Effect of Finite Data Length; 6.4 Digital Filters with Finitely Many Nonzero Weights; 6.5 Digital Filters Obtained by Combining Simple Filters; 6.6 Filters with Gapped Weights and Results Concerning the Filtering of Series with Polynomial Trends; Appendix to Chapter 6 Chapter 7. Finite Parameter Models, Linear Prediction, and Real-Time Filtering 7.1 Introduction; 7.2 Moving Averages; 7.3 Autoregressive Processes; 7.4 The Linear Prediction Problem; 7.5 Mixed Autoregressive-Moving Average Processes and Recursive Prediction; 7.6 Linear Filtering in Real Time; Appendix to Chapter 7; Chapter 8. The Distribution Theory of Spectral Estimates with Applications to Statistical Inference; 8.1 Introduction; 8.2 Distribution of the Finite Fourier Transform and the Periodogram; 8.3 Distribution Theory for Univariate Spectral Estimators 8.4 Distribution Theory for Multivariate Spectral Estimators with Applications to Statistical Inference

Sommario/riassunto

To tailor time series models to a particular physical problem and to follow the working of various techniques for processing and analyzing data, one must understand the basic theory of spectral (frequency domain) analysis of time series. This classic book provides an introduction to the techniques and theories of spectral analysis of time series. In a discursive style, and with minimal dependence on mathematics, the book presents the geometric structure of spectral analysis. This approach makes possible useful, intuitive interpretations of important time series parameters and provides a unifi