1. Record Nr. UNINA9910139468203321

Titolo	Scaling, fractals and wavelets [[electronic resource] /] / edited by Patrice Abry, Paulo Goncalves, Jacques Levy Vehel
Pubbl/distr/stampa	London, : ISTE Hoboken, NJ, : Wiley, 2009
ISBN	1-282-16536-4 9786612165368 0-470-61156-1 0-470-39422-6
Descrizione fisica	1 online resource (506 p.)
Collana	ISTE ; ; v.74
Altri autori (Persone)	AbryPatrice GoncalvesPaulo <1967-> Levy VehelJacques <1960->
Disciplina	621.382/20151 621.38220151
Soggetti	Signal processing - Mathematics Fractals Wavelets (Mathematics)
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.
Nota di contenuto	Scaling, Fractals and Wavelets; Table of Contents; Preface; Chapter 1. Fractal and Multifractal Analysis in Signal Processing; 1.1. Introduction; 1.2. Dimensions of sets; 1.2.1. Minkowski-Bouligand dimension; 1.2.2. Packing dimension; 1.2.3. Covering dimension; 1.2.4. Methods for calculating dimensions; 1.3. Holder exponents; 1.3.1. Holder exponents related to a measure; 1.3.2. Theorems on set dimensions; 1.3.3. Holder exponent related to a function; 1.3.4. Signal dimension theorem; 1.3.5. 2-microlocal analysis; 1.3.6. An example: analysis of stock market price; 1.4. Multifractal analysis 1.4.1. What is the purpose of multifractal analysis?1.4.2. First ingredient: local regularity measures; 1.4.3. Second ingredient: the size of point sets of the same regularity; 1.4.4. Practical calculation of spectra; 1.4.5. Refinements: analysis of the sequence of capacities, mutual analysis and multisingularity; 1.4.6. The multifractal spectra of

Sommario/riassunto

Scaling is a mathematical transformation that enlarges or diminishes objects. The technique is used in a variety of areas, including finance and image processing. This book is organized around the notions of scaling phenomena and scale invariance. The various stochastic models commonly used to describe scaling ? self-similarity, long-range dependence and multi-fractals ? are introduced. These models are compared and related to one another. Next, fractional integration, a mathematical tool closely related to the notion of scale invariance, is discussed, and stochastic processes with prescribed