. Record Nr.	UNINA9910795832003321
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Titolo	Fractal Geometry : Mathematical Foundations and Applications
Pubbl/distr/stampa	New York : , : John Wiley & Sons, Incorporated, , 2014 ©2014
ISBN	9781118762851 9781119942399
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (400 pages)
Altri autori (Persone)	FalconerKenneth
Disciplina	514/.742
Soggetti	Fractals
	Dimension theory (Topology)
	Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover Title Page Copyright Contents Preface to the first edition Preface to the second edition Part I Foundations Course suggestions Introduction Part I Foundations Chapter 1 Mathematical background 1.1 Basic set theory 1.2 Functions and limits 1.3 Measures and mass distributions 1.4 Notes on probability theory 1.5 Notes and references Exercises Chapter 2 Box-counting dimension 2.1 Box-counting dimensions 2.2 Properties and problems of box-counting dimension 2.3 Modified box-counting dimensions 2.4 Some other definitions of dimension 2.5 Notes and references Exercises Chapter 3 Hausdorff and packing measures and dimensions 3.1 Hausdorff measure 3.2 Hausdorff dimension 3.3 Calculation of Hausdorff dimension-simple examples 3.4 Equivalent definitions of Hausdorff dimension 3.5 Packing measure and dimensions 3.6 Finer definitions of dimension 3.7 Dimension prints 3.8 Porosity 3.9 Notes and references Exercises Chapter 4 Techniques for calculating dimensions 4.1 Basic methods 4.2 Subsets of finite measure 4.3 Potential theoretic methods 4.4 Fourier transform methods 4.5 Notes and references Exercises Chapter 5 Local structure of fractals 5.1 Densities 5.2 Structure of 1-sets 5.3

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Tangents to s-sets -- 5.4 Notes and references -- Exercises --Chapter 6 Projections of fractals -- 6.1 Projections of arbitrary sets --6.2 Projections of s-sets of integral dimension -- 6.3 Projections of arbitrary sets of integral dimension -- 6.4 Notes and references --Exercises -- Chapter 7 Products of fractals -- 7.1 Product formulae --7.2 Notes and references -- Exercises -- Chapter 8 Intersections of fractals -- 8.1 Intersection formulae for fractals -- 8.2 Sets with large intersection -- 8.3 Notes and references. Exercises -- Part II Applications and Examples -- Chapter 9 Iterated function systems-self-similar and self-affine sets -- 9.1 Iterated function systems -- 9.2 Dimensions of self-similar sets -- 9.3 Some variations -- 9.4 Self-affine sets -- 9.5 Applications to encoding images -- 9.6 Zeta functions and complex dimensions -- 9.7 Notes and references -- Exercises -- Chapter 10 Examples from number theory -- 10.1 Distribution of digits of numbers -- 10.2 Continued fractions -- 10.3 Diophantine approximation -- 10.4 Notes and references -- Exercises -- Chapter 11 Graphs of functions -- 11.1 Dimensions of graphs -- 11.2 Autocorrelation of fractal functions --11.3 Notes and references -- Exercises -- Chapter 12 Examples from pure mathematics -- 12.1 Duality and the Kakeya problem -- 12.2 Vitushkin's conjecture -- 12.3 Convex functions -- 12.4 Fractal groups and rings -- 12.5 Notes and references -- Exercises -- Chapter 13 Dynamical systems -- 13.1 Repellers and iterated function systems --13.2 The logistic map -- 13.3 Stretching and folding transformations -- 13.4 The solenoid -- 13.5 Continuous dynamical systems -- 13.6 Small divisor theory -- 13.7 Lyapunov exponents and entropies -- 13.8 Notes and references -- Exercises -- Chapter 14 Iteration of complex functions-Julia sets and the Mandelbrot set -- 14.1 General theory of Julia sets -- 14.2 Quadratic functions-the Mandelbrot set -- 14.3 Julia sets of quadratic functions -- 14.4 Characterisation of quasi-circles by dimension -- 14.5 Newton's method for solving polynomial equations -- 14.6 Notes and references -- Exercises -- Chapter 15 Random fractals -- 15.1 A random Cantor set -- 15.2 Fractal percolation --15.3 Notes and references -- Exercises -- Chapter 16 Brownian motion and Brownian surfaces -- 16.1 Brownian motion in R -- 16.2 Brownian motion in Rn -- 16.3 Fractional Brownian motion. 16.4 Fractional Brownian surfaces -- 16.5 Lévy stable processes --16.6 Notes and references -- Exercises -- Chapter 17 Multifractal measures -- 17.1 Coarse multifractal analysis -- 17.2 Fine multifractal analysis -- 17.3 Self-similar multifractals -- 17.4 Notes and references -- Exercises -- Chapter 18 Physical applications -- 18.1 Fractal fingering -- 18.2 Singularities of electrostatic and gravitational potentials -- 18.3 Fluid dynamics and turbulence -- 18.4 Fractal antennas -- 18.5 Fractals in finance -- 18.6 Notes and references --Exercises -- References -- Index. The seminal text on fractal geometry for students and researchers: extensively revised and updated with new material, notes and references that reflect recent directions. Interest in fractal geometry continues to grow rapidly, both as a subject that is fascinating in its own right and as a concept that is central to many areas of mathematics, science and scientific research. Since its initial publication in 1990 Fractal Geometry: Mathematical Foundations and Applications has become a seminal text on the mathematics of fractals. The book introduces and develops the general theory and applications of fractals in a way that is accessible to students and researchers from a wide range of disciplines. Fractal Geometry: Mathematical Foundations and Applications is an excellent course book for undergraduate and graduate students studying fractal geometry, with suggestions for

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material appropriate for a first course indicated. The book also provides an invaluable foundation and reference for researchers who encounter fractals not only in mathematics but also in other areas across physics, engineering and the applied sciences. Provides a comprehensive and accessible introduction to the mathematical theory and applications of fractals Carefully explains each topic using illustrative examples and diagrams Includes the necessary mathematical background material, along with notes and references to enable the reader to pursue individual topics Features a wide range of exercises, enabling readers to consolidate their understanding Supported by a website with solutions to exercises and additional material http://www.wileyeurope.com/fractal Leads onto the more advanced sequel Techniques in Fractal Geometry (also by Kenneth Falconer and available from Wiley).