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Titolo	Spatial networks : a complete introduction : from graph theory and statistical physics to real-world applications / / Marc Barthelemy
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ISBN	9783030941062 9783030941055
Descrizione fisica	1 online resource (443 pages) : illustrations (some color)
Disciplina	003
Soggetti	System analysis Statistical physics Statistics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	From Complex to Spatial Networks Planar Graphs Directed and Mixed Graphs Simple Measures Betweenness Centrality The Shape of Shortest Paths Simplicity and Entropy Large-Scale Tools Typology of Planar Graphs Measuring the Time Evolution of Spatial Networks Families of Models of Spatial Networks Spatial Small-worlds Growing Spatial Networks Tessellations of the Plane Proximity Graphs Excluded Volume Graphs Loops and Branches Optimal Networks Optimal Transportation Networks and Network Design Greedy Models
Sommario/riassunto	This book provides a complete introduction into spatial networks. It offers the mathematical tools needed to characterize these structures and how they evolve in time and presents the most important models of spatial networks. The book puts a special emphasis on analyzing complex systems which are organized under the form of networks where nodes and edges are embedded in space. In these networks, space is relevant, and topology alone does not contain all the information. Characterizing and understanding the structure and the evolution of spatial networks is thus crucial for many different fields, ranging from urbanism to epidemiology. This subject is therefore at the crossroad of many fields and is of potential interest to a broad

audience comprising physicists, mathematicians, engineers, geographers or urbanists. In this book, the author has expanded his previous book ("Morphogenesis of Spatial Networks") to serve as a textbook and reference on this topic for a wide range of students and professional researchers.

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