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	Titolo	Computational Complexity [[electronic resource]] : Theory, Techniques, and Applications / / edited by Robert A. Meyers
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	Edizione	[1st ed. 2012.]
	Descrizione fisica	1 online resource (XLIV, 3492p. 1547 illus., 665 illus. in color. eReference. In 6 volumes, not available separately.)
	Collana	Springer reference
	Disciplina	511.3
	Soggetti	Computer simulation System theory Physics Computers Data mining Algorithms Simulation and Modeling Complex Systems Applications of Graph Theory and Complex Networks Theory of Computation Data Mining and Knowledge Discovery Algorithm Analysis and Problem Complexity
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	"With 1487 figures and 234 tables." "This book consists of selections from the Encyclopedia of Complexity and Systems Science edited by Robert A. Meyers, published by Springer New York in 2009."--T.p. verso.
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Agent-Based Modeling and Simulation -- Cellular Automata, Mathematical Basis of Complex Networks and Graph Theory -- Data Mining and Knowledge Discovery -- Game Theory -- Granular Computing -- Intelligent Systems -- Probability and Statistics in Complex Systems -- Quantum Information Science -- Social Network Analysis -- 3 entries from the section Social Science, Physics and Mathematical Applications: Minority Games; Rational, Goal-Oriented

Agents; and Social Processes, Simulation Models in Soft Computing -- Unconventional Computing -- Wavelets.

Sommario/riassunto	Complex systems are systems that comprise many interacting parts with the ability to generate a new quality of collective behavior through self-organization, e.g. the spontaneous formation of temporal, spatial or functional structures. These systems are often characterized by extreme sensitivity to initial conditions as well as emergent behavior that are not readily predictable or even completely deterministic. The recognition that the collective behavior of the whole system cannot be simply inferred from an understanding of the behavior of the individual components has led to the development of numerous sophisticated new computational and modeling tools with applications to a wide range of scientific, engineering, and societal phenomena. Computational Complexity: Theory, Techniques and Applications presents a detailed and integrated view of the theoretical basis, computational methods, and state-of-the-art approaches to investigating and modeling of inherently difficult problems whose solution requires extensive resources approaching the practical limits of present-day computer systems. This comprehensive and authoritative reference examines key components of computational complexity, including cellular automata, graph theory, data mining, granular computing, soft computing, wavelets, and more.