1. Record Nr.	UNINA9910300389403321
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Titolo	The Influence of Demographic Stochasticity on Population Dynamics : A Mathematical Study of Noise-Induced Bistable States and Stochastic Patterns / / by Tommaso Biancalani
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-07728-7
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (123 p.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	530.15950285
Soggetti	Sociophysics
	Econophysics
	Probabilities
	Biotic communities
	Biophysics
	Data-driven Science, Modeling and Theory Building
	Probability Theory and Stochastic Processes
	Community & Population Ecology
	Biological and Medical Physics, Biophysics
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	Introduction -- Methods -- Noise-Induced Bistability -- Stochastic Waves on Regular Lattices -- Stochastic Waves on Complex Network -- Conclusions.
Sommario/riassunto	The dynamics of population systems cannot be understood within the framework of ordinary differential equations, which assume that the number of interacting agents is infinite. With recent advances in ecology, biochemistry and genetics it is becoming increasingly clear that real systems are in fact subject to a great deal of noise. Relevant examples include social insects competing for resources, molecules undergoing chemical reactions in a cell and a pool of genomes subject to evolution. When the population size is small, novel macroscopic phenomena can arise, which can be analyzed using the theory of

stochastic processes. This thesis is centered on two unsolved problems in population dynamics: the symmetry breaking observed in foraging populations, and the robustness of spatial patterns. We argue that these problems can be resolved with the help of two novel concepts: noise-induced bistable states and stochastic patterns.