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	Titolo	Hyperbolic and kinetic models for self-organised biological aggregations [e-book] : a modelling and pattern formation approach / by Raluca Eftimie
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	ISBN	9783030025861
	Descrizione fisica	1 online resource (xiii, 280 pages) : illustrations (some color)
	Collana	Lecture notes in mathematics ; 2232 Lecture notes in mathematics. Mathematical biosciences subseries Lecture notes in mathematics, 2524-6771 ; 2232
	Classificazione	AMS 92C15
	Disciplina	570.285
	Soggetti	Ecology Differential equations, partial Numerical analysis
	Lingua di pubblicazione	Inglese
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	Nota di bibliografia	Includes bibliographical references and index
	Nota di contenuto	Introduction ; A Short Introduction to One-Dimensional Conservation Laws ; One-Equation Local Hyperbolic Models ; Local Hyperbolic/Kinetic Systems in 1D ; Nonlocal Hyperbolic Models in 1D ; Multi-Dimensional Transport Equations ; Numerical Approaches for Kinetic and Hyperbolic Models ; A Few Notions of Stability and Bifurcation Theory ; Discussion and Further Open Problems
	Sommario/riassunto	This book focuses on the spatio-temporal patterns generated by two classes of mathematical models (of hyperbolic and kinetic types) that have been increasingly used in the past several years to describe various biological and ecological communities. Here we combine an overview of various modelling approaches for collective behaviours displayed by individuals/cells/bacteria that interact locally and non-locally, with analytical and numerical mathematical techniques that can be used to investigate the spatio-temporal patterns produced by said individuals/cells/bacteria. Richly illustrated, the book offers a valuable guide for researchers new to the field, and is also suitable as a textbook for senior undergraduate or graduate students in mathematics or related disciplines