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Titolo	From Hamiltonian chaos to complex systems : a nonlinear physics approach // Xavier Leoncini
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ISBN	1-4614-6962-7
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Descrizione fisica	1 online resource (335 p.)
Collana	Nonlinear systems and complexity
Disciplina	530.1595
Soggetti	Statistical physics Hamiltonian systems
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Describing Plasma dynamics with finite dimensional Hamiltonian systems -- Some experiments with soap films and soap bubbles -- Transport properties in a model of supersolid -- Directed transport in a spatially periodic potential under periodic non-biased forcing -- Nonlinear propagation of a driven electron plasma wave and self-organization of stimulated Raman scattering -- Stochastic patterns formation and diffusion -- Propagation of information on undirected dependency graphs and related inverse problem for road traffic inference -- Stochastic solutions of nonlinear pde's: McKean versus superprocesses -- Challenges and Recent Advances in Heat Transport Modelling for ITER -- Front propagation manifolds in advection-reaction-diffusion processes -- Stress defocusing in elastic sheets by anisotropic compaction -- Weak chaos, infinite ergodic theory, and anomalous diffusion -- Finite time dynamics -- Dynamics of a model of red blood cell and implication to rheology.
Sommario/riassunto	From Hamiltonian Chaos to Complex Systems: A Nonlinear Physics Approach collects contributions on recent developments in non-linear dynamics and statistical physics with an emphasis on complex systems. This book provides a wide range of state-of-the-art research in these fields. The unifying aspect of this book is a demonstration of how similar tools coming from dynamical systems, nonlinear physics, and statistical dynamics can lead to a large panorama of research in various fields of physics and beyond, most notably with the perspective

of application in complex systems. This book also: Illustrates the broad research influence of tools coming from dynamical systems, nonlinear physics, and statistical dynamics Adopts a pedagogic approach to facilitate understanding by non-specialists and students Presents applications in complex systems Includes 150 illustrations From Hamiltonian Chaos to Complex Systems: A Nonlinear Physics Approach is an ideal book for graduate students and researchers working in applied mathematics, mechanical engineering, nonlinear physics, and out of equilibrium statistical physics.

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