1. Record Nr. UNINA9910299908403321

Titolo	Regularity and Stochasticity of Nonlinear Dynamical Systems / / edited by Dimitri Volchenkov, Xavier Leoncini
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-58062-0
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (X, 311 p. 99 illus., 79 illus. in color.)
Collana	Nonlinear Systems and Complexity, , 2195-9994 ; ; 21
Disciplina	530.15
Soggetti	Computational complexity Statistical physics Partial differential equations Dynamics Ergodic theory Complexity Applications of Nonlinear Dynamics and Chaos Theory Partial Differential Equations Dynamical Systems and Ergodic Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Solvability of Some Integro-Dierential Equations with Anomalous Diusion -- Poincare Recurrences in Ergodic Systems Without Mixing -- Success, Hierarchy, and Inequality under Uncertainty -- Grazing in Impulsive Differential Equations -- On Local Topological Classication of Two-dimensional Orientable, Nonorientable and Half-orientable Horseshoes -- From Chaos to Order in a Ring of Coupled Oscillator Swith Frequency Mismatch -- Dynamics of some nonlinear meromorphic functions -- Dynamics of oscillatory networks with pulse delayed coupling -- Bifurcation trees of period-3 motions to chaos in a time-delayed Duffing Oscillator -- Travelable Period-1 Motions to Chaos in a Periodically Excited Pendulum -- Automorphic systems and differential-invariant solutions.
Sommario/riassunto	This book presents recent developments in nonlinear dynamics and

physics with an emphasis on complex systems. The contributors provide recent theoretic developments and new techniques to solve nonlinear dynamical systems and help readers understand complexity, stochasticity, and regularity in nonlinear dynamical systems. This book covers integro-differential equation solvability, Poincare recurrences in ergodic systems, orientable horseshoe structure, analytical routes of periodic motions to chaos, grazing on impulsive differential equations, from chaos to order in coupled oscillators, and differential-invariant solutions for automorphic systems, inequality under uncertainty. Presents the most up-to-date understanding in nonlinear dynamical systems along with new theories and methodologies applied to nonlinear physics, engineering, and social science; Includes differential-invariant solutions, classification of orientable horseshoes, and nonlinear time-delay systems; Illustrates solution routes to chaos for nonlinear differential equations.