1. Record Nr. UNINA9910299498203321

Titolo	Nonlinear Dynamics and Complexity / / edited by Valentin Afraimovich, Albert C. J. Luo, Xilin Fu
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-02353-5
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (297 p.)
Collana	Nonlinear Systems and Complexity, , 2196-0003 ; ; 8
Disciplina	519
Soggetti	Dynamics Nonlinear theories Nonlinear Optics System theory Applied Dynamical Systems Complex Systems
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 and index.
Nota di contenuto	From Long Range Order to Complex Networks, an Hamiltonian Dynamics Perspective -- Time-Varying Linearization: Perron Effects of Lyapunov Exponent Sign Inversion, Stability and Instability by the First Approximation -- Fractional Maps as Maps with Memory -- Complex Period- Motion in a Periodically Forced, Quadratic Nonlinear Oscillator -- Map-Based Approach to Problems of Spiking Neural Network Dynamics -- Adaptive Landscape with Singularity in Biological Processes -- Multiscale Scaffolding of Real World Data -- Treasure Hunting in Virtual Environments. Scaling Laws of Human Virtual Motions and Mathematical Models of Human Actions in Uncertainty -- Vibrational Resonance in Time-Delayed Nonlinear Systems -- Experimental Studies of Noise Effects in Nonlinear Oscillators.
Sommario/riassunto	This important collection presents recent advances in nonlinear dynamics including analytical solutions, chaos in Hamiltonian systems, time-delay, uncertainty, and bio-network dynamics. Nonlinear Dynamics and Complexity equips readers to appreciate this increasingly main-stream approach to understanding complex

phenomena in nonlinear systems as they are examined in a broad array of disciplines. The book facilitates a better understanding of the mechanisms and phenomena in nonlinear dynamics and develops the corresponding mathematical theory to apply nonlinear design to practical engineering.