

Chaos Nonlinearity Complexity The Dynamical Paradigm Of Nature Studies In Fuzziness And Soft Computing

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Narrating Complexity - Richard Walsh 2018-10-31

This book stages a dialogue between international researchers from the broad fields of complexity science and narrative studies. It presents an edited collection of chapters on aspects of how narrative theory from the humanities may be exploited to understand, explain, describe, and communicate aspects of complex systems, such as their emergent properties, feedbacks, and downwards causation; and how ideas from complexity science can inform narrative theory, and help explain, understand, and construct new, more complex models of narrative as a cognitive faculty and as a pervasive cultural form in new and old media. The book is suitable for academics, practitioners, and professionals, and postgraduates in complex systems, narrative theory, literary and film studies, new media and game studies, and science communication.

Interdisciplinary and Religio-Cultural Discourses on a Spirit-Filled World - V. Kärkkäinen 2013-09-12

This volume presents interdisciplinary, intercultural, and interreligious approaches directed toward the articulation of a pneumatological theology in its broadest sense, especially in terms of attempting to

conceive of a spirit-filled world.

Nonlinear Dynamics and Chaos in Semiconductors - K Aoki 2000-12-07

The field of nonlinear dynamics and low-dimensional chaos has developed rapidly over the past twenty years. The principal advances have been in theoretical aspects but more recent applications in a wide variety of the sciences have been made. Nonlinear Dynamics and Chaos in Semiconductors is the first book to concentrate on specific physical and experimental situations in semiconductors as well as examine how to use chaos theory to explain semiconductor phenomena. Written by a well-respected researcher of chaos in semiconductors, Nonlinear Dynamics and Chaos in Semiconductors provides a rich and detailed account of progress in research on nonlinear effects in semiconductor physics. Discussing both theory and experiment, the author shows how this powerful combination has led to real progress with difficult nonlinear problems in this technologically important field. Nonlinear carrier dynamics, caused by low-temperature impact ionization avalanche of impurities in extrinsic semiconductors, and the emergence

of intractable chaos are treated in detail. The book explores impact ionization models, linear stability analysis, bifurcation theory, fractal dimensions, and various analytical methods in chaos theory. It also describes spatial and spatiotemporal evolution of the current density filament formed by the impact ionization avalanche.

Qualitative Research & Evaluation Methods - Michael Quinn Patton 2002

In Unstable and Brittle Diabetes, Geoff Gill brings together research on the management of brittle diabetes (or erratic glucose control), which is a controversial area in terms of definition and management and one that creates much debate among diabetologists. This monograph aims to help the diabetologist understand this troublesome condition.

Chaos, Nonlinearity, Complexity - Ashok Sengupta 2006-09-25

This book explores non-extensive statistical mechanics in non-equilibrium thermodynamics, and presents an overview of the strong nonlinearity of chaos and complexity in natural systems, drawing on relevant mathematics from topology, measure-theory, inverse and ill-posed problems, set-valued analysis, and nonlinear functional analysis. It offers a self-contained theory of complexity and complex systems as the steady state of non-equilibrium systems, denoting a homeostatic dynamic equilibrium between stabilizing order and destabilizing disorder.

Complex and Chaotic Nonlinear Dynamics - Thierry Vialar 2009-04-26

Complex dynamics constitute a growing and increasingly important area as they offer a strong potential to explain and formalize natural, physical, financial and economic phenomena. This book pursues the ambitious goal to bring together an extensive body of knowledge regarding complex dynamics from various academic disciplines. Beyond its focus on economics and finance, including for instance the evolution of macroeconomic growth models towards nonlinear structures as well as signal processing applications to stock markets, fundamental parts of the book are devoted to the use of nonlinear dynamics in mathematics, statistics, signal theory and processing. Numerous examples and applications, almost 700 illustrations and numerical simulations based on

the use of Matlab make the book an essential reference for researchers and students from many different disciplines who are interested in the nonlinear field. An appendix recapitulates the basic mathematical concepts required to use the book.

Applied Dynamics - Francis C. Moon 2008-09-26

Applied Dynamics provides a modern and thorough examination of dynamics with specific emphasis on physical examples and applications such as: robotic systems, magnetic bearings, aerospace dynamics, and microelectromagnetic machines. Also includes the development of the method of virtual velocities based on the principle of virtual power.

The SAGE Handbook of Organization Studies - Stewart R Clegg 2006-06-21

Praise for the award winning First Edition: 'This handbook is organized to help teachers and students to cover the mainstream work in the field of organization studies. This is an excellent reference tool with which to study organizational theory and practice' - International Review of Administrative Sciences 'The editors have put together an impressive reference work, serious in intent and rigorous in implementation. As a publishing achievement, and a scholarly 'event' in the field, SAGE is to be congratulated. It is designed as a work of synthesis, to link past and present, general and specific' - Journal of General Management Praise for the New Edition: 'An excellent collection of papers giving a timely overview of the field' - Gareth Morgan 'In this substantially updated, revised and extended edition of the widely acclaimed Handbook, the high standard of the contributions is maintained. Close consideration is given to newly emergent, such as networks and complexity, as well as more established topics. Metaphors of conversation and discourse are engagingly invoked to make and explore new distinctions, directions and connections. It is a key reference volume for more advanced students of this rapidly developing field' - Hugh Willmott, Diageo Professor of Management Studies, Judge Business School, University of Cambridge 'Giving the authors of the Handbook of Organization Studies the opportunity to revise and update their earlier contributions makes this handbook unique. Comparing the revised chapters to their originals

offers the reader unparalleled insight into how knowledge develops in our discipline. New frameworks and deeper understandings, grounded in continuing scholarship, abound in this updated classic' - Mary Jo Hatch, C. Coleman McGehee Eminent Scholars Research Professor of Banking and Commerce McIntire School of Commerce, University of Virginia A decade after it first published to international acclaim, the seminal Handbook of Organization Studies has been updated to capture exciting new developments in the field. Providing a retrospective and prospective overview of organization studies, the Handbook continues to challenge and inspire readers with its synthesis of knowledge and literature. As ever, contributions have been selected to reflect the diversity of the field. New chapters cover areas such as organizational change; knowledge management; and organizational networks. Part One reflects on the relationship between theory, research and practice in organization studies. Part Two address a number of the most significant issues to affect organization studies such as leadership, diversity and globalization. Comprehensive and far-reaching, this important resource will set new standards for the understanding of organizational studies. It will be invaluable to researchers, teachers and advanced students alike. *Knowledge Management, Organizational Intelligence And Learning, And Complexity - Volume I* - L. Douglas Kiel 2009-08-25 Knowledge Management, Organizational Intelligence and Learning, and Complexity is the component of Encyclopedia of Technology, Information, and Systems Management Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Knowledge Management, Organizational Intelligence and Learning, and Complexity in the Encyclopedia of Technology, Information, and Systems Management Resources provides the latest scientific insights into the evolution of complexity in both the natural and social realms. Emerging perspectives from the fields of knowledge management, computer-based simulation and the organizational sciences are presented as tools for understanding and supporting this evolving complexity and the earth's life support systems. These three volumes are aimed at the following a

wide spectrum of audiences from the merely curious to those seeking in-depth knowledge: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs.

Chaos and Complexity Theory for Management: Nonlinear Dynamics - Banerjee, Santo 2012-11-30

Although chaos theory refers to the existence between seemingly random events, it has been gaining the attention of science, technology and managements fields. The shift from traditional procedures to the dynamics of chaos and complexity theory has resulted in a new element of complexity thinking, allowing for a greater capability for analyzing and understanding key business processes. *Chaos and Complexity Theory for Management: Nonlinear Dynamics* explores chaos and complexity theory and its relationship with the understanding of natural chaos in the business environment. Utilizing these theories aids in comprehending the development of businesses as a complex adaptive system.

Chaos, Complexity and Leadership 2016 - Şefika Şule Erçetin 2018-03-21

This book covers the proceedings from the 2016 International Symposium on Chaos, Complexity and Leadership, and reflects current research results of chaos and complexity studies and their applications in various fields. Included are research papers in the fields of applied nonlinear methods, modeling of data and simulations, as well as theoretical achievements of chaos and complex systems. Also discussed are leadership and management applications of chaos and complexity theory.

Chaos Theory in the Social Sciences - L. Douglas Kiel 2009-11-10

Chaos Theory in the Social Sciences: Foundations and Applications offers the most recent thinking in applying the chaos paradigm to the social sciences. The book explores the methodological techniques--and their difficulties--for determining whether chaotic processes may in fact exist in a particular instance and examines implications of chaos theory when applied specifically to political science, economics, and sociology. The contributors to the book show that no single technique can be used to diagnose and describe all chaotic processes and identify the strengths

and limitations of a variety of approaches. The essays in this volume consider the application of chaos theory to such diverse phenomena as public opinion, the behavior of states in the international arena, the development of rational economic expectations, and long waves.

Contributors include Brian J. L. Berry, Thad Brown, Kenyon B. DeGreene, Dimitrios Dendrinis, Euel Elliott, David Harvey, L. Ted Jaditz, Douglas Kiel, Heja Kim, Michael McBurnett, Michael Reed, Diana Richards, J. Barkley Rosser, Jr., and Alvin M. Saperstein. L. Douglas Kiel and Euel W. Elliott are both Associate Professors of Government, Politics, and Political Economy, University of Texas at Dallas.

Self-Organized Biological Dynamics and Nonlinear Control - Jan Walleczek 2006-04-20

The growing impact of nonlinear science on biology and medicine is fundamentally changing our view of living organisms and disease processes. This book introduces the application to biomedicine of a broad range of interdisciplinary concepts from nonlinear dynamics, such as self-organization, complexity, coherence, stochastic resonance, fractals and chaos. It comprises 18 chapters written by leading figures in the field and covers experimental and theoretical research, as well as the emerging technological possibilities such as nonlinear control techniques for treating pathological biodynamics, including heart arrhythmias and epilepsy. This book will attract the interest of professionals and students from a wide range of disciplines, including physicists, chemists, biologists, sensory physiologists and medical researchers such as cardiologists, neurologists and biomedical engineers.

Proceedings of the 2nd Experimental Chaos Conference - W Ditto 1995-02-23

The 2nd experimental chaos conference provided a multidisciplinary forum for the scientific and engineering communities to present recent developments of and techniques in nonlinear dynamics. Major themes included control, synchronization, signal detection/characterization and communication. Major fields of interest included lasers, fluids, magnetics, electronics, chemically reacting fluids, cardiology, neurobiology and environmental sciences. Contents:Experimental

Studies of Chaotic Mixing (J M Ottino et al)Using Random Maps in the Analysis of Experimental Fluid Flows (J C Sommerer)Chaos, Patterns and Defects in Stimulated Scattering Phenomena (R G Harrison)Test of the Normal Form for a Subcritical Bifurcation (K Wiesenfeld et al)Controlling Symbolic Dynamics for Communication (S Hayes et al)Control of Chaos in a CO2 Laser (J M Perez et al)Transition from Soliton to Chaotic Motion During the Impact of a Nonlinear Structure (M A Davies & F C Moon)Sonoluminescence in a Single Bubble: Periodic, Quasiperiodic and Chaotic Light Source (R G Holt et al)Quantum Chaos Experiments Using Microwave Cavities (A Kudrolli & S Sridhar)When Small Noise Imposed on Deterministic Dynamics Becomes Important (M Franaszek & L Fronzoni)Chaos Control for Cardiac Arrhythmias (J N Weiss et al)Broad-Band Synchronization in Monkey Neocortex (S L Bressler et al)Applicability of Correlation Dimension Calculations to Blood Pressure Signal in Rats (Y Almog et al)Tests for Deterministic Chaos in Noisy Time Series (T Chang et al)The Crayfish Mechanoreceptor Cell: A Biological Example of Stochastic Resonance (E Pantazelou et al)Chaos During Heterogeneous Chemical Reactions (J L Hudson)Stabilizing and Tracking Unstable Periodic Orbits and Stationary States in Chemical Systems (V Petrov et al)Recursive Proportional-Feedback and Its Use to Control Chaos in an Electrochemical System (P Parmananda et al)Temperature Patterns on Catalytic Surfaces (D Luss)and other papers Readership: Physicists, mathematicians, engineers, biologists and chemists.keywords:

Foundations of Complex Systems - G. Nicolis 2007

Complexity is emerging as a post-Newtonian paradigm for approaching a large body of phenomena of concern at the crossroads of physical, engineering, environmental, life and human sciences from a unifying point of view. This book outlines the foundations of modern complexity research as it arose from the cross-fertilization of ideas and tools from nonlinear science, statistical physics and numerical simulation. It is shown how these developments lead to an understanding, both qualitative and quantitative, of the complex systems encountered in nature and in everyday experience and, conversely, how natural complexity acts as a source of inspiration for progress at the

fundamental level.

Nonlinear Dynamical Systems in Economics - Marji Lines 2007-03-23

Many problems in theoretical economics are mathematically formalized as dynamical systems of difference and differential equations. In recent years a truly open approach to studying the dynamical behavior of these models has begun to make its way into the mainstream. That is, economists formulate their hypotheses and study the dynamics of the resulting models rather than formulating the dynamics and studying hypotheses that could lead to models with such dynamics. This is a great progress over using linear models, or using nonlinear models with a linear approach, or even squeezing economic models into well-studied nonlinear systems from other fields. There are today a number of economic journals open to publishing this type of work and some of these have become important. There are several societies which have annual meetings on the subject and participation at these has been growing at a good rate. And of course there are methods and techniques available to a more general audience, as well as a greater availability of software for numerical and graphical analysis that makes this type of research even more exciting. The lecturers for the Advanced School on Nonlinear Dynamical Systems in Economics, who represent a wide selection of the research areas to which the theory has been applied, agree on the importance of simulations and computer-based analysis. The School emphasized computer applications of models and methods, and all contributors ran computer lab sessions.

The Economics of Complex Spatial Systems - A. Reggiani 1998-05-05

This book argues that complexity theory offers new departures for (spatial-) economic modelling. It offers a broad overview of recent advances in non-linear dynamics (catastrophe theory, chaos theory, evolutionary theory and so forth) and illustrates the relevance of this new paradigm on the basis of several illustrations in the area of space-economy. The empirical limitations - inherent in the use of non-linear dynamic systems approaches - are also addressed. Next, the application potential of biocomputing (in particular, neural networks and evolutionary algorithms) is stressed, while various empirical model

results are presented. The book concludes with an agenda for further research.

Laws of Chaos - Abraham Boyarsky 1997-09-23

A hundred years ago it became known that deterministic systems can exhibit very complex behavior. By proving that ordinary differential equations can exhibit strange behavior, Poincaré undermined the foundations of Newtonian physics and opened a window to the modern theory of nonlinear dynamics and chaos. Although in the 1930s and 1940s strange behavior was observed in many physical systems, the notion that this phenomenon was inherent in deterministic systems was never suggested. Even with the powerful results of S. Smale in the 1960s, complicated behavior of deterministic systems remained no more than a mathematical curiosity. Not until the late 1970s, with the advent of fast and cheap computers, was it recognized that chaotic behavior was prevalent in almost all domains of science and technology. Smale horseshoes began appearing in many scientific fields. In 1971, the phrase 'strange attractor' was coined to describe complicated long-term behavior of deterministic systems, and the term quickly became a paradigm of nonlinear dynamics. The tools needed to study chaotic phenomena are entirely different from those used to study periodic or quasi-periodic systems; these tools are analytic and measure-theoretic rather than geometric. For example, in throwing a die, we can study the limiting behavior of the system by viewing the long-term behavior of individual orbits. This would reveal incomprehensibly complex behavior. Or we can shift our perspective: Instead of viewing the long-term outcomes themselves, we can view the probabilities of these outcomes. This is the measure-theoretic approach taken in this book.

Crossroads - Robert J. A. Doornik 2012

Nonlinear Dynamics and Chaos in Agricultural Systems - K. Sakai 2001-06-21

An introduction to the analysis of chaos for readers majoring in agricultural science and an introduction to agricultural science for readers majoring in mathematical science and other fields. Hopes some

readers will pursue further studies on the chaos of arable land. (Pref.)

From Cardinals to Chaos - N. G. Cooper 1989-02-24

First published 1987 as Los Alamos science, special issue. A compendium of biographical (and autobiographical) notes, essays, and scientific articles reflecting on Ulam's legacy of interdisciplinary approaches to problems in math, physics, and biology; and previously unpublished miscellanea--conversations, a satirical play. The whole serves to celebrate the personality and contributions of the dynamic mathematician. Annotation copyrighted by Book News, Inc., Portland, OR

Nonlinear Dynamics and Chaos with Applications to Hydrodynamics and Hydrological Modelling - Slavco Velickov 2014-04-21

A hydroinformatics system represents an electronic knowledge encapsulator that models part of the real world and can be used for the simulation and analysis of physical, chemical and biological processes in water systems, in order to achieve a better management of the aquatic environment. Thus, modelling is at the heart of hydroinformatics.&n

Chaos, Nonlinearity, Complexity - Ashok Sengupta 2006-08-29

This book explores non-extensive statistical mechanics in non-equilibrium thermodynamics, and presents an overview of the strong nonlinearity of chaos and complexity in natural systems, drawing on relevant mathematics from topology, measure-theory, inverse and ill-posed problems, set-valued analysis, and nonlinear functional analysis. It offers a self-contained theory of complexity and complex systems as the steady state of non-equilibrium systems, denoting a homeostatic dynamic equilibrium between stabilizing order and destabilizing disorder.

Chaos and Complexity in Psychology - Stephen J. Guastello 2008-11-10

While many books have discussed methodological advances in nonlinear dynamical systems theory (NDS), this volume is unique in its focus on NDS's role in the development of psychological theory. After an introductory chapter covering the fundamentals of chaos, complexity and other nonlinear dynamics, subsequent chapters provide in-depth coverage of each of the specific topic areas in psychology. A concluding

chapter takes stock of the field as a whole, evaluating important challenges for the immediate future. The chapters are written by experts in the use of NDS in each of their respective areas, including biological, cognitive, developmental, social, organizational and clinical psychology. Each chapter provides an in-depth examination of theoretical foundations and specific applications and a review of relevant methods. This edited collection represents the state of the art in NDS science across the disciplines of psychology.

Applied Chaos Theory - Ali Bulent Cambel 1993-01-25

This book differs from others on Chaos Theory in that it focuses on its applications for understanding complex phenomena. The emphasis is on the interpretation of the equations rather than on the details of the mathematical derivations. The presentation is interdisciplinary in its approach to real-life problems: it integrates nonlinear dynamics, nonequilibrium thermodynamics, information theory, and fractal geometry. An effort has been made to present the material in a reader-friendly manner, and examples are chosen from real life situations. Recent findings on the diagnostics and control of chaos are presented, and suggestions are made for setting up a simple laboratory. Included is a list of topics for further discussion that may serve not only for personal practice or homework, but also as themes for theses, dissertations, and research proposals. Includes laboratory experiments Includes applications and case studies related to cell differentiation, EKGs, and immunology Presents interdisciplinary applications of chaos theory to complex systems Emphasizes the meaning of mathematical equations rather than their derivations Features reader friendly presentation with many illustrations and interpretations Deals with real life, dissipative systems Integrates mathematical theory throughout the text

Chaos, Complexity and Leadership 2013 - Şefika Şule Erçetin 2014-11-03

These proceedings from the 2013 symposium on "Chaos, complexity and leadership" reflect current research results from all branches of Chaos, Complex Systems and their applications in Management. Included are the diverse results in the fields of applied nonlinear methods, modeling

of data and simulations, as well as theoretical achievements of Chaos and Complex Systems. Also highlighted are Leadership and Management applications of Chaos and Complexity Theory.

Chaos, Complexity and Leadership 2020 - Şefika Şule Erçetin 2021-07-30

This book analyzes a range of new developments in various fields concerning the concepts of chaos and complexity theory. The proceedings of the 7th International Symposium on Chaos, Complexity and Leadership feature newly developed concepts involving various research methodologies for identifying chaos and complexity in different fields of the sciences and leadership. In addition, it explores chaotic and complex systems from all fields of knowledge in order to stake a claim of prevalence of compatibility between knowledge fields. Particular emphasis is placed on exploring non-linearity in order to open a discussion on new approaches to and perspectives on chaos, complexity and leadership. Readers will find coverage of important events that have recently taken place in our world, regardless of whether they were social, political, economic or scientific in nature. The book explores diverse aspects of and issues related to the effects of chaos and complexity in the world; discusses the application of nonlinear dynamics in order to arrive at transformational policies; and offers projections of tomorrow's world using an interdisciplinary approach. Though primarily intended for readers with an interest in nonlinear science, thanks to its focus on the application of chaos and complexity to other disciplines, the book appeals to a broad readership.

Dynamics Of Complex Systems - Yaneer Bar-yam 2019-03-04

This book aims to develop models and modeling techniques that are useful when applied to all complex systems. It adopts both analytic tools and computer simulation. The book is intended for students and researchers with a variety of backgrounds.

Nonlinear Dynamics, Chaotic and Complex Systems - E. Infeld
1997-06-19

The physics and mathematics of nonlinear dynamics, chaotic and complex systems constitute some of the most fascinating developments of late twentieth century science. It turns out that chaotic behaviour can

be understood, and even utilized, to a far greater degree than had been suspected. Surprisingly, universal constants have been discovered. The implications have changed our understanding of important phenomena in physics, biology, chemistry, economics, medicine and numerous other fields of human endeavor. In this book, two dozen scientists and mathematicians who were deeply involved in the "nonlinear revolution" cover most of the basic aspects of the field.

Advanced Topics on Cellular Self-organizing Nets and Chaotic Nonlinear Dynamics to Model and Control Complex Systems - Riccardo Caponetto
2008

This book focuses on the research topics investigated during the three-year research project funded by the Italian Ministero dell'Istruzione, dell'Università e della Ricerca (MIUR: Ministry of Education, University and Research) under the FIRB project RBNE01CW3M. With the aim of introducing newer perspectives of the research on complexity, the final results of the project are presented after a general introduction to the subject. The book is intended to provide researchers, PhD students, and people involved in research projects in companies with the basic fundamentals of complex systems and the advanced project results recently obtained.

New Paradigms in Ergonomics - Neville A. Stanton 2020-04-28

The systems in which we work continue to evolve, creating emergent problems and often strengthening intractable issues. In order to remain relevant and impactful, the discipline of ergonomics needs its paradigms to evolve too. The aim of this book is to provide researchers and practitioners with new paradigms in the form of ideas, concepts, theories, methods, practices and values. The chapters take the reader on a journey through underlying theories, new ways to apply those theories and emerging domains in which ergonomics is expected to play a greater role. Readers of this book will be inspired by these new paradigms in ergonomics and seek to push the boundaries even further. The lifeblood of the science depends on continual evolution and developments to take on the challenges we face in complex sociotechnical systems design and evaluation. Perhaps the most significant take-home message from

this book is the demonstration of how theory maps onto practice. As such, the only remaining paradigm shift is for these ideas, concepts, methods and practices to be taken up more widely and the discipline advanced, until the next paradigm shift occurs. The chapters were originally published as a special issue in the journal *Ergonomics*.

Chaotic, Fractional, and Complex Dynamics: New Insights and Perspectives - Mark Edelman 2017-11-17

The book presents nonlinear, chaotic and fractional dynamics, complex systems and networks, together with cutting-edge research on related topics. The fifteen chapters – written by leading scientists working in the areas of nonlinear, chaotic, and fractional dynamics, as well as complex systems and networks – offer an extensive overview of cutting-edge research on a range of topics, including fundamental and applied research. These include but are not limited to, aspects of synchronization in complex dynamical systems, universality features in systems with specific fractional dynamics, and chaotic scattering. As such, the book provides an excellent and timely snapshot of the current state of research, blending the insights and experiences of many prominent researchers.

Complexity Leadership - Mary Uhl-Bien 2007-12-01

This book introduces leadership and organizational scholars to the potential of complexity science for broadening leadership study beyond its traditional focus on leaders' actions and influence, to a consideration of leadership as a broader, dynamically and interactive organizing process. The book offers a primer on complexity science and its applications to organization studies, and compares the logics of complexity science with those underlying traditional leadership approaches. It describes methodological approaches for studying leadership from a complexity perspective, and offers examples of applications of complexity science to leadership theory. Chapters are written by top scholars in complexity and leadership theory.

Encyclopedia of Social Work - 1965

Recent Trends In Chaotic, Nonlinear And Complex Dynamics - Jan

Awrejcewicz 2021-07-26

In recent years, enormous progress has been made on nonlinear dynamics particularly on chaos and complex phenomena. This unique volume presents the advances made in theory, analysis, numerical simulation and experimental realization, promising novel practical applications on various topics of current interest on chaos and related fields of nonlinear dynamics. Particularly, the focus is on the following topics: synchronization vs. chaotic phenomena, chaos and its control in engineering dynamical systems, fractal-based dynamics, uncertainty and unpredictability measures vs. chaos, Hamiltonian systems and systems with time delay, local/global stability, bifurcations and their control, applications of machine learning to chaos, nonlinear vibrations of lumped mass mechanical/mechatronic systems (rigid body and coupled oscillator dynamics) governed by ODEs and continuous structural members (beams, plates, shells) vibrations governed by PDEs, patterns formation, chaos in micro- and nano-mechanical systems, chaotic reduced-order models, energy absorption/harvesting from chaotic, chaos vs. resonance phenomena, chaos exhibited by discontinuous systems, chaos in lab experiments. The present volume forms an invaluable source on recent trends in chaotic and complex dynamics for any researcher and newcomers to the field of nonlinear dynamics.

Chaos, Complexity and Leadership 2018 - Şefika Şule ERÇETİN 2020-01-16

This book constitutes the proceedings of the 6th International Symposium on Chaos, Complexity and Leadership (ICCLS). Written by interdisciplinary researchers and students from the fields of mathematics, physics, education, economics, political science, statistics, the management sciences and social sciences, the peer-reviewed contributions explore chaotic and complex systems, as well as chaos and complexity theory in the context of their applicability to management and leadership. The book discusses current topics, such as complexity leadership in the healthcare fields and tourism industry, conflict management and organization intelligence, and presents practical applications of theoretical concepts, making it a valuable resource for

managers and leaders.

Nonlinearity, Bounded Rationality, and Heterogeneity - Tamotsu Onozaki 2018-01-28

This book pursues a nonlinear approach in considering both chaotic dynamical models and agent-based simulation models of economics, as well as their dynamical behaviors. Three key concepts arising in this context are “nonlinearity,” “bounded rationality” and “heterogeneity,” which also make up the title of the book. Nonlinearity is the warp that runs throughout all models because systems that exhibit chaotic or other complex behavior in the absence of any exogenous disturbances are absolutely nonlinear. Bounded rationality constitutes the woof, because economic systems do not exhibit complex behavior if all agents are perfectly rational, as is usually assumed in neoclassical economics.

Agents who are boundedly rational have to struggle to do their best with limited information and tend to adapt to their economic environment without knowing what is the best. Furthermore, the heterogeneity of firms or consumers dyes the fabric of complex dynamics woven from the warp and woof.

Universal Concept of Complexity by the Dynamic Redundance Paradigm - Andrei P. Kirilyuk 1997

Quantum Chaos - Katsuhiko Nakamura 1994-06-02

Past studies on chaos have been concerned with classical systems but this book is one of the first to deal with quantum chaos.

Agricultural Resilience - Sarah M. Gardner 2019-05-02

Offers an interdisciplinary exploration of resilience in agriculture, and implications for producers seeking to adapt to change and uncertainty.