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Nota di contenuto	Deterministic Chaos An Introduction; Contents; Preface; Legends to Plates I-XX; 1 Introduction; 2 Experiments and Simple Models; 2.1 Experimental Detection of Deterministic Chaos; 2.1.1 Driven Pendulum; 2.1.2 Rayleigh-Benard System in a Box; 2.1.3 Stirred Chemical Reactions; 2.1.4 Henon-Heiles System; 2.2 The Periodically Kicked Rotator; 2.2.1 Logistic Map; 2.2.2 Henon Map; 2.2.3 Chirikov Map; 3 Piecewise Linear Maps and Deterministic Chaos; 3.1 The Bernoulli Shift; 3.2 Characterization of Chaotic Motion; 3.2.1 Liapunov Exponent; 3.2.2 Invariant Measure; 3.2.3 Correlation Function 6 Strange Attractors in Dissipative Dynamical Systems6.1 Introduction and Definition of Strange Attractors; 6.1.1 Baker's Transformation; 6.1.2 Dissipative Henon Map; 6.2 The Kolmogorov Entropy; 6.2.1 Definition of K; 6.2.2 Connection of K to the Liapunov Exponents; 6.2.3 Average Time over which the State of a Chaotic System can be Predicted; 6.3 Characterization of the Attractor by a Measured Signal; 6.3.1 Reconstruction of the Attractor from a Time Series; 6.3.2

Generalized Dimensions and Distribution of Singularities in the Invariant Density

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7.1 Strange Attractors and the Onset of Turbulence; 7.1.1 Hopf

Bifurcation; 7.1.2 Landau's Route to Turbulence; 7.1.3 Ruelle-Takens-Newhouse Route to Chaos; 7.1.4 Possibility of Three-Frequency

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Properties of the Transition from Quasiperiodicity to Chaos; 7.2.1 Mode

Locking and the Farey Tree; 7.2.2 Local Universality

7.2.3 Global Universality

Sommario/riassunto

A new edition of this well-established monograph, this volume provides a comprehensive overview over the still fascinating field of chaos research. The authors include recent developments such as systems with restricted degrees of freedom but put also a strong emphasis on the mathematical foundations. Partly illustrated in color, this fourth edition features new sections from applied nonlinear science, like control of chaos, synchronisation of nonlinear systems, and turbulence, as well as recent theoretical concepts like strange nonchaotic attractors, on-off intermittency and spatio-temporal c
