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Nota di contenuto	APPLIED NONLINEAR DYNAMICS; CONTENTS; PREFACE; 1 INTRODUCTION; 1.1 DISCRETE-TIME SYSTEMS; 1.2 CONTINUOUS-TIME SYSTEMS; 1.2.1 Nonautonomous Systems; 1.2.2 Autonomous Systems; 1.2.3 Phase Portraits and Flows; 1.3 ATTRACTING SETS; 1.4 CONCEPTS OF STABILITY; 1.4.1 Lyapunov Stability; 1.4.2 Asymptotic Stability; 1.4.3 Poincare Stability; 1.4.4 Lagrange Stability (Bounded Stability); 1.4.5 Stability Through Lyapunov Function; 1.5 ATTRACTORS; 1.6 COMMENTS; 1.7 EXERCISES; 2 EQUILIBRIUM SOLUTIONS; 2.1 CONTINUOUS-TIME SYSTEMS; 2.1.1 Linearization Near an Equilibrium Solution 2.1.2 Classification and Stability of Equilibrium Solutions2.1.3 Eigenspaces and Invariant Manifolds; 2.1.4 Analytical Construction of Stable and Unstable Manifolds; 2.2 FIXED POINTS OF MAPS; 2.3 BIFURCATIONS OF CONTINUOUS SYSTEMS; 2.3.1 Local Bifurcations of Fixed Points; 2.3.2 Normal Forms for Bifurcations; 2.3.3 Bifurcation Diagrams and Sets; 2.3.4 Center Manifold Reduction; 2.3.5 The Lyapunov-Schmidt Method; 2.3.6 The Method of Multiple Scales; 2.3.7

Structural Stability; 2.3.8 Stability of Bifurcations to Perturbations; 2.3.9 Codimension of a Bifurcation; 2.3.10 Global Bifurcations
 2.4 BIFURCATIONS OF MAPS 2.5 EXERCISES; 3 PERIODIC SOLUTIONS; 3.1 PERIODIC SOLUTIONS; 3.1.1 Autonomous Systems; 3.1.2 Nonautonomous Systems; 3.1.3 Comments; 3.2 FLOQUET THEORY; 3.2.1 Autonomous Systems; 3.2.2 Nonautonomous Systems; 3.2.3 Comments on the Monodromy Matrix; 3.2.4 Manifolds of a Periodic Solution; 3.3 POINCARÉ MAPS; 3.3.1 Nonautonomous Systems; 3.3.2 Autonomous Systems; 3.4 BIFURCATIONS; 3.4.1 Symmetry-Breaking Bifurcation; 3.4.2 Cyclic-Fold Bifurcation; 3.4.3 Period-Doubling or Flip Bifurcation; 3.4.4 Transcritical Bifurcation; 3.4.5 Secondary Hopf or Neimark Bifurcation
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 6 NUMERICAL METHODS

Sommario/riassunto

A unified and coherent treatment of analytical, computational and experimental techniques of nonlinear dynamics with numerous illustrative applications. Features a discourse on geometric concepts such as Poincaré maps. Discusses chaos, stability and bifurcation analysis for systems of differential and algebraic equations. Includes scores of examples to facilitate understanding.