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Nota di contenuto	The Method of Normal Forms; Contents; Preface; Introduction; 1 SDOF Autonomous Systems; 1.1 Introduction; 1.2 Duffing Equation; 1.3 Rayleigh Equation; 1.4 Duffing-Rayleigh-van der Pol Equation; 1.5 An Oscillator with Quadratic and Cubic Nonlinearities; 1.5.1 Successive Transformations; 1.5.2 The Method of Multiple Scales; 1.5.3 A Single Transformation; 1.6 A General System with Quadratic and Cubic Nonlinearities; 1.7 The van der Pol Oscillator; 1.7.1 The Method of Normal Forms; 1.7.2 The Method of Multiple Scales; 1.8 Exercises; 2 Systems of First-Order Equations; 2.1 Introduction 2.2 A Two-Dimensional System with Diagonal Linear Part2.3 A Two-Dimensional System with a Nonsemisimple Linear Form; 2.4 An n-Dimensional System with Diagonal Linear Part; 2.5 A Two-Dimensional System with Purely Imaginary Eigenvalues; 2.5.1 The Method of Normal Forms; 2.5.2 The Method of Multiple Scales; 2.6 A Two-Dimensional System with Zero Eigenvalues; 2.7 A Three-Dimensional System with Zeroand Two Purely Imaginary Eigenvalues; 2.8 The Mathieu Equation; 2.9 Exercises; 3 Maps; 3.1 Linear Maps; 3.1.1 Case of Distinct

Eigenvalues; 3.1.2 Case of Repeated Eigenvalues; 3.2 Nonlinear Maps
3.3 Center-Manifold Reduction3.4 Local Bifurcations; 3.4.1 Fold or Tangent or Saddle-Node Bifurcation; 3.4.2 Transcritical Bifurcation; 3.4.3 Pitchfork Bifurcation; 3.4.4 Flip or Period-Doubling Bifurcation; 3.4.5 Hopf or Neimark-Sacker Bifurcation; 3.5 Exercises; 4 Bifurcations of Continuous Systems; 4.1 Linear Systems; 4.1.1 Case of Distinct Eigenvalues; 4.1.2 Case of Repeated Eigenvalues; 4.2 Fixed Points of Nonlinear Systems; 4.2.1 Stability of Fixed Points; 4.2.2 Classification of Fixed Points; 4.2.3 Hartman-Grobman and Shoshitaishvili Theorems; 4.3 Center-Manifold Reduction
4.4 Local Bifurcations of Fixed Points4.4.1 Saddle-Node Bifurcation; 4.4.2 Nonbifurcation Point; 4.4.3 Transcritical Bifurcation; 4.4.4 Pitchfork Bifurcation; 4.4.5 Hopf Bifurcations; 4.5 Normal Forms of Static Bifurcations; 4.5.1 The Method of Multiple Scales; 4.5.2 Center-Manifold Reduction; 4.5.3 A Projection Method; 4.6 Normal Form of Hopf Bifurcation; 4.6.1 The Method of Multiple Scales; 4.6.2 Center-Manifold Reduction; 4.6.3 Projection Method; 4.7 Exercises; 5 Forced Oscillations of the Duffing Oscillator; 5.1 Primary Resonance; 5.2 Subharmonic Resonance of Order One-Third
5.3 Superharmonic Resonance of Order Three5.4 An Alternate Approach; 5.4.1 Subharmonic Case; 5.4.2 Superharmonic Case; 5.5 Exercises; 6 Forced Oscillations of SDOF Systems; 6.1 Introduction; 6.2 Primary Resonance; 6.3 Subharmonic Resonance of Order One-Half; 6.4 Superharmonic Resonance of Order Two; 6.5 Subharmonic Resonance of Order One-Third; 7 Parametrically Excited Systems; 7.1 The Mathieu Equation; 7.1.1 Fundamental Parametric Resonance; 7.1.2 Principal Parametric Resonance; 7.2 Multiple-Degree-of-Freedom Systems; 7.2.1 The Case of Near 2+1; 7.2.2 The Case of Near 2-1
7.2.3 The Case of Near 2+1 and 3-2

Sommario/riassunto

Based on a successful text, this second edition presents different concepts from dynamical systems theory and nonlinear dynamics. The introductory text systematically introduces models and techniques and states the relevant ranges of validity and applicability. New to this edition:3 new chapters dedicated to Maps, Bifurcations of Continuous Systems, and Retarded Systems Key features:Retarded Systems has become a topic of major importance in several applications, in mechanics and other areasProvides a clear operational framework for conscious use of co

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Collana	The Operational level of war The Science of war
Altri autori (Persone)	ReidBrian Holden
Disciplina	355/.033041
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Sommario/riassunto	The Staff College at Camberley is an international focus for new thinking in the likely development of military operations, and The Science of War: Back to First Principles is the response of serving

officers to this pattern of change.