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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