

图书基本信息

书名：<<多参数稳定性理论与机械应用MULTIPARAMETER STABILITY THEORY WITH MECHANICAL>>

13位ISBN编号：9789812384065

10位ISBN编号：9812384065

出版时间：2003-12

出版人：World Scientific Pub Co Inc

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页数：403

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内容概要

This book deals with fundamental problems, concepts, and methods of multiparameter stability theory with applications in mechanics. It presents recent achievements and knowledge of bifurcation theory, sensitivity analysis of stability characteristics, general aspects of nonconservative stability problems, analysis of singularities of boundaries for the stability domains, stability analysis of multiparameter linear periodic systems, and optimization of structures under stability constraints. Systems with finite degrees of freedom and with continuous models are both considered. The book combines mathematical foundation with interesting classical and modern mechanical problems. A number of mechanical problems illustrating how bifurcations and singularities change the behavior of systems and lead to new physical phenomena are discussed. Among these problems, the authors consider systems of rotating bodies, tubes conveying fluid, elastic columns under the action of periodic and follower forces, optimization problems for conservative systems, etc. The methods presented are constructive and easy to implement in computer programs. This book is addressed to graduate students, academics, researchers, and practitioners in aerospace, naval, civil, and mechanical engineering. No special background is needed; just a basic knowledge of mathematics and mechanics.

书籍目录

Preface
 1. Introduction to Stability Theory
 1.1 Definition of stability
 1.2 Equations for disturbed motion
 1.3 Linear autonomous system
 1.4 Introduction of parameters
 1.5 Stability theorems based on first approximation
 1.6 Mechanical systems
 1.7 Asymptotic stability criteria for mechanical systems
 2. Bifurcation Analysis of Eigenvalues
 2.1 Eigenvalue problem
 2.2 Multiple eigenvalues and the Jordan canonical form
 2.3 Left eigenvectors and Jordan chains
 2.4 Perturbation of simple eigenvalue
 2.5 Bifurcation of double eigenvalue with single eigenvector
 2.6 Strong interaction of two eigenvalues
 2.6.1 Real eigenvalue λ_0
 2.6.2 Complex eigenvalue λ_0
 2.7 Bifurcation of nonderogatory eigenvalue of arbitrary multiplicity
 2.8 Bifurcation of double semi-simple eigenvalue
 2.9 Weak interaction of eigenvalues
 2.9.1 Real eigenvalue λ_0
 2.9.2 Complex eigenvalue λ_0
 2.10 Bifurcation of semi-simple eigenvalue of arbitrary multiplicity
 2.11 Bifurcation of multiple eigenvalues with arbitrary Jordan structure
 2.12 Generalized eigenvalue problem
 2.12.1 Simple eigenvalue
 2.12.2 Semi-simple eigenvalue
 2.12.3 Nonderogatory eigenvalue
 2.13 Eigenvalue problem for vibrational system
 2.13.1 Simple eigenvalue
 2.13.2 Semi-simple eigenvalue
 2.13.3 Nonderogatory eigenvalue
 3. Stability Boundary of General System Dependent on Parameters
 3.1 Stability and dynamics of linear system
 3.2 Stability domain and its boundary
 3.3 Case of general position
 3.4 Stability boundary: qualitative analysis
 3.4.1 Regular part
 3.4.2 Singularities of codimension 2
 3.4.3 Singularities of codimension 3
 3.5 Quantitative analysis of divergence and flutter boundaries
 3.6 Quantitative analysis of singularities of codimension 2
 3.7 Quantitative analysis of singularities of codimension 3
 4. Bifurcation Analysis of Roots and Stability of Characteristic Polynomial Dependent on Parameters
 4.1 Stability of ordinary differential equation of n th order
 4.2 Stability domain for characteristic polynomial dependent on parameters
 4.3 Perturbation of simple roots
 4.4 Bifurcation analysis of multiple roots (nondegenerate case)
 4.5 Bifurcation analysis of multiple roots (degenerate case)
 4.6 Regular part of stability boundary
 4.7 Singularities of stability boundary (codimension 2 and 3)
 4.8 Reduction to polynomial of lower order by the Weierstrass preparation theorem.....

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