

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>>

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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.

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