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Soggetti	Differential equations Vibration Dynamical systems Dynamics Computational complexity Statistical physics Partial differential equations Ordinary Differential Equations Vibration, Dynamical Systems, Control Complexity Applications of Nonlinear Dynamics and Chaos Theory Partial Differential Equations
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Nota di contenuto	Stability of equilibriums -- Bifurcation of equilibriums -- Low-dimensional dynamical system -- Equilibrium and higher-singularity -- Low-degree polynomial systems -- (2m)th-degree polynomial systems -- (2m+1)th-degree polynomial systems -- Infinite-equilibrium systems.
Sommario/riassunto	This book systematically presents a fundamental theory for the local analysis of bifurcation and stability of equilibriums in nonlinear dynamical systems. Until now, one does not have any efficient way to investigate stability and bifurcation of dynamical systems with higher-

order singularity equilibriums. For instance, infinite-equilibrium dynamical systems have higher-order singularity, which dramatically changes dynamical behaviors and possesses the similar characteristics of discontinuous dynamical systems. The stability and bifurcation of equilibriums on the specific eigenvector are presented, and the spiral stability and Hopf bifurcation of equilibriums in nonlinear systems are presented through the Fourier series transformation. The bifurcation and stability of higher-order singularity equilibriums are presented through the  $(2m)$ th and  $(2m+1)$ th -degree polynomial systems. From local analysis, dynamics of infinite-equilibrium systems is discussed. The research on infinite-equilibrium systems will bring us to the new era of dynamical systems and control. Presents an efficient way to investigate stability and bifurcation of dynamical systems with higher-order singularity equilibriums; Discusses dynamics of infinite-equilibrium systems; Demonstrates higher-order singularity.

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