

## Continuous Dynamical Systems

Albert C.J. Luo

*Continuous Dynamical Systems* is a unique book on chaos which can be analytically expressed rather than numerically simulated only, and provides a simple and concise view of a theory of stability and bifurcation in continuous dynamical systems for a better understanding of regularity and complexity in dynamical systems. Linear continuous systems with repeated eigenvalues are presented as an introduction. Higher-order singularity, stability and bifurcation in nonlinear continuous dynamical systems are systematically discussed. The analytical routes of periodic flows to chaos are discussed comprehensively. In addition, the book presents the analytical predictions of the global transversality of a flow to separatrix and nonlinear Hamiltonian chaos to determine the physical mechanism of chaos in nonlinear dynamical systems. This book is written as a textbook or reference book for university students, professors and researchers in applied mathematics, physics, mechanics, and control.

**Albert C.J. Luo** is an internationally recognized professor in nonlinear dynamics and mechanics. He works at Southern Illinois University Edwardsville, USA. His principal research interests lie in the fields of Hamiltonian chaos, nonlinear mechanics, and discontinuous dynamical systems.

- The first monograph to discuss the analytical solutions for periodic flows and chaos
- A different view of stability and bifurcation theory in continuous dynamical systems
- Higher-order singularity, stability switching and bifurcation
- A comprehensive discussion on the global transversality of flows to separatrix
- An analytical prediction of nonlinear Hamiltonian chaos
- A wide audience in mathematics, physics and engineering
- The user friendly form of presentation and instructive illustrations



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