A Mathematical Modeling Approach from Nonlinear Dynamics to Complex Systems

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Abstrak

This book collects recent developments in nonlinear and complex systems. It provides up-to-date theoretic developments and new techniques based on a nonlinear dynamical systems approach that can be used to model and understand complex behavior in nonlinear dynamical systems. It covers symmetry groups, conservation laws, risk reduction management, barriers in Hamiltonian systems, and synchronization and chaotic transient. Illustrating mathematical modeling applications to nonlinear physics and nonlinear engineering, the book is ideal for academic and industrial researchers concerned with machinery and controls, manufacturing, and controls.

· Introduces new concepts for understanding and modeling complex systems;

· Explains risk reduction management in complex systems;

· Examines the symmetry group approach to understanding complex systems;

· Illustrates the relation between transient chaos and crises.