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Autore	Zhang Jiazhong
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Soggetti	Civil engineering Dynamics Nonlinear theories Nonlinear optics Industrial engineering Production engineering Machinery Aerospace engineering Astronautics Civil Engineering Applied Dynamical Systems Nonlinear Optics Industrial and Production Engineering Machinery and Machine Elements Aerospace Technology and Astronautics
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Nota di contenuto	1-Periodic motions to chaos in a nonlinear rotor system -- 2-Research on Fault Diagnosis of Gear Based on Permutation Entropy and SVM Method -- 3-Dynamical Characteristics Analysis of Rotor Model with Coupling Faults and Applications of TPOD Method -- 4-Nonlinear and Linear Phenomenon Investigation of Coupled Vibration of a Multi-disc

Rotor Based on Multi-mistuned Blades Length or Multi-disordered Stagger Angle Blades -- 5-Lateral-torsional-coupled Model-Based Dynamic Analyses of Spur Gears under Time-varying External Load Conditions with Surface Wear -- 6-Experimental and Numerical Studies on Compressor Nonlinear Behaviors with Inlet Distortion and Their Interaction -- 7-Study on Mode Localization Induced by Material and Aerodynamic Mistunings in Impellers with Periodical and Cyclic Symmetry -- 8-Fluid-Structure Interactions of a Perimeter-Reinforced Membrane Wing in Laminar Shear Flow -- 9-Periodic Motions and Bifurcations in a Double Pendulum -- 10-Analytical Periodic Motions for a First-Order Nonlinear Circuit System under Different Excitations -- 11-Model Reduction on Approximate Inertial Manifolds for NS Equations through Multilevel Finite Element Method and Hierarchical Basis.

Sommario/riassunto

This contributed volume presents recent developments in nonlinear dynamics applied to engineering. Specifically, the authors address stability and bifurcation in large-scale, complex rotor dynamic systems; periodic motions and their bifurcations in nonlinear circuit systems, fault diagnosis of complex engineering systems with nonlinear approaches, singularities in fluid-machinery and bifurcation analysis, nonlinear behaviors in rotor dynamic system with multi-mistuned blades, mode localization induced by mistuning in impellers with periodical and cyclic symmetry, and nonlinear behaviors in fluid-structure interaction and their control. These new results will maximize reader understanding on the recent progress in nonlinear dynamics applied to large-scale, engineering systems in general and nonlinear rotors and impellers in particular.
