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Titolo	Modal Analysis of Nonlinear Mechanical Systems / / edited by Gaetan Kerschen
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Descrizione fisica	1 online resource (346 p.)
Collana	CISM International Centre for Mechanical Sciences, Courses and Lectures, , 0254-1971 ; ; 555
Disciplina	531.0151535
Soggetti	Vibration Dynamical systems Dynamics Statistical physics Ergodic theory Vibration, Dynamical Systems, Control Applications of Nonlinear Dynamics and Chaos Theory Dynamical Systems and Ergodic Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Definition and fundamental properties of nonlinear normal modes -- Nonlinear normal modes and invariant manifolds -- Nonlinear normal modes and normal form theory -- Nonlinear normal modes in damped-forced systems -- Numerical computation of nonlinear normal modes -- Elements of nonlinear system identification of broad applicability -- Vibration absorption and acoustic mitigation.
Sommario/riassunto	The book first introduces the concept of nonlinear normal modes (NNMs) and their two main definitions. The fundamental differences between classical linear normal modes (LNMs) and NNMs are explained and illustrated using simple examples. Different methods for computing NNMs from a mathematical model are presented. Both advanced analytical and numerical methods are described. Particular attention is devoted to the invariant manifold and normal form theories. The book also discusses nonlinear system identification.