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Nota di bibliografia	Includes bibliographical references (pages 345-357) and index.
Nota di contenuto	Introduction -- Background material and notation -- Essential and absolute spectra -- Dynamical implications of spectra: dissipative systems -- Dynamical implications of spectra: Hamiltonian systems -- Dynamical implications of spectra: Hamiltonian systems -- Point spectrum: reduction to finite-rank eigenvalue problems -- Point spectrum: linear Hamiltonian systems -- The Evans function for boundary value problems -- The Evans function for Sturm-Liouville operators on the real line -- The Evans function for nth-order operators on the real line -- Index -- References. .
Sommario/riassunto	This book unifies the dynamical systems and functional analysis approaches to the linear and nonlinear stability of waves. It synthesizes fundamental ideas of the past 20+ years of research, carefully balancing theory and application. The book isolates and methodically develops key ideas by working through illustrative examples that are subsequently synthesized into general principles. Many of the seminal examples of stability theory, including orbital stability of the KdV solitary wave, and asymptotic stability of viscous shocks for scalar

conservation laws, are treated in a textbook fashion for the first time. It presents spectral theory from a dynamical systems and functional analytic point of view, including essential and absolute spectra, and develops general nonlinear stability results for dissipative and Hamiltonian systems. The structure of the linear eigenvalue problem for Hamiltonian systems is carefully developed, including the Krein signature and related stability indices. The Evans function for the detection of point spectra is carefully developed through a series of frameworks of increasing complexity. Applications of the Evans function to the Orientation index, edge bifurcations, and large domain limits are developed through illustrative examples. The book is intended for first or second year graduate students in mathematics, or those with equivalent mathematical maturity. It is highly illustrated and there are many exercises scattered throughout the text that highlight and emphasize the key concepts. Upon completion of the book, the reader will be in an excellent position to understand and contribute to current research in nonlinear stability.