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Autore	Diao Huaian
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Nota di contenuto	Introduction. -Geometric structures of Laplacian eiegenfunctions -- Geometric structures of Maxwellian eigenfunctions -- Inverse obstacle and diffraction grating scattering problems -- Path argument for inverse acoustic and electromagnetic obstacle scattering problems -- Stability for inverse acoustic obstacle scattering problems. - Stability for inverse electromagnetic obstacle scattering problems -- Geometric structures of Helmholtz’s transmission eigenfunctions with general transmission conditions and applications -- Geometric structures of Maxwell’s transmission eigenfunctions and applications -- Geometric structures of Lame’s transmission eigenfunctions with general ´ transmission conditions and applications -- Geometric properties of Helmholtz’s transmission eigenfunctions induced by curvatures and applications. - Stable determination of an acoustic medium scatterer by a single far-field pattern -- Stable determination of an elastic medium scatterer by a single far-field measurement and beyond.
Sommario/riassunto	Inverse scattering problems are a vital subject for both theoretical and experimental studies and remain an active field of research in applied

mathematics. This book provides a detailed presentation of typical setup of inverse scattering problems for time-harmonic acoustic, electromagnetic and elastic waves. Moreover, it provides systematical and in-depth discussion on an important class of geometrical inverse scattering problems, where the inverse problem aims at recovering the shape and location of a scatterer independent of its medium properties. Readers of this book will be exposed to a unified framework for analyzing a variety of geometrical inverse scattering problems from a spectral geometric perspective. This book contains both overviews of classical results and update-to-date information on latest developments from both a practical and theoretical point of view. It can be used as an advanced graduate textbook in universities or as a referencesource for researchers in acquiring the state-of-the-art results in inverse scattering theory and their potential applications. .