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Nota di contenuto	1 Fundamentals of Acoustic Metamaterials -- 2 Locally Resonant Structures for Low Frequency Surface Acoustic Band Gap Applications -- 3 Band-Gap Properties of Prestressed Structures -- 4 Ultrasound Transmission Through Periodically Perforated Plates -- 5 Novel Ultrasound Imaging Applications -- 6 Subwavelength Focussing in Metamaterials Using Far Field Time Reversal -- 7 Anisotropic Metamaterials for Transformation Acoustics and Imaging -- 8 Transformation Acoustics -- 9 Acoustic Cloaking via Homogenization -- 10 Acoustic Cloaking with Plasmonic Shells -- 11 Cloaking Liquid Surface Waves and Plasmon Polaritons -- 12 Transformation Elastodynamics and Active Exterior Acoustic Cloaking -- 13 Experimental Acoustics and Metasurfaces -- 14 Resonators atop Surfaces -- 15 Elastic Metamaterials.
Sommario/riassunto	The revised edition of this book offers an expanded review of acoustic metamaterials; novel materials which can manipulate sound waves,

surface Rayleigh waves and water waves, in surprising ways, which include collimation, focusing, negative refraction, passive and active cloaking, sonic screening and extraordinary transmission. It covers both experimental and theoretical aspects of acoustic and elastic waves propagating in structured composites, with a focus on effective properties associated with negative refraction, lensing and cloaking. Updated chapters cover filtering effects, extraordinary transmission, sub-wavelength imaging via tomography or time-reversal techniques, cloaking via transformation acoustics, elastodynamics, and acoustic scattering cancellation. For this revised edition, six new chapters have been introduced to reflect recent developments in experimental acoustics and metasurfaces including acoustic impedance gratings and mirror symmetric metamaterials, phononic subsurfaces, time-modulated and topological crystals. The latter two are illustrated by simple Python program examples. The broad scope gives the reader an overview of the state of the art in acoustic metamaterials research and an indication of future directions and applications. It will serve as a solid introduction to the field for advanced students and researchers in physics, applied mathematics and mechanical engineering, and a valuable reference for those working in metamaterials and related areas.and researchers in physics, applied mathematics and mechanical engineering, and a valuable reference for those working in metamaterials and related areas.