1. Record Nr. UNINA9911018758003321 Autore Liu Xiaozhou Titolo Nonlinear Sound Waves in Solids / / by Xiaozhou Liu Singapore:,: Springer Nature Singapore:,: Imprint: Springer,, 2025 Pubbl/distr/stampa **ISBN** 9789819652532 Edizione [1st ed. 2025.] 1 online resource (XIV, 380 p. 233 illus., 75 illus. in color.) Descrizione fisica Advances in Acoustics, , 3091-3381 Collana 534 Disciplina Soggetti Acoustics **Ultrasonics** Mechanics, Applied Solids Metamaterials Condensed matter Materials science Solid Mechanics Condensed Matter Physics Materials Science Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Chapter 1: Fundamentals of Nonlinear Acoustics in Solids -- Chapter 2: Nota di contenuto Nonlinear Interaction and Acoustic Memory Phenomena of Sound Waves in Crystalline and Ceramic Materials -- Chapter 3: Nonlinear Propagation of Sound Waves in Porous Materials -- Chapter 4: Nonclassical Nonlinear Propagation of Sound Waves in Cracked Solids -- Chapter 5: Nonlinear Theoretical and Experimental Research of Sound Waves in Concrete -- Chapter 6: Propagation of Sound Waves in Mass-Spring Nonlinear Periodic Structures -- Chapter 7: Reverse Excitation and Enhancement of Second Harmonics in Metamaterials. Sommario/riassunto This book highlights the fundamental principles and analytical methods of nonlinear acoustics in solids, with a focus on the theories and applications of nonlinear acoustics in ultrasonic non-destructive testing and metamaterials. The text is designed to provide readers with a deep

understanding of how nonlinear acoustic phenomena manifest in

various material contexts, from crystalline structures to complex composites. Suitable for readers in the fields of acoustics, materials science, and engineering, this book can advance the development of nonlinear acoustics theory and promote its applications in non-destructive testing, materials sciences, and related areas.