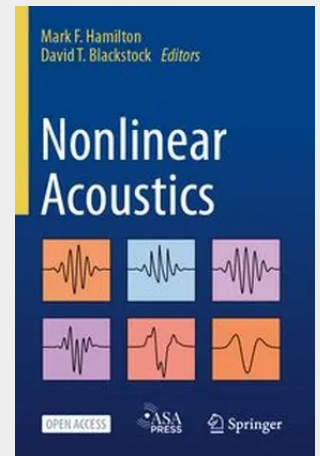


## Nonlinear Acoustics

This open access book is an introductory text on the theory of nonlinear acoustics authored by experts on their respective topics. It is written at a level appropriate for a graduate course on nonlinear acoustics, and it also serves as a useful resource for scientists and engineers. Consistent notation is employed for the principal symbols, and there is extensive cross-referencing between chapters. Chapters 1 through 8 develop the physical concepts, mathematical models, and classical methods of solution that form the theoretical framework for nonlinear acoustics. These chapters, or selected portions, form an appropriate core for an introductory course. While the emphasis is on nonlinear sound waves in fluids, Chapter 9 provides an introduction to nonlinear elastic waves in isotropic solids. Chapters 10 through 15 cover applications and additional methodologies encountered in nonlinear acoustics that include perturbation and numerical methods, ray theory for inhomogeneous moving media, statistical and parametric phenomena, and biomedical applications. The book is relevant to studies of therapeutic ultrasound, blast waves and jet noise, nondestructive testing, parametric array loudspeakers, particle manipulation with acoustic radiation force, and other applications involving nonlinear acoustics. This is an open access book.

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