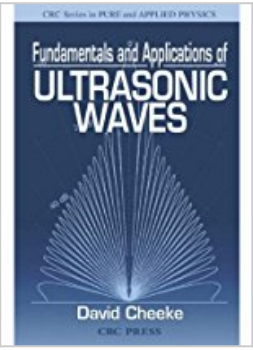

Fundamentals and Applications of Ultrasonic Waves (CRC Series in Pure and Applied Physics)

By J. David N. Cheeke

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Ultrasonics. A subject with applications across all the basic sciences, engineering, medicine, and oceanography, yet even the broader topic of acoustics is now rarely offered at undergraduate levels. Ultrasonics is addressed primarily at the doctoral level, and texts appropriate for beginning graduate students or newcomers to the field are virtually nonexistent.

Fundamentals and Applications of Ultrasonic Waves fills that void. Designed specifically for senior undergraduates, beginning graduate students, and those just entering the field, it begins with the fundamentals, but goes well beyond the simple, general concepts of waves to a detailed treatment of ultrasonic waves in isotropic media. Addressing a wide range of topics, the author focuses on the physics of acoustic waves, their propagation, and the different modes that can be excited in various geometries. Strong emphasis on applications in the later chapters provides a concrete setting for the more formal and theoretical earlier discussions.

Your search for the right introduction to ultrasonics is over. The clear, engaging prose, careful balance of theory and applications, and rigorous but accessible mathematical treatments in this book combine to build a solid foundation either for practical work in the field or moving on to higher-level studies.

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Editorial Review

Review
…balances elementary introduction and advanced application; his discussion of advanced application extends to current research in theoretical and experimental ultrasonics. …wherever possible Cheeke uses qualitative models to elucidate complex concepts he has derived mathematically but whose full physical implications may be opaque to the neophyte. In introducing ultrasonic measurement techniques, he enumerates the steps and methods -- and also the pitfalls that await the unsuspecting novice.
-- Physics Today, April 2003

About the Author

J. David N. Cheeke received his bachelor's and master's degrees in engineering physics from the University of British Columbia, Vancouver, Canada, in 1959 and 1961, respectively, and his Ph.D in low temperature physics from Nottingham University, United Kingdom, in 1965. He then joined the Low Temperature Laboratory, CNRS, Grenoble, France, and also served as professor of physics at the Université de Grenoble. In 1975, Dr. Cheeke moved to the Université de Sherbrooke, Canada, where he set up an ultrasonics laboratory, specializing in physical acoustics, acoustic microscopy, and acoustic sensors. In 1991, he joined the physics department at Concordia University, Montreal, where he was head of an ultrasonics laboratory. He was chair of the department from 1992 to 2000. In 2003 he retired from Concordia University and became Vice President, Operations, of Microbridge Technologies, Inc., Montreal, a spinoff from Concordia University. He retired from Microbridge in 2006 and has lived in Victoria, BC, since that time. He has published more than 150 papers on various aspects of ultrasonics and acoustics. He is a senior member of the IEEE.

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