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Sommario/riassunto

This book is a translation of 'Physik und Technik des Ultraschalls', originally published in 1988 by S. Hirzel Verlag, Stuttgart. As in the German edition, it is based on lectures on ultrasound which the author has given over the past fifteen years to students of electrical engineering and physics at the Rheinisch-Westfiilische Technische Hochschule Aachen, Germany. Its purpose is to explain and describe the peculiarities of high frequency sound with general acoustics as a foundation. It is these peculiarities which have led to the development of specific methods of sound generation and sound detection on the one hand and are relevant to the way ultrasound propagates in various materials, and which are the origin of a wide range of technical applications on the other. The first part of the book is devoted to the fundamentals of ultrasonics. Since the reader is not expected to have a knowledge of general acoustics, introductory chapters survey the basic ideas and laws of acoustics without systematically deriving the

formulae pre- sented. Likewise, the third chapter, which deals with the radiation and diffraction of sound, is still fairly general, although it is somewhat more adapted to the specific requirements of ultrasound. In the three subsequent chapters, the generation and detection or measurement of ultrasound is dealt with. The seventh chapter is a digression on the peculiarities of the hypersonic range.