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Introduction to Physical Acoustics

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Abstract, Contents and Index

(translated from the Russian)

Abstract

The book gives a concise account of physical acoustics – a branch of physics and acoustics studying the interaction of acoustic waves with matter at the macro- and microscopic levels. It starts with the basics of mechanics of continuum needed to analyse the problems of physical acoustics. This is followed by the description of linear and nonlinear problems of acoustics of gases, liquids and solids. Also considered are the problems of 'turbulence and sound', acoustics of magnetic media, and acoustics of crystals. Essential information is provided also on acousto-electronics and acousto-optics. Some parts of the book contain descriptions of the methodology of experiments and experimental data.

The book would be of interest to undergraduate students of physical, chemical and engineering specialities, postgraduate students, researchers, lecturers, acoustic engineers, and all those engaged in fluid mechanics, elasticity, solid state physics, radio physics, signal processing, underwater acoustics and geophysics.

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