



Fundamentals of Physical Acoustics

By David T. Blackstock

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AN AUTHORITATIVE, UP-TO-DATE INTRODUCTION TO PHYSICAL ACOUSTICS

Easy to read and understand, Fundamentals of Physical Acoustics fills a long-standing need for an acoustics text that challenges but does not overpower graduate students in engineering and physics. Mathematical results and physical explanations go hand in hand, and a unique feature of the book is the balance it strikes between time-domain and frequency-domain presentations.

Fundamentals of Physical Acoustics is intended for a two-semester, first-year graduate course, but is also suitable for advanced undergraduates. Emphasis on plane waves in the first part of the book keeps the mathematics simple yet accommodates a broad range of topics: propagation, reflection and transmission, normal modes and simple waveguides for rectilinear geometries, horns, inhomogeneous media, and sound absorption and dispersion.

The second part of the book is devoted to a more rigorous development of the wave equation, spherical and cylindrical waves (including the more advanced mathematics required), advanced waveguides, baffled piston radiation, diffraction (treated in the time domain), and arrays. Applications and examples are drawn from:

- * Atmospheric acoustics
- * Noise control
- * Underwater acoustics
- * Engineering acoustics
- * Acoustical measurements

Supplemented with more than 300 graphs and figures as well as copious end-of-chapter problems, Fundamentals of Physical Acoustics is also an excellent professional reference for engineers and scientists.

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Editorial Review

Review

"This book is an excellent piece of work. The text is extremely clear and goes a long way towards meeting the declared pedagogical target. The author has written a comprehensive text. The proportions of the equations and explanations/interpretations are particularly well balanced. Throughout the book, the context and the validity domain for any equation derived are clearly stated. No doubt this book will be of invaluable help for students, academics, and engineers." (Applied Acoustics, March 2002)

From the Back Cover

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About the Author

DAVID T. BLACKSTOCK is a professor in the Department of Mechanical Engineering at the University of Texas at Austin. He is a past president of the Acoustical Society of America and has been awarded its Gold Medal.

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