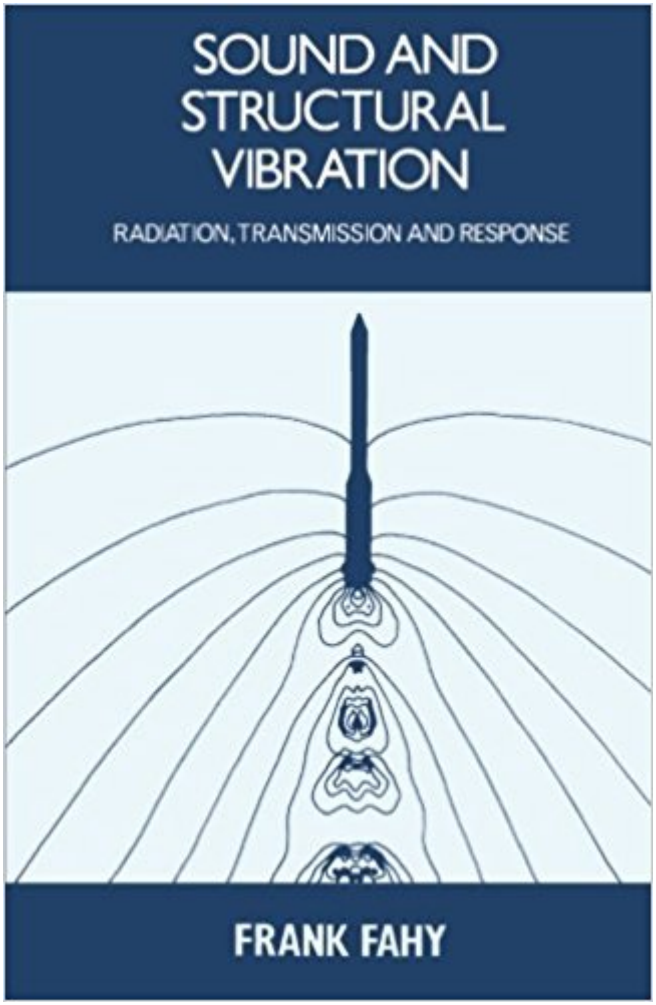
Sound And Structural Vibration: Radiation, Transmission And Response



Synopsis

This book presents a unified qualitative and quantitative account of the physical mechanisms and characteristics of linear interaction between audio-frequency vibrational motion in compressible fluids and structures with which they are in contact. The primary purpose is to instruct the reader in theoretical approaches to the modelling and analysis of interactions, whilst simultaneously providing physical explanations of their dependence upon the parameters of the coupled systems. It is primarily to the engineering student that the book is addressed, in the firm belief that a good engineer remains a student throughout his professional life. A preoccupation with the relevance and validity of theoretical analyses in relation to practical problems is a hallmark of results obtained from theoretical analysis of idealized models and the behaviour of the less than ideal realities from which they are abstracted.

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Customer Reviews

The various phenomena associated with wave motion in solid structures, and its coupling to surrounding fluids, are of central importance to the engineer concerned with sound radiation from vibrating structures, sound transmission across partitions, and the response of structures to sound, processes which are of great practical concern in noise control. This advanced textbook presents a unified approach to the analysis of audio-frequency vibration in coupled solid-fluid systems in which the role of waves in both media is emphasized.The book is primarily intended to instruct the reader in theoretical approaches to the modelling and analysis of fluid structure interactions; but, in order to cater for the less mathematically inclined student, it provides extensive physical explanations of their

dependence upon the parameters of the coupled systems. Numerous examples of the behaviour of practical systems are presented and, to aid self study, worked solutions are provided for the questions which follow each chapter. Over 100 source references are provided for further reading.

Frank Fahy has been teaching and researching at the Institute of Sound and Vibration Research, Southampton, England, for nearly forty years. He is Emeritus Professor of Engineering Acoustics, signifying both his training and professionalmotivation. He is a Rayleigh Medal holder and Honorary Fellow of the Institute of Acoustics.

This is a reference book for students and engineer involved with vibroacoustics and noise reduction from structures and machinery. This title covers in depth structural radiation and vibration wave theory with classical references. Book exercises with answers provide applications to digest physics elements into long-term scientific and engineering background.

Sound) (11 Button Sound Book) Making Waves: Sound : Sound (Everyday Science): Sound (Everyday Science) The SOS Guide to Live Sound: Optimising Your Band’s Live-Performance Audio (Sound On Sound Presents...)