on the next. The definition of Fourier transforms,

$$f(u,v) = \int_{-\infty}^{\infty} \int F(\eta,\zeta) e^{jk(u\eta+v\zeta)}\, d\eta d\zeta$$

is different from most others.

My major objection is to the author's discussion of temporal coherence. In the first chapter, he says "the duration of the vibration of a light source is called the coherence time τ..." Again, in chapter 5, the duration of a damped sinusoid is equated with coherence time, and coherence length is equated to the length of a wavetrain. With this explanation, there is no way to see how temporal coherence could be increased by filtering of the wave. This concept of temporal coherence also leads, in chapter 11, to the discussion of interference between waves from two lasers in terms of a rather unlikely event: "Moreover, we assume that the two lasers emit two wavetrains at almost the same time, in order that the phenomena shall be observable during the time when the two trains are superposed."

In summary, with the exception of temporal coherence, the concepts are presented in a very clear way. The greatest drawback is the lack of detail and elaboration or references to where they are found.

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Room Acoustics (Second Edition)

H. Kuttruff
320 pp. Applied Science, Barking, UK, 1979 (first ed., 1973) $40.00

When one considers the historical developments of room acoustics from the time of its founding by Wallace Clement Sabine at the beginning of the twentieth century to the present time, it seems strange that there have been only two significant and comprehensive reviews of the state of the art published in that time period. The first was *Sound Waves in Rooms* by Philip M. Morse and Róbert H. Bolt published in *Reviews of Modern Physics* in April 1944, and the second was *Room Acoustics* by Heinrich Kuttruff, first published in 1973 and elegantly reviewed for PHYSICS TODAY by Theodore J. Schultz in October 1974.

The second edition of this book, published in 1979, provided the author with the opportunity to add some new material and to correct a few errors in text and formulae—the net result being 11 additional pages of text and 25 new references. The most significant revisions and additions are the following:

In chapter 7, on the subjective effects of combined sound fields, the author has withdrawn his earlier categorical statement in the introductory section that synthesized sound fields in an anechoic room seem to be superior to subjective evaluation of already completed halls since all components of the sound field are known exactly and can be altered at will. He now states that "each method has its own merits and limitations and that each has contributed to understanding."

In chapter 8 on measuring techniques in room acoustics, the first two sections have been revised. In order to overcome the limitation of acoustic power available from simple electro-acoustic sources excited by an impulse, Kuttruff describes the use of pseudo-random sequences. He then considers digital techniques, including the Fast Fourier Transform for calculating correlation coefficients and interaural coherence or its inverse, interaural dissimilarity as recently discussed by Manfred Schroeder.

Not only is the text laudable for its depth and breadth of coverage of its subject matter, but also for its clarity and readability. It is even more remarkable when one considers that the original text was written in German. Praise is due to Evelyn Robinson and Peter Lord of the University of Salford, England, for the superb translation into English.

The author, who is not only a brilliant acoustician but also a gifted musician, was one of the late Erwin Meyer's students at Göttingen University. In addition to providing a record of the accomplishments of that group, it presents a well organized and documented exposition of the theory of room acoustics. However, in the basic chapter 1 on the propagation of sound in a gaseous medium, one encounters the Fourier Transform on page 12 and later on such esoteric concepts as the Weiner and Khintchine theorems along with delta functions and correlation coefficients.

In summary, this book would serve as an excellent basic text for a graduate course strongly oriented to room acoustics. It is not for beginner, architects, or "handbook-oriented" consultants. Although there is a chapter titled "Design Considerations and Design Procedures," it does not serve as a "how to do it" guide to room acoustical design. On the other hand, the serious student and practitioner of room acoustical design will be rewarded by a better understanding of the many problems and compromises which must be addressed in the quest for "good acoustics" in a specific room design. Especially pertinent is the introduction wherein Kuttruff expresses his insights on the interplay of art, science, and human factors, all of which bear on the complexity of the problem of room acoustical design.

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book notes

McGraw-Hill Encyclopedia of Ocean and Atmospheric Sciences (Fourth Edition) S. P. Parker, ed. 580 pp. McGraw-Hill, New York, 1979 (first ed., 1977). $34.50

This interdisciplinary reference work combines the oceanic and atmospheric aspects of geology, geochemistry, geophysics, fluid mechanics, chemistry, biology and physics. Comprising 236 articles by over 200 contributors, the *McGraw-Hill Encyclopedia of Ocean and Atmospheric Sciences* treats most major theoretical and experimental concerns in meteorology and oceanography in an integrated fashion. Topics of current interest such as atmospheric pollution, weather modification, satellite programs, and hydrologic and energy cycles are highlighted. The book includes more than 500 illustrations, graphs, maps, photographs.

Wind Power and Other Energy Options. D. R. Inglis. 298 pp. U. Michigan, Ann Arbor, 1978. $16.00 clothbound, $8.50 paperbound

David Rittenhouse Inglis, professor emeritus of physics at the University of Massachusetts, has written an overview of energy sources other than fossil fuels. *Wind Power and Other Energy Options* provides short explanations of the technologies involved, rates their promise, and describes the difficulties that must be overcome for their implementation.

Wind power is the topic of the opening chapters. Inglis reviews existing wind turbine designs, explains the mechanics of a number of new design concepts and examines various points that must be considered when erecting large and small wind power machines. Next, the author details types of solar-related energy systems including direct solar heating and cooling, solar cells and solar steam-electric, wave energy and ocean-thermal generating plants. The book also focuses on nuclear fission. Following a description of reactor designs, Inglis lists many of its drawbacks—nuclear proliferation, radioactive leakage, power station accidents (pre-Three Mile Island), radioactive waste disposal and reactor decommissioning. He also summarizes current developments in nuclear fission and fusion and geothermal power. The book closes with comparative dollar and social