

lects the various accepted or plausible interpretations of cavitation and related phenomena and presents them in a very readable manner.

It should perhaps be pointed out again that Parts A and B of the first volume form one over-all entity. Some authors who contributed chapters to both parts occasionally refer the reader to Part A for fundamental details discussed there.

In general, the authors and the editor have succeeded in preparing a really outstanding work. Although many topics discussed do have immediate engineering applications, technical details are kept to a minimum and strong emphasis is placed on physical aspects. Appropriate mathematical formulations are included to such an extent that the reader can follow the derivations, and proofs are presented only where it appears essential. All chapters are extremely well documented with an abundance of useful, up-to-date references. Numerous good illustrations and tables contribute further to the high quality of the books.

This well-written and well-balanced work will undoubtedly become one of the excellent sources of information in the field of modern physical acoustics.

Strong Interactions and High Energy Physics, Summer School Proc. (Edinburgh, 1963). R. G. Moorhouse, ed. 475 pp. Plenum Press, New York, 1964. \$22.50. Reviewed by D. B. Lichtenberg, Indiana University.

This book is primarily concerned with dispersion relations and the analytic properties of the S matrix. As such, it is a successor to the book *Dispersion Relations*, edited by G. R. Screaton, containing the lectures given at the 1960 Scottish summer school. Comparing the two sets of lectures, one is impressed by the progress made in 3 years in the theory of dispersion relations. However, it is too early to say whether a study of analytic properties is the way to achieve quantitative predictions in strong-interaction physics.

Some of the 1963 lectures reflect solid but pedestrian advances over

what was known and discussed in the lectures of 1960. Other lectures are on entirely new topics. My own opinion is that one of the most important new results is the treatment of the three-body problem by means of the Faddeev equations. Lovelace gives a good discussion of this subject, including information based on his own work.

Another new and important topic concerns Regge poles. Although at the time of the 1960 lectures Regge had already published his paper on analytic continuation in the complex angular momentum plane, the importance of this work was not then generally recognized. Thus, only in the 1964 volume do we find a discussion of Regge poles and cuts, with lectures on the theory by Oehme and on the applications by Udgaonkar. The discussion of the applications is highly speculative, and the relevance to high-energy physics has not been demonstrated.

A third new item is the discussion of "bootstraps" by Zachariasen. The hope of Zachariasen and others sharing his philosophy is that every strongly interacting particle can be constructed as a composite state of other particles. Such an all-embracing calculation is left for the future, however, and Zachariasen limits himself to a few limited calculations which give only fair agreement with experiment.

Other lectures include an introduction to dispersion relations by Squires, a discussion of applications by Hamilton, a treatment of the foundations of S-matrix theory by Barut, and a discussion by Martin of some consequences of unitarity and analyticity. Other lectures, not related quite as closely as the others to the theme of the book, are by Fubini on a model of very high-energy collisions (the so-called multiperipheral model) and by Blankenbecler on an approach to multichannel scattering.

The lectures are all given on an advanced level, suitable for postdoctoral theoretical physicists and for serious graduate students who are already familiar with aspects of the theory of analytic functions. I would recommend the book for such people were it not for the exorbitant price.

NEW BOOKS

■ **Elementary Particle and High Energy Physics**, M. Levy and Ph. Meyer, eds. 1963 Lectures given at the Cargèse Summer School of Theoretical Physics. 374 pp., paper \$7.95, cloth \$14.50

■ **Quantum Optics and Electronics**, 1964 Les Houches Lectures edited by C. DeWitt, A. Blandin and C. Cohen-Tannoudji. 600 pp., paper \$8.50, cloth \$10.50

■ **Group Theoretical Concepts and Methods in Elementary Particle Physics**, Feza Gürsey, ed. Lectures of the Istanbul Summer School of Theoretical Physics. 425 pp. professional edition \$14.50, reference edition \$21.50

■ **Controlled Thermonuclear Reactions**, L. A. Artsimovich. 400 pp. professional edition \$9.50, reference edition \$19.50

■ **Two Group Reactor Theory**, J. L. Meem. 409 pp. Text edition \$12.50, reference edition \$20.50

■ **Group Theory and Solid State Physics I**, Paul H. E. Meijer, ed. 320 pages, \$5.95. (International Science Review Series)

■ **Condensation and Evaporation of Solids**, E. Rutner, P. Goldfinger and J. P. Hirth, eds., 707 pp., professional edition \$19.50, reference edition \$38.00

■ **An Atlas of Models of Crystal Surfaces**, J. F. Nicholas, 225 pp., (9" x 12" format), \$22.50

■ **Light Scattering from Dilute Polymer Solutions**, D. McIntyre and F. Gornick, eds., 340 pp., \$5.95 (International Science Review Series)

■ **Crystal Chemistry of Tetrahedral Structures**, E. Parthé, 167 pp., \$9.50

FORTHCOMING BOOKS

■ **Dynamical Theory of Groups and Fields**, Bryce S. DeWitt, 255 pp., paper \$1.95, cloth \$5.95. (Documents on Modern Physics Series)

■ **Rare Earth Research 3**, LeRoy Eyring, ed. Proceedings of the Fourth Rare Earth Conference

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