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Scientists at the Ph.D. level are needed for project leader positions at the Applied Physics Laboratory of the University of Washington. The Laboratory is engaged in an expanding program of applied and fundamental research in physical oceanography related to U.S. Navy research and development programs.

Present interests include underwater acoustics, bathymetry, hydrodynamics, geomagnetics, and instrumentation, with a balance of emphasis on theoretical and experimental studies. Experience in these or related fields is desirable, but not essential.

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All qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

bution to diffraction theory of aberrations. It should be on the shelf of everyone working in this field, and it will be especially useful to designers of modern optical instruments.

Elementary Introduction to Nuclear Reactor Physics. By S. E. Liverhant. 447 pp. John Wiley & Sons, Inc., New York, 1960. \$9.75. *Reviewed by Jacques Romain, General Dynamics.*

PROFESSOR Liverhant thinks that between a mathematically rigorous treatment of nuclear physics, accessible only to trained specialists, and a shallow qualitative exposition of no practical use there can be a middle level suitable for both advanced undergraduate students in physics and for engineering students. I feel he has fully succeeded in writing such a book, which may also be helpful as intermediate reading before tackling more advanced textbooks. It may be of interest as well to scientists in neighboring fields who wish to gain a neat knowledge of the physics involved without having to go through all of the mathematics. A very carefully prepared index, and an index of tables, allow the book to be used as a glossary of the nuclear vocabulary and an elementary reference book.

The book begins with three review chapters in which the author broadly explains the fundamental features of those aspects of nuclear physics which have a bearing on the physics of reactors. He proceeds to study, in a fair amount of detail, neutron reactions, fission and chain reactions, and the working conditions of a reactor. An elementary outlook on the nonsteady reactor, on nuclear radiations and their detection and measurement, and a general outline of health physics are included. The author is expert in acquainting his reader painlessly with unfamiliar concepts. He shows the calculations when they are simple enough, and quotes the main equations when the mathematics becomes too involved. (The mathematical knowledge required does not exceed general calculus and elementary differential equations.) Numerous diagrams are a considerable help in understanding. A fairly extensive bibliography is provided.

The stress is definitely on applications. The text is sprinkled with worked-out examples that either illustrate what has just been said or help to introduce the next topic. The choice of examples and problems covers a very wide range of practical applications.

Théorie des Ondes dans les Plasmas. By J. F. Denisse and J. L. Delcroix. 167 pp. Dunod, Paris, 1961. 16 NF. *Reviewed by L. C. Levitt, Boeing Scientific Research Laboratories.*

BOTH the aims and scope of this pocket-sized monograph are modest. It is devoted to a very detailed discussion of small-amplitude plane waves in plasmas. The treatment is entirely in terms of the so-called moment, or transfer, equations. Within the framework

of this hydrodynamical approximation, thorough study is made of the structure of the various types of monochromatic plane waves in plasmas and of their dispersion laws. Various conditions of density, ionization, and impressed magnetic field strength are covered, with careful consideration of important limiting cases. There is no coverage of general plasma theory, or of the experimental aspects of the subject. Likewise, nothing is said about dissipative effects, nonlinear phenomena, or the microscopic theory of the plasma state.

The subject matter, at this level of discussion, is intrinsically elementary; the authors' aim to make it minutely detailed, as well, has inevitably given a somewhat pedestrian flavor to the tract. Occasionally the reader will tend to falter amidst laborious minutiae, but the reading is easy throughout. The book is amply supplied with graphs and tables. It is well organized, and provides a convenient reference for those who wish a very full exposition of these collective motions, both formally and in physical terms. A debt of gratitude is owed the authors for the considerable labor that must have been involved in codifying this wealth of detail, in uniform notation, for ready access. The tract should be useful to students and investigators as the only available complete compilation on the subject.

BOOKS RECEIVED

Planets and Satellites. Gerard P. Kuiper and Barbara M. Middlehurst, eds. Vol. 3 of the Solar System, edited by G. P. Kuiper and B. M. Middlehurst. 601 pp. U. of Chicago Press, Chicago, Ill., 1961. \$12.50.

Time and the Physical World. By Richard Schlegel. 211 pp. Michigan State U. Press, East Lansing, Mich., 1961. \$7.50.

Synthesis of Optimum Control Systems. By Sheldon S. L. Chang. 381 pp. McGraw-Hill Book Co., Inc., New York, 1961. \$11.75.

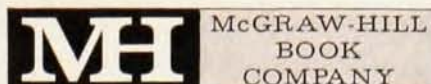
Lectures on Field Theory and the Many-Body Problem. NATO Int'l Spring School (Naples, 1961). E. R. Caianiello, ed. 327 pp. Academic Press Inc., New York, 1961. \$9.50.

Ripple Tank Studies of Wave Motion. By W. Llowarch. 66 pp. Oxford U. Press, London and New York, 1961. \$2.40.

Physical Mechanics (3rd ed.). By Robert Bruce Lindsay. 471 pp. D. Van Nostrand Co., Inc., Princeton, N. J., 1961. \$9.75.

Elementary Principles in Statistical Mechanics. Developed with especial Reference to the Rational Foundation of Thermodynamics (Reprint of 1902 ed.). By J. Willard Gibbs. 207 pp. Dover Publications, Inc., New York, 1960. Paperbound \$1.45.

Advances in the Chemistry of the Coordination Compounds. Sixth Int'l Conf. Proc. (Wayne State U., Detroit, Aug. 1961). Stanley Kirschner, ed. 682 pp. The Macmillan Co., New York, 1961. \$15.00.



■ SUPERFLUID PHYSICS

By CECIL T. LANE, Yale University. *International Series in Pure and Applied Physics.* Available February

This text gives an up-to-date survey of research in the field of superfluidity. Aimed at acquainting newcomers to the field with the most important advances of the last 20 years, it embraces both superfluid helium and superconductivity. The treatment is both theoretical and experimental; the level of mathematical treatment is elementary with the main emphasis on the physical principles involved.

■ ELEMENTARY QUANTUM FIELD THEORY

By ERNEST M. HENLEY, University of Washington; and WALTER THIRRING, University of Vienna. *International Series in Pure and Applied Physics.* Available May

Presents that part of quantum field theory not obscured by mathematical difficulties and not requiring a deeper understanding of special relativity. Applications to elementary particles are made. Develops the physical basis for field theory, with emphasis on conceptual aspects of the field; treats the interactions of a quantum field with various static sources; uses mathematical tools and physical insight developed in first two parts to discuss low energy pion physics in detail.

■ FUNDAMENTALS OF ELECTRICITY AND MAGNETISM

By ARTHUR F. KIP, University of California, Berkeley. Available April

This book is a compromise between the need for presentation of the phenomena of electricity and magnetism and the desire to develop and display the unity of the theory at a level consistent with the beginning student's experience of science or engineering. Basic laws and concepts are related to experimental results and help is provided for a basic understanding of Maxwell's equations. Includes some basic concepts of solid state physics and introduces some phenomena, illustrating the impact of quantum mechanics on classical electricity and magnetism.

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