

New McGraw-Hill Books

PLASMA PHYSICS

by

**James E. Drummond; Boeing Scientific
Research Laboratories**

400 pages

\$12.50

Based on the recent conference in Plasma Physics conducted at the Stanford Research Institute, this text provides an extensive review of some of the important special areas in plasma physics such as quantum plasma physics, detailed statistical mechanics of plasmas and aerodynamic aspects of magnetohydrodynamics. Emphasis throughout is on the unsolved problems in plasma physics.

BASIC ELECTRONICS

by

**Paul M. Chirlian, Stevens Institute of
Technology; and Armen H. Zemanian,
New York University. Ready in April,
1961.**

Designed to be used as the first text in an undergraduate electronics sequence, this book examines the physics and equivalent circuits of the electronic devices. Emphasis is on physical electronics rather than circuitry. The physical phenomena of the various types of devices such as vacuum tubes, transistors, and tunnel diodes are examined with an eye to the similarities in these phenomena wherever appropriate.

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aply by Leo Goldberg, writing in the first volume under review: "The planning of astronomical experiments two or three years in advance presents some rather serious difficulties because the technology associated with space vehicles changes so rapidly that no one can be quite certain what the state of the art will be at the time a given experiment is scheduled."

Godwin, in considering the problems of local transportation on the new worlds, has designed a series of rocket-powered land-based vehicles for use on bodies such as the moon and Mars possessing small gravitational fields, and also contemplates the use of a dirigible balloon for exploring planets with a dense atmosphere such as Venus. The book is studded with numerous novel suggestions associated with the launching and exploratory operations and should provide stimulation to the younger engineering mind. It should also serve as an anodyne to those of us who are engaged in the discouraging task of trying to recover instrumentation from present-day high-altitude probes.

Nuclear Spectroscopy. Part A, 621 pp.; Part B, 522 pp. Vol. 9 of Pure and Applied Physics. Edited by Fay Ajzenberg-Selove. Academic Press Inc., New York, 1960. \$16.00 each. Reviewed by Jacques Romain, University of Elisabethville, Katanga.

A DETAILED review of so wide a field as nuclear spectroscopy can best be achieved by a team of experts familiar with the several topics included. Members of the team responsible for the preparation of this volume understood their task excellently, and the editor succeeded, to a fair extent, in solving the inevitable problems of duplication of material and disagreement in notation. A consistent use of notation has been maintained within the specialized sections, and inconsistencies from section to section have been reduced to a minimum. The articles have been coordinated and cross references are used. Because of the mixture of experimental and theoretical papers, the level of their presentation tends to fluctuate, but each author handles his material in a thorough manner and the resulting collection of papers provides a very good and up-to-date review of the field.

The book is concerned with the techniques of obtaining and analyzing the experimental data required in dealing with nuclear parameters and with the use of nuclear models in interpreting experimental results. It will be useful to specialists who wish to gain a broad view of the whole field of nuclear spectroscopy, and at the same time it is written in a way that will make it readable to graduate students concerned with acquiring a thorough understanding of the subjects discussed. A general knowledge of quantum mechanics and nuclear physics is assumed, but no previous specialized background in any of the particular topics is required.

The work is divided into two parts. The first deals with experimental techniques and results (spectroscopy of charged particles, gamma rays and neutrons, and

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miscellaneous related topics), together with the theoretical elements necessary for good understanding. The second part deals with theory (analysis of the data and nuclear models). Appendixes containing physical constants (1955 values, with reference to later literature for improvements) are included, as is a table of isotopes (abridged from the 1958 table in *Reviews of Modern Physics*). There are many sketches, graphs, and tables, and each section has an abundant and up-to-date listing of references.

The Physical Universe. By Konrad Krauskopf and Arthur Beiser. 536 pp. McGraw-Hill Book Co., Inc., New York, 1960. \$8.95. *Reviewed by J. Gillis, The Weizmann Institute of Science.*

POPULAR science writing is by now a well-established occupation, and it might be an interesting and rewarding study to investigate the development of the art over the ages. Starting with the author of the first chapter of Genesis one would follow how, at different times and in different civilizations, popular science writers have varied their subject matter and the manner of its presentation.

The reviewer cannot resist the temptation to compare new productions with some of the good old standards, e.g., those of R. S. Ball and his generation. Those writers tended to take some well-defined branch of science and describe it from all points of view. The result was something like a liberal education since there is probably no better way of teaching than to teach some subject, however specialized it may seem, fundamentally, broadly, and well.

The current approach is very different, viz., to present a slight glimpse of as much as possible. The book under review presents the whole range of the physical world from absolute temperature to Zeeman effect. The inevitable result is that not a single topic can receive anything like adequate treatment. Almost everything is mentioned and, in nearly every case, the account breaks off just where the intelligent reader should be beginning to ask "how?" or "why?"

One can only hope that the elegant printing and beautiful illustrations will so charm the reader that he will be impelled to seek elsewhere the answers to these questions. Apart from that he can get from this book a vague idea of the majestic complexity of the physical universe and of the fantastic uniformity of natural laws.

Cryophysics. By K. Mendelssohn. Vol. 7 of Interscience Tracts on Physics and Astronomy, edited by R. E. Marshak. 183 pp. Interscience Publishers, Inc., New York, 1960. Clothbound \$4.50; paperbound \$2.50. *Reviewed by H. Forst, Michigan State University.*

PROFESSOR Mendelssohn has written an excellent short survey of the present state of low-temperature research (up to 1959) which will be extremely useful as an introductory monograph in the field. This book is aimed at students who wish to familiarize them-