



Professor George Gamow

Mr Tompkins in Paperback GEORGE GAMOW

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New Foundations of Quantum Mechanics ALFRED LANDÉ

The major key struck in this study is that of deducing the quantum laws from general non-quantal postulates of symmetry and invariance imposed on the probability structure of mechanical events.

The book is a much enlarged and consolidated version of the author's *Foundations of Quantum Theory: A Study in Continuity and Symmetry and From Dualism to Unity in Quantum Physics*. \$7.50



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functions like sine, cosine, and exponential. The functions considered are the gamma function, the probability integral, the exponential integral, some of the common orthogonal polynomials, Bessel functions (which are called cylinder functions), Legendre functions (which are called spherical harmonics), hypergeometric functions (including the confluent hypergeometric function), and parabolic cylinder functions. The more complicated Mathieu functions and doubly periodic functions are omitted. Within its scope the book gives a clear picture of the important properties of the functions considered.

In my opinion the applications are discussed too briefly to give one an adequate understanding of how the problems involving special functions arise in physics and how they can be solved. If one has not already met some of these applications, it is hard to see how a reading of the book can impart a real feeling for them. But

again, a more complete treatment would have considerably enlarged the book.

The translation is by the editor of a series of Russian publications in the mathematical sciences. The translation is good, and gives rise to no ambiguities. In his function as editor, Silverman has added problems to two chapters and has listed among the references books available in English or West European languages. Both these changes add to the usefulness of the book. The problems, most of which were included by the Russian author, are valuable, as most of them ask one to show that certain properties of the functions are true. These properties turn out to be useful formulas.

The book is well printed on good paper, with type which is particularly clear and easy to read. I noticed only a few obvious misprints. Both the editor and publisher have done a good job.

BOOKS RECEIVED

ACOUSTICS

Underwater Acoustics Handbook, Volume 2. By Vernon M. Albers. 356 pp. Pennsylvania State University Press, University Park, 1965. \$12.50.

ASTRONOMY & ASTROPHYSICS

Stellar and Solar Magnetic Fields. Symp. Proc. (Munich, Sept. 1963) R. Lüft, ed., 460 pp. John Wiley, New York, 1965. \$17.50.

Cosmic Rays. D. V. Skobel'tsyn, ed. Transl. from Russian. 254 pp. Consultants Bureau, New York, 1965. Paper \$27.50.

ATOMIC & MOLECULAR PHYSICS

Advances in Atomic and Molecular Physics, Volume I. D. R. Bates, ed. 408 pp. Academic Press, New York, 1965. \$13.50.

The Theory of Electron-Atom Collisions. By G. F. Drukarev. Transl. from Russian by S. Chomet. 161 pp. Academic Press, New York, 1965. \$6.50.

BIOPHYSICS & MEDICAL PHYSICS

Molecules and Life. By Robert F. Steiner and Harold Edelhoch. 207 pp. D. Van Nostrand, Princeton, N. J., 1965. Paper \$1.95.

Biological Effects of Radiation. By Daniel S. Grosch. 293 pp. Blaisdell, New York, 1965. Paper \$3.50.

Radiation Dosimetry. Proceedings of the International School of Physics "Enrico Fermi," Varenna, Italy. Course 30. By F. W. Spiers, G. W. Reed, ed. 308 pp. Academic Press, New York, 1964. \$14.00.

Light: Physical and Biological Action. By H. H. Seliger and W. D. McElroy. 417 pp. Academic Press, New York, 1965. \$12.00.

CHEMISTRY & CHEMICAL PHYSICS

Radiochemical Survey of the Elements. Principal Characteristics and Applications of the Elements and Their Isotopes. By M. Haisinsky and J. P. Adloff. 177 pp. Elsevier, Amsterdam and New York, 1965. \$12.00.

Chemical Effects of Nuclear Transformations. Conf. Proc. (Vienna, Dec. 1964). International Atomic Energy Agency, Vienna, 1965. Vol. I, 442 pp., \$9.00; Vol. II, 558 pp., \$11.00.

The Application of Wave Mechanical Methods to the Study of Molecular Properties. R. Daudel, ed. 188 pp. Interscience, New York, 1965. \$9.25.

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Want to teach nuclear physics like Segre at Berkeley? or introductory modern physics like Christy and Pytte at Dartmouth? or supplement general physics like Smith at Illinois or Greenberg at Columbia?

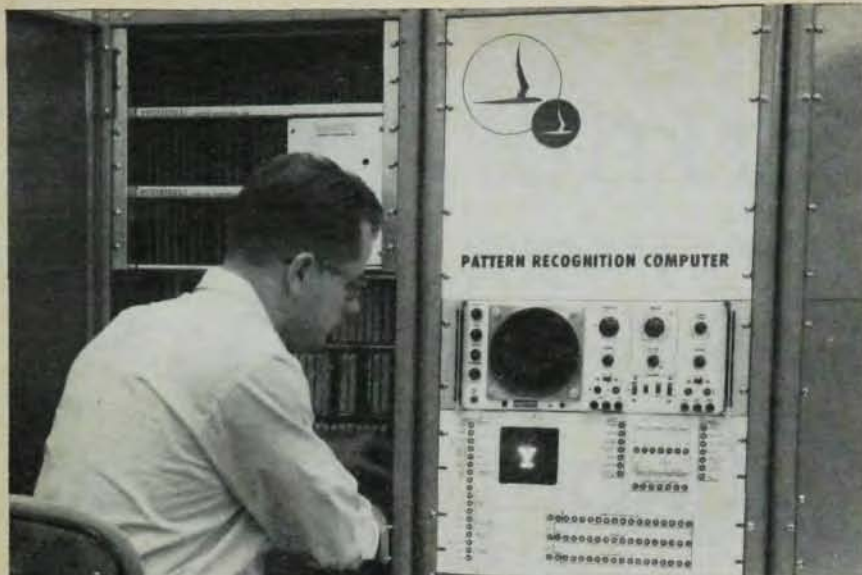
NUCLEI AND PARTICLES, Segre's broad and quantitative introduction to nuclear and subnuclear physics, has undergone a debugging and reprinting. Intended for senior and first year graduate students, the book emphasizes both theoretical and experimental approaches, utilizing elementary concepts of quantum mechanics. Illustrations, tables of data, and extensive references are included. 227-454

MATHEMATICS FOR INTRODUCTORY SCIENCE COURSES was designed by Greenberg to meet the mathematical requirements of first year general physics. To better understand mechanics and electricity and magnetism, the book concentrates on calculus and vectors and reviews algebra, analytic geometry, and trigonometry. Exercises, examples, and illustrations supplement the text. 217-434

THE STRUCTURE OF MATTER by Christy and Pytte is intended for a second year course in modern physics; it presumes general physics and a year of calculus. The text is made up of five divisions: classical mechanics, kinetic theory of matter, quantum mechanics, electronic structure of matter, and nuclear particles. 184-368

INTRODUCTION TO SPECIAL RELATIVITY is the book Jim Smith wrote to provide basic physics students with a complete mastery of special relativity at an elementary level. Intuitive understanding is developed so that the student will have a feeling for the physics involved before he relies on the formalism of his calculations. Examples from elementary particle physics are used in many of the problems. 237-474

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The Chemistry of the Rare-Earth Elements. By N. E. Topp. 1964 pp. American Elsevier, New York, 1965. \$10.00.

COMPUTATION & COMMUNICATION

Digital Computer Applications to Process Control. Conf. Proc. (Stockholm, Sept. 1964) William E. Miller, ed. 593 pp. Plenum Press, New York, 1965. \$17.50.

Electronic Computers. By S. H. Hollingdale and G. C. Tootill. 336 pp. Penguin Books, Baltimore, 1965. Paper \$1.65.

Some Problems in Information Science. By Manfred Kochen. 309 pp. Scarecrow Press, New York, 1965. \$8.50.

Introductory Network Theory. By Amar G. Bose and Kenneth N. Stevens. 357 pp. Harper & Row, New York, 1965. \$9.75.

Computing Mechanisms and Linkages. By Antonin Svoboda. Hubert M. James, ed. (Reprint of 1948 ed.) 359 pp. Dover, New York, 1965. Paper \$2.25.

EDUCATION

Science Teaching and Testing. By Leo Nedelsky. 368 pp. Harcourt, Brace, & World, New York, 1965. \$6.95.

ELECTRICITY & MAGNETISM

Transmission-line Theory. By Ronald W. P. King. (Reprint of 1955 ed.) 504 pp. Dover, New York, 1965. Paper \$2.75.

Electrodynamics. By Leigh Page and Norman Hsley Adams. (Reprint of 1945 ed.) 505 pp. Dover, New York, 1965. Paper \$2.50.

Electromagnetic Theory. A Critical Examination of Fundamentals. By Alfred O'Hanilly. 2 Vols., 884 pp. (Reprint of 1938 ed.) Dover, New York, 1965. \$4.50.

Principles of Microwave Circuits. C. G. Montgomery, R. H. Dicke, and E. M. Purcell, eds. (Reprint of 1948 ed.) 479 pp. Dover, New York, 1965. Paper \$2.25.

Variational Techniques in Electromagnetism. By Laurent Căirol and Theo Kahan. (Transl. from French by G. D. Sims). 152 pp. Gordon and Breach, New York, 1965. \$8.00.

Microwave Transmission Circuits. George L. Ragan, ed. (Reprint of 1948 ed.) 725 pp. Dover, New York, 1965. Paper \$3.00.

Threshold Signals. James L. Lawson and George E. Uhlenbeck, eds. (Reprint of 1950 ed.) 388 pp. Dover, New York, 1965. Paper \$2.25.

Waveguide Handbook. N. Marcuvitz, ed. (Reprint of 1951 ed.) 428 pp. Dover, New York, 1965. Paper \$2.25.

Radar System Engineering. Louis N. Ridenour, ed. (Reprint of 1947 ed.) 748 pp. Dover, New York, 1965. Paper \$3.00.

Pulse Generators. G. N. Glasoe and J. V. Lebacqz, eds. (Reprint of 1948 ed.) 741 pp. Dover, New York, 1965. Paper \$3.00.

Propagation of Short Radio Waves. Donald E. Kerr, ed. (Reprint of 1951 ed.) 728 pp. Dover, New York, 1965. Paper \$3.00.

Microwave Antenna Theory and Design. Samuel Silver and Herbert M. James, eds. (Reprint of 1949 ed.) 623 pp. Dover, New York, 1965. Paper \$3.00.

The Dynamics of Conduction Electrons. By A. B. Pippard. 150 pp. Gordon and Breach, New York, 1965. Cloth \$4.95, Paper \$1.95.

Waveforms. Britton Chance, et al., eds. (Reprint of 1949 ed.) 785 pp. Dover, New York, 1965. Paper \$3.25.

EXPERIMENTAL TECHNIQUES

Principles and Design of Linear Active Circuits. By Mohammed Shuaib Ghausi. 621 pp. McGraw-Hill, New York, 1965. \$16.50.

Engineering Magnetohydrodynamics. By George W. Sutton and Arthur Sherman. 548 pp. McGraw-Hill, New York, 1965. \$19.75.

Random Processes in Nonlinear Control Systems. By A. A. Pervozvanskii. Transl. from Russian by Scripta Technica. 341 pp. Academic Press, New York, 1965.

Advances in Cryogenic Engineering. Vol. 10, Proceedings of the 1964 Cryogenic Engineering Conference. K. D. Timmerhaus, ed. 511 pp. Plenum Press, New York, 1965. \$17.50.

HISTORY & PHILOSOPHY OF SCIENCE

Science in the Nineteenth Century. René Taton, ed. Transl. from the French by A. J. Pomerans. 623 pp. Basic Books, New York, 1965. \$17.50.

300 Jahr Physik und Astronomie an der Kieler Universität. By Charlotte Schmidt-Schönbeck. 261 pp. Verlag Ferdinand Hirt, Kiel, 1965. Paper DM 15.

Experimental Researches in Electricity. By Michael Faraday. (Reprint of 1839-1855 ed.) Vols. I and II, 302 pp., Vol. III, 588 pp. Dover, New York, 1965. \$15.00.

MATHEMATICS

Distributions, Complex Variables, and Fourier Transforms. By Hans Bremermann. 186 pp. Addison-Wesley, Reading, Mass., 1965. \$7.95.

Probability, Random Variables, and Stochastic Processes. By Athanasios Papoulis. 583 pp. McGraw-Hill, New York, 1965. \$19.50.

Methods of Matrix Algebra. By Marshall C. Pease. 406 pp. Academic Press, New York, 1965. \$13.75.

Mathematics of Choice or How to Count Without Counting. By Ivan Niven. 202 pp. Random House, New York, 1965. Paper \$1.95.

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