

Unfortunately, this fifth edition is the last in which Francis W. Sears plays a part in the revisions; he died in November of 1975 at the age of 77 (see *PHYSICS TODAY*, February 1976, page 65).

Group Theoretical Techniques in Quantum Chemistry. C. D. H. Chisholm. 271 pp. Academic, London, 1976. \$22.25

This volume's purpose is to close the gap between elementary texts on group theory and advanced works, and it offers a description not only of the more familiar point groups but of the symmetric group and some important continuous groups as well. The author assumes knowledge only of elementary calculus and matrix theory; other mathematical considerations, such as linear algebra and Lie algebras, he introduces and explains as needed. Topics include finite molecular symmetry groups, the method of irreducible tensors, spinors and double groups, branching rules and fractional parentage. Physicists will find discussed some applications of group theory to the quantum mechanics of simple systems and the classification of many-electron states.

Scientific and Engineering Problem-solving with the Computer. W. R. Bennett Jr. 457 pp. Prentice-Hall, Englewood Cliffs, N. J., 1976. \$17.95

This introduction to BASIC programming is meant for undergraduate and graduate students, in whatever discipline, who need to develop a practical familiarity with computer techniques. The book includes chapters on advanced programming, plotting techniques, language, dynamics, random processes, wave motion, Fourier series, electronics and communications. But the problems used are the special feature; William Bennett has illustrated the methods as such with a collection of novel and entertaining simulations and challenging questions. A computerized Shakespeare-simulation employs the statistical properties of English to attack The Eddington Monkey Problem ("If an army of monkeys were strumming on typewriters they *might* write all the books in the British Museum.") and obtain—amid reams of gibberish—an occasional phrase reminiscent of the Bard: "TO DEA NOW NAT TO BE." The Cavorite Problem (Novelist H. G. Wells's gravity-blocking substance, called "cavorite," was employed in *The First Men in the Moon* to propel a spaceship) also proves intriguing; Bennett demonstrates that achieving a stable orbit about the Moon is no easy feat using Wells's vehicle. The spread of diseases through populations is investigated in The Martian Problem (Wells again—a common-cold epidemic demolished the invaders in *The War of the Worlds*) and The Sailor-Prostitute Problem. The computerized detection of phase discontinuities and splices in tape

recordings (The Watergate Problem) and an analysis of the Velikovsky hypothesis are two of the many other items of interest in this volume.—FCB

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Elementary Particles and Fields

Meson-Nuclear Physics—1976 (AIP Conf. Proc., Vol. 33—Topical Conf. on Meson-Nuclear Physics, Carnegie-Mellon University, Pittsburgh, Penna., May 1976). P. D. Barnes, R. A. Eisenstein, L. S. Kisslinger, eds. 771 pp. American Institute of Physics, New York, 1976. \$24.75

Nuclei, Nuclear Physics

Nuclear Analogue States (Benchmark Papers in Nuclear Physics, Vol. 1). D. Robson, J. D. Fox, eds. 381 pp. Dowden, Hutchinson and Ross, Stroudsburg, Penna., 1976. \$27.50

Photonuclear Reactions (Benchmark Papers in Nuclear Physics, Vol. 2). E. G. Fuller, E. Hayward, eds. 426 pp. Dowden, Hutchinson and Ross, Stroudsburg, Penna., 1976. \$30.00

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Introduction to the Theory of Heavy-Ion Collisions (Lecture Notes in Physics, Vol. 51). W. Nörenberg, H. A. Weidenmüller. 273 pp. Springer-Verlag, New York, 1976. \$10.30

Photoionization and Other Probes of Many-Electron Interactions (Proc. of a NATO Advanced Study Institute held at the Centre "Les Cigales" in Carry-le-Rouet, France, August–September 1975). F. J. Wuilleumier, ed. 472 pp. Plenum, New York, 1976. \$45.00

Chemical Physics

A Unitary Calculus for Electronic Orbitals (Lecture Notes in Physics, Vol. 49). W. G. Harter, C. W. Patterson. 144 pp. Springer-Verlag, New York, 1976. \$7.40

Symmetry Rules for Chemical Reactions: Orbital Topology and Elementary Processes. R. G. Pearson. 548 pp. Wiley, New York, 1976. \$24.50

Solubility of Gases and Liquids, A Graphic Approach: Data—Causes—Prediction. W. Gerrard. 275 pp. Plenum, New York, 1976. \$39.50

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Acoustic Imaging: Cameras, Microscopes, Phased Arrays, and Holographic Systems. G. Wade, ed. 325 pp. Plenum, New York, 1976. \$25.00

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Academic, London, 1976. \$17.25 each volume (paperbound)

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International Conference on Infrared Physics (CIRP) (Zurich, August 1975). T. S. Moss, ed. 327 pp. Pergamon, Oxford, England, 1976. \$30.00

Fluids and Plasmas

Neutral Current Sheets in Plasmas (Proc. of the P. N. Lebedev Physics Institute, Vol. 74). N. G. Basov, ed. 163 pp. Consultants Bureau (Plenum), New York, 1976. \$39.50

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Physics of Structurally Disordered Solids (Proc. of a NATO Advanced Study Institute held at the University of Rhode Island, Kingston, July–August 1974). S. S. Mitra, ed. 791 pp. Plenum, New York, 1976. \$69.50

Theory of Metal Oxidation, Vol. 1: Fundamentals. A. T. Fromhold Jr. 547 pp. North-Holland, New York, 1976. \$63.50

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Space Science and Astronomy: Escape from Earth (The Macmillan Sky and Telescope Library of Astronomy, Vol. 9). T. Page, L. W. Page, eds. 467 pp. Macmillan, New York, 1976. \$13.95

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Optics of the Atmosphere: Scattering by Molecules and Particles. E. J. McCartney. 408 pp. Wiley, New York, 1976. \$24.95

Chemistry and Physics of the Stratosphere (Reprinted from *Review of Geophysics and Space Physics*). 171 pp. American Geophysical Union, 1909 K Street, NW, Washington, D.C. 20006, 1975. \$6.00 (Available for \$5.10 prepaid to identified members of AIP member societies)

Biological and Medical Physics

Neutron Scattering for the Analysis of Biological Structures (Proc. of a Symposium, Brookhaven National Laboratory, June 1975). B. P. Schoenborn, ed. 553 pp. BNL, Upton, N.Y., 1976. (Available as BNL 50453 (Biology and Medicine-TID-4500) from NTIS, US Dept. of Commerce, Springfield, Va. 22161 for \$13.50)

Theory and Mathematical Physics

Theoretical and Applied Mechanics, Vol. 24 (Proc. of the 24th Japan National Congress for Applied Mechanics, November 1974). H. Tanaka, ed. 511 pp. Tokyo U.P., Japan (Distributed by ISBS Inc., P.O. Box 555, Forest Grove, Ore. 97116), 1976. \$49.00

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