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edition (published five years ago). Typical changes are a minor rearrangement of the order in which the chapters appear, an attempt to make chemistry sound more like physics and a discussion of DNA (complete with a reference to James Watson's *The Double Helix*). In all, this new edition is but a marginal improvement of a text that was already excellent.

PHILIP TAYLOR
Case Western Reserve University

The Physics of Metals: Electrons

J. M. Ziman, ed.
433 pp. Cambridge U. P., New York,
1969. \$14.50

This book is the first half of a two-volume work prepared in tribute to Sir Nevill Mott by some of his colleagues past and present. The second volume, which has yet to appear, will treat mechanical properties and defects of solids.

The subject of volume 1 is band structure, Fermi surfaces and transport properties of metals. Approximately half the content is standard fare available elsewhere in similar, if not almost identical, form. However, in total the book is a fairly unique combination of topics. Because the authors are well known to solid-state physicists for their research and prior writings, much of the book's flavor may be conveyed simply by a brief summary of names and subjects.

The opening chapter, written by V. Heine, provides an excellent theoretical discussion of electronic structure from the viewpoint of the pseudopotential method. This is followed in logical sequence by a masterful review by D. Shoenberg of experimental work on Fermi surfaces. Conduction electrons in a magnetic field are dealt with by A. B. Pippard. Surface and size effects are treated by R. G. Chambers in one of the best written chapters, and the editor, J. M. Ziman, has contributed a chapter on ordinary transport properties.

A relatively unique feature, and surely a mark of progress, is the inclusion of a long chapter on liquid metals. T. E. Faber has written an authoritative and lucid summary of the status of our understanding of the transport properties of this difficult state of matter. Experimental work on the structure of metals and alloys is discussed by P. J. Brown and W. H. Taylor. The book concludes with a lengthy and valuable contribution by J. Friedel on band structure, cohesive energy, and magnetism of the transition metals.

The emphasis, the editor informs us in the preface, is on the physics; thus elaborate mathematics is avoided. The interpretation of this varies considerably among the authors and results in a lack of uniformity. Some reviews contain virtually no mathematics; others present detailed mathematical analysis and, in my opinion, generally come off better in the reading.

The book would not suffice as a textbook in most solid-state physics courses, and presumably was not so intended. But that is no loss since by now we may have enough texts except, of course, for that impossibility known as "one really good one." In essence Ziman and colleagues have given us an organized collection of authoritative reviews that may be highly recommended as a supplementary reference in an advanced solid-state physics course.

THOMAS SCOTT
University of Florida

new books

CONFERENCE PROCEEDINGS

Quantum Fluids. (Proc. of Batsheva Seminar at Israel Inst. of Technology, Haifa, Israel, 28 July-14 Aug., 1968.) N. Wiser, D. J. Amit, eds. 614 pp. Gordon and Breach, New York, 1970. Reference \$47.50, professional \$19.50

Nuclear Reactions Induced by Heavy Ions. (Proc. of the Intl. Conf. on Nuclear Reactions Induced by Heavy Ions, Heidelberg, 15-18 July, 1969.) R. Bock, W. R. Hering, eds. 821 pp. American Elsevier, (North-Holland), New York, 1970. \$34.75

Coral Gables Conference on Fundamental Interaction at High Energy II. (Proc. of Conf. on Fundamental Interactions at High Energy, Coral Gables, Fla., 21-23 Jan., 1970.) A. Perlmutter, G. J. Iversen, R. M. Williams, eds. 369 pp. Gordon and Breach, New York, 1970. Reference \$22.50, professional \$12.00

The Chemistry of Extended Defects in Non-Metallic Solids. (Proc. of the Inst. for Advanced Study on the Chemistry of Extended Defects in Non-Metallic Solids, Scottsdale, Ariz., 16-26 April, 1969.) L. Eyring, M. O'Keeffe, eds. 670 pp. American Elsevier, (North-Holland), New York, 1970. \$34.50

Three Body Problem in Nuclear and Particle Physics. (Proc. of 1st Intl. Conf. on the Three Body Problem in Nuclear and Particle Physics, Birmingham, UK, 8-10 July, 1969.) J. S. C. McKee, P. M. Rolph, eds. 564 pp. American Elsevier, (North-Holland), New York, 1970. \$32.00

Elementary Particle Physics and Scattering Theory, Vol. 2. (Proc. of Brandeis Univ. Summer Inst. in Theoretical Physics, 1967.) M. Chrétien, S. S. Schweber, eds. 434 pp. Gordon and Breach, New York, 1970. Cloth \$27.50, paper \$12.50

Atomic Collision Phenomena in Solids. (Proc. of Int. Conf. on Atomic Collision

Phenomena in Solids, Sussex, UK, 7-12 Sept., 1969.) 678 pp. American Elsevier, (North-Holland), New York, 1970. \$32.00

Advances in X-Ray Analysis, Vol. 13. (Proc. of 18th Annual Conf. on Applications of X-Ray Analysis, Denver, Colo., 6-8 Aug., 1969.) B. L. Henke, J. B. Newkirk, G. R. Mallett, eds. 681 pp. Plenum, New York, 1970. \$25.00

Molecular Beams and Reaction Kinetics, Course 44. (Proc. of the Intl. School of Physics, Enrico Fermi, Varenna, Italy, 29 July-10 Aug., 1968.) 437 pp. Academic, New York, 1970. \$20.00

Numerical Approximation to Functions and Data. (Proc. of Conf. on Numerical Approximation to Functions and Data, Canterbury, UK, 1967.) J. G. Hayes, ed. 177 pp. Oxford U. P., New York, 1970. \$9.60

ELEMENTARY PARTICLES

Elementary Particle Theory. By A. D. Martin, T. D. Spearman. 527 pp. American Elsevier, (North-Holland), New York, 1970. \$27.50

Springer Tracts in Modern Physics, Vol. 53. G. Höhler, ed. 106 pp. Springer-Verlag, New York, 1970. \$10.50

Particles, Sources and Fields. By J. Schwinger. 425 pp. Addison-Wesley, Reading, Mass., 1970. \$14.95

NUCLEI

Direct Nuclear Reaction Theories. By N. Austern. 390 pp. Interscience, New York, 1970. \$19.95

ATOMS, MOLECULES, CHEMICAL PHYSICS

Electron Paramagnetic Resonance of Transition Ions. By A. Abragam, B. Bleaney. 911 pp. Oxford U. P., New York, 1970. \$41.50

Photophysics of Aromatic Molecules. By J. B. Birks. 704 pp. Interscience, New York, 1970. \$29.00

Ion-Molecule Reactions. By E. W. McDaniel, V. Cermák, A. Dalgarno, E. E. Ferguson, L. Friedman. 374 pp. Interscience, New York, 1970. \$19.95

Dielectric Properties and Molecular Behavior. By N. E. Hill, W. E. Vaughan, A. H. Price, M. Davies. 480 pp. Van Nostrand Reinhold, New York, 1969. \$17.50

Electrical Aspects of Combustion. By J. Lawton, F. Weinberg. 355 pp. Oxford U. P., New York, 1969. \$11.20

Discharges in Electronegative Gases. K. G. Emelous, G. A. Woolsey, eds. 162 pp. Barnes and Noble, New York, 1970. \$12.50

ASTRONOMY, SPACE, GEOPHYSICS

Annual Review of Astronomy and Astrophysics, Vol. 8. L. Goldberg, ed. 495 pp. Annual Reviews, Palo Alto, Calif., 1970. \$10.00

Annals of the IQSY, Vol. 7: Sources and Availability of IQSY Data. A. C. Stickland, ed. 345 pp. MIT Press, Cambridge, Mass., 1970. \$17.05

Atmospheric Optics. N. B. Divari, ed.

(Trans. by S. B. Dresner) 178 pp. Plenum, New York, 1970. \$27.50

THEORY AND MATHEMATICAL PHYSICS

Symmetry Principles and Atomic Spectroscopy. By B. G. Wybourne. 146 pp. Interscience, New York, 1970. \$17.50

Functions of Mathematical Physics. By B. Spain, M. S. Smith. 208 pp. Van Nostrand Reinhold, New York, 1970. \$12.50

Stability Theory, An Introduction to the Stability of Dynamic Systems and Rigid Bodies. By H. Leipholz. 277 pp. Academic, New York, 1970. \$14.50

The Fundamental Units of Physics and the Logic of Theoretical Physics. By E. Rasmussen. 151 pp. and 134 pp. Dorrance, Philadelphia, 1970. \$6.95

INSTRUMENTATION AND TECHNIQUES

Mesures en Radioactivité, Manuel Pratique D'Utilisation des Rayonnements Nucléaires. By N. Briere, B. Jouve, R. Paulin. 261 pp. Hermann, Paris, 1970. 42 F

Random Noise Techniques in Nuclear Reactor Systems. By R. E. Uhrig. 490 pp. Ronald Press, New York, 1970. \$20.00

Decontamination of Nuclear Reactors and Equipment. J. A. Ayres, ed. 825 pp. Ronald Press, New York, 1970. \$22.50

An Introduction to the Neutron Kinetics of Nuclear Power Reactors. By J. G. Tyrer, R. I. Vaughan. 183 pp. Pergamon, New York, 1970. \$6.25

Handbook of Techniques in High-Pressure Research and Engineering. By D. S. Tsiklis. 504 pp. Plenum, New York, 1968. \$35.00

Cryogenic Laboratory Equipment. By A. J. Croft. 182 pp. Plenum, New York, 1970. \$11.50

Spectral Analysis: Methods and Techniques. J. A. Blackburn, ed. 289 pp. Marcel Dekker, New York, 1970. \$15.75

Linear Accelerators. P. M. Lapostolle, A. L. Septier, eds. 1204 pp. American Elsevier, (North-Holland), New York, 1970. \$61.00

HEAT, THERMODYNAMICS, STATISTICAL PHYSICS

Cours de Thermodynamique Statistique. By R. Castaing. 346 pp. Masson, Paris, 1970. 48 F

Advances in Heat Transfer, Vol. 6. J. P. Hartnett, T. F. Irvine, Jr., eds. 577 pp. Academic, New York, 1970. \$26.00

Handbook of Metal Ligand Heats and Related Thermodynamic Quantities. By J. J. Christensen, R. M. Izatt. 324 pp. Marcel Dekker, New York, 1970. \$14.50

PHYSICS AND SOCIETY

Science and Technology in the World of the Future. A. B. Ronwell, ed. 394 pp. Interscience, New York, 1970. \$11.95

POPULARIZATIONS

The Story of the Laser. By J. M. Carroll. 213 pp. Dutton and Co., New York, 1970. \$5.95

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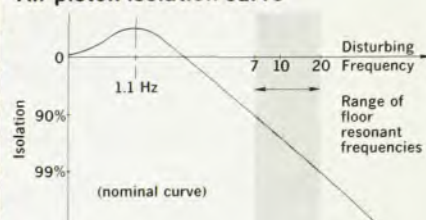


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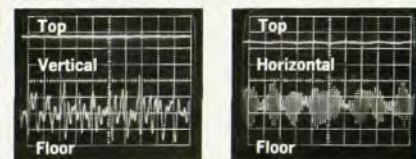
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