

tions are shown between the band gaps of many compounds and this parameter. The electron mobility also shows an interesting relationship to "ionicity" within a definite set of compounds, that is, III-V, II-VI, I-VII, and IV-VI.

The book is mainly a review of the field of semiconductor materials as they may be described by chemical bonds and crystallography. Since this is a vast subject and the book only 175 pages, it is obvious that a lot of background is required of the reader. Quantum mechanics relating to the build-up of the periodic system and the bonding orbitals among atoms is helpful. A good knowledge of crystallography is also necessary.

I would not recommend it as a text for students but rather as specialized reading material and for professionals who wish orientation in this subject. The excellent bibliography appended to the text should be adequate for most purposes.

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New Books

Mathematics, Physical Sciences, and Engineering

Calculus of Variations and Partial Differential Equations of the First Order. vol. 1, *Partial Differential Equations of the First Order*. C. Caratheodory. Translated from the German edition (Berlin, 1935) by Robert B. Dean and Julius J. Brandstatter. Holden-Day, San Francisco, Calif., 1965. 187 pp. Illus. \$8.50. Holden-Day Series in Mathematical Physics, edited by Julius J. Brandstatter.

Calculus on Manifolds. A modern approach to classical theorems of advanced calculus. Michael Spivak. Benjamin, New York, 1965. 158 pp. Illus. Paper, \$2.95; cloth, \$7. Mathematics Monograph Series, edited by Robert Gunning and Hugo Rossi.

Les Carbones. vols. 1 and 2. P. Jacquinot and others. Masson, Paris, 1965. vol. 1, 777 pp. F. 138; vol. 2, 975 pp. F. 168. Illus. Collection de Chimie Physique, edited by A. Pacault; 26 papers.

The Chemistry of Diamond-Like Semiconductors. N. A. Goryunova. Translated from the Russian edition (1963) by Scripta Technica. J. C. Anderson, Ed. M.I.T. Press, Cambridge, Mass., 1965. 254 pp. Illus. \$10.

Crystal Structures of Minerals. Sir Lawrence Bragg and G. F. Claringbull, with a chapter by W. H. Taylor. Cornell Univ. Press, Ithaca, N.Y., 1965. 419 pp. Illus. \$11.50. The Crystalline State, vol. 4, edited by Sir Lawrence Bragg.

Deformation of Metals During Rolling. I. Ya. Tarnovskii, A. A. Pozdeyev, and V.

B. Lyashkov. Translated from the Russian edition by M. de O. Tollemache. A. Shutt, Translation Ed. Pergamon, New York, 1965. 340 pp. Illus. \$15.

The Design of Structures of Least Weight. H. L. Cox. Pergamon, New York, 1965. 142 pp. Illus. \$6.50. International Series of Monographs in Aeronautics and Astronautics, vol. 8.

Diels-Alder Reactions: Organic Background and Physico-Chemical Aspects. A. Wassermann. Elsevier, New York, 1965. 122 pp. Illus. \$5.50.

Dynamical Theory of Groups and Fields. Bryce S. DeWitt. Gordon and Breach, New York, 1965. 264 pp. Illus. Paper, \$2.95; cloth, \$5.95. Documents on Modern Physics, edited by Elliott W. Montroll, George H. Vineyard, and Maurice Lévy.

The Earth's Shape and Gravity. G. D. Garland. Pergamon, New York, 1965. 191 pp. Illus. Paper, \$2.95. The Commonwealth and International Library.

Elements of Geochemistry. Yasuo Miyake. Maruzen, Tokyo, 1965. 475 pp. Illus. \$12.

Electron Optics. P. Grivet, M. Y. Bernard, F. Berstein, R. Castaing, M. Gauzit, and A. Septier. Translated from the second French edition by P. W. Hawkes. Pergamon, New York, 1965. 791 pp. Illus. \$30.

Formulas for Stress and Strain. Raymond J. Roark. McGraw-Hill, New York, ed. 4, 1965. 446 pp. Illus. \$12.50.

Gas Chromatography of Metal Chelates. Ross W. Moshier and Robert E. Sievers. Pergamon, New York, 1965. 171 pp. Illus. \$5.50. International Series of Monographs in Analytical Chemistry, vol. 23.

Introduction to Calculus. C. C. T. Baker. Arco, New York, 1965. 254 pp. Illus. Paper, \$1.65; cloth, \$3.50.

Introduction to Quantitative Ultramicroanalysis. I. M. Korenman. Translated from the Russian edition (Moscow, 1963) by Scripta Technica. Ronald Belcher, Translation Ed. Academic Press, New York, 1965. 244 pp. Illus. \$9.50.

Lehrbuch der Theoretischen Physik. vol. 3, *Quantenmechanik* (652 pp., DM. 39); vol. 7, *Elastizitätstheorie* (191 pp., DM. 16). L. D. Landau and E. M. Lifschitz. Akademie Verlag, Berlin, 1965. Illus.

Linear Operators in Hilbert Space. Werner Schmiedler. Translated from the German edition (Stuttgart, 1954) by Jay Strum. A. Shenitzer and D. Solitar, Translation Eds. Academic Press, New York, 1965. 132 pp. Illus. Paper, \$2.95; cloth, \$6. Academic Paperback in Mathematics.

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Macromolecules in Solution. Herbert Morawetz. Interscience (Wiley), New York, 1965. 511 pp. Illus. \$16.50. High Polymers Series, vol. 21.

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Modern Dimension Theory. Jun-Iti Nagata. Interscience (Wiley), New York, 1965. 267 pp. Illus. \$11.

Modern Radar: Analysis, Evaluation, and System Design. Raymond S. Berkowitz, Ed. Wiley, New York, 1965. 676 pp. Illus. \$19.50. Twenty-five papers based on a course given at the Special Summer Session of the Moore School of Electrical Engineering, University of Pennsylvania, during the summers of 1960 and 1961.

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Photographic Atlas of the Moon. Zdeněk Kopal, Josef Klepešta, and Thomas W. Rackham. Academic Press, New York, 1965. 277 pp. Illus. \$16.

Physical Metallurgy. R. W. Cahn, Ed. North-Holland, Amsterdam; Interscience (Wiley), New York, 1965. 1124 pp. Illus. \$34. Twenty-two papers.

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Principles of Vector Analysis. Jerry B. Marion. Academic Press, New York, 1965. 149 pp. Illus. Paper, \$2.45; cloth, \$5.50. Academic Paperback in Physics, edited by Henry Booker, D. Allan Bromley, Nicholas DeClaris, W. Magnus, Alvin Nason, and A. Shenitzer.

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