

graphically meant plotting it onto a Minkowski diagram—a Cartesian (x, ct) plane in which a (Lorentz) transformation of coordinates corresponds not to a rigid rotation but to a scissoring of the axes. Playing with Minkowski diagrams (in two and three dimensions) fortifies the important idea that space and time are welded together and that different choices of axes in absolute spacetime correspond to observers with different motions.

Shadowitz, however, uses the diagrams more recently invented by Loedel and Brehme, which apply to those situations in which precisely two observers play a role. Their motions jointly determine the coordinates, and the diagrams cannot accommodate further observers. Though they make the solution of certain problems easy, they are somewhat artificial and fail in developing that feeling for spacetime that is so useful in special relativity and vital in general relativity. I know that some educators will disagree with me. The important thing is that there should be textbooks for every taste, and Shadowitz's pleasantly written book will appeal to many.

WOLFGANG RINDLER
University of Texas, Dallas

Plasma Technology

By B. Gross, B. Gryca, K. Miklossy
(Trans. by R. C. G. Leckey) 487 pp.
American Elsevier, New York, 1969.
\$17.00

During the last few years we have seen a constantly increasing stream of books on plasma physics, but few of them have concentrated on the engineering aspects of this state of matter. This volume does just this and does it in a way that is quite different from books published particularly in the US.

Although there is the usual introduction to transport equations, the Boltzmann theory and statistical mechanics, the authors do not really use these tools. Rather they discuss concepts in terms of thermodynamic balance, entropy and enthalpy and what one might call a chemical-engineering approach to plasmas, which I found both interesting and informative.

The title of the book is quite properly *Plasma Technology* and the real interest of the authors is clearly in the plasma torch and in the use of this device for industrial processes, such as

welding, melting, high-temperature chemical reactions, and the possible technological application of magnetohydrodynamics. One long chapter describes in great detail the construction of plasma torches in Czechoslovakia and compares these with those manufactured in the US, the USSR, in West Germany and in Poland. This is clearly a reflection of the authors' own interests. Boleslav Gross is a research physicist at the Institute of Electronics of the Czechoslovak Academy of Sciences; Bronislav Grycz works at the Czechoslovak Research Institute for Electrical Engineering at Bechovice, and Konstantin Miklossy's research is carried on at the State Research Institute for Heavy-Current Engineering.

The book leans heavily on detailed engineering drawings of devices and pictures of actual welding equipment and other plasma-engineering machines, but the authors are careful to document their description from the world's literature and explain in simple and direct terms the physical bases of the devices they are detailing.

I found the book stimulating because its approach is very different from the usual plasma book that is finding its way onto physicists' shelves, and the translation by R. C. G. Leckey of La Trobe University, Victoria, Australia, is a smooth flowing and undoubtedly edited version of the original Czech.

SANBORN C. BROWN
Professor of Physics
Massachusetts Institute of Technology

NEW BOOKS

CONFERENCE PROCEEDINGS

Topics in Theoretical Physics. (Proceedings of the Liperi Summer School in Theoretical Physics, Liperi, Finland, 1967.) C. Cronstrom, ed. 302 pp. Gordon and Breach, New York, 1969. \$25.50 reference, \$12.50 professional

Topics in Theoretical Physics. (Proceedings of the Liperi Summer School in Theoretical Physics, Liperi, Finland, 1968.) Dan Olof Riska, ed. 410 pp. Gordon and Breach, New York, 1969. \$25.00 reference, \$15.00 professional

Lectures in Theoretical Physics, Vol. XI-D. (Proceedings of the 11th Boulder Summer Institute for Theoretical Physics, Boulder, Colo., 17 June–23 Aug., 1968.) K. T. Mahanthappa, W. E. Brittin, eds. 648 pp. Gordon and Breach, New York, 1969. \$29.50 hard, \$17.00 paper

Quasars and High-Energy Astronomy. (Including the Proceedings of the 2nd Texas Symposium of Relativistic Astro-

physics, 15–19 December 1964.) K. N. Douglas, I. Robinson, A. Schild, E. L. Schucking, J. A. Wheeler, N. J. Woolf, eds. 485 pp. Gordon and Breach, New York, 1969. \$30.00 cloth, \$11.00 paper

High Energy Collisions. (3rd International Conference, State University of New York, Stony Brook, 5–6 Sept. 1969.) C. N. Yang, J. A. Cole, M. Good, R. Hwa, J. Lee-Franzini organizers. 525 pp. Gordon and Breach, New York, 1969. \$27.50 reference, \$15.00 professional

Proceeding of the Boulder Conference on High Energy Physics. (A Special Meeting of the Division of Particles and Fields of the American Physical Society, Boulder, Colo., 18–22 Aug. 1969.) K. T. Mahanthappa, W. D. Walker, W. E. Brittin, eds. 223 pp. Colorado Associated U. P., Boulder, 1970. \$15.00

Manned Laboratories in Space. (2nd International Orbital Laboratory Symposium, New York, 18 Oct. 1968.) S. Fred Singer, ed. 134 pp. Springer-Verlag, New York, 1970. \$9.90

Vacancies and Interstitials in Metals. (Proceedings of the International Conference, Jülich, Germany, 23–28 Sept. 1968.) A. Seeger, D. Schumacher, W. Schilling, J. Diehl, eds. 1088 pp. North-Holland, Amsterdam, 1970. \$42.00

Electron Paramagnetic Resonance with Applications to Selected Problems in Biology. (Les Houches Lectures, 1969.) By G. Feher. 139 pp. Gordon and Breach, New York, 1970. \$12.00

Plasma Waves in Space and Laboratory, Vol. 2. (Proceedings of NATO Advanced Study Institute, Roros, Norway, 17–26 April 1968.) J. O. Thomas, B. J. Landmark, eds. 562 pp. American Elsevier, New York, 1970. \$21.00

Springer Tracts in Modern Physics, Vol. 52; Weak Interactions. 2nd International Summer School for Theoretical Physics, University of Karlsruhe, 14 July–1 August 1969). G. Höhler, ed. 214 pp. Springer-Verlag, New York, 1970. \$16.00

Semiconductor Effects in Amorphous Solids. (Conf. proc. of Symposium on Semiconductor Effects in Amorphous Solids, New York, 14–17 May 1969.) W. Doremus, ed. 604 pp. North-Holland, (American Elsevier) New York, 1970. \$30.00

Clean Surfaces: Their Preparation and Characterization for Interfacial Studies. (Based on Symposium, North Carolina State University, Raleigh, 8–10 April 1968.) George Goldfinger, ed. 385 pp. Marcel Dekker, New York, 1970. \$18.75

NUCLEI

Excitation Mechanisms of the Nucleus, Nuclear Theory Series, Vol. 2. By J. M. Eisenberg, W. Greiner. 370 pp. American Elsevier, New York, 1970. \$19.25

ATOMS, MOLECULES, CHEMICAL PHYSICS
Sigma Molecular Orbital Theory. By Oktay Sinanoglu, Kenneth B. Wiberg. 455 pp. Yale U. P., New Haven, Conn., 1970. \$17.50