

and there is no compilation of symbols. Some technical terms are missing in the subject index. Because the book is intended not only as a textbook but also as a reference work, these omissions are serious and should be corrected in subsequent volumes of the *Encyclopedia of Mathematics and Its Applications*, to which series this volume belongs.

In sum, Beltrametti and Cassinelli have written a guide to quantum logic that maintains high standards mathematically and physically. It may even help readers to descend without drowning into "the abyss of philosophical interpretations" (a phrase in the Foreword by Peter Carruthers).

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book notes

Japanese Electronics: A Worm's-Eye View of Its Evolution

M. Kikuchi. 208 pp. Simul Press, Tokyo (US dist. Kinokuniya Bookstores, New York). \$17.50

Readers who enjoyed the PHYSICS TODAY article "Creativity and ways of thinking: the Japanese style" by Makoto Kikuchi (September 1981, page 42) will find this little book very familiar. Kikuchi has taken his favorite theme—the process by which Japan set about "catching up" to the West in electronics—and has woven it into an autobiography describing his progress from student at the University of Tokyo during World War II to his present position as director of the Sony Research Center in Yokohama.

The style is the same as in his 1981 article, conversational and highly anecdotal. There is very little physics in this book, but Kikuchi, who has worked and traveled extensively in the US, appears to have met virtually all the solid-state physicists of note and tells many charming stories of his associations with them.

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new books

Particles, Nuclei and High-Energy Physics

Particles and Fields 2. Proc. Banff Summer Institute, Alberta, Canada, August 1981. A. Z. Capri, A. N. Kamal, eds. 706 pp. Plenum, New York, 1983. \$97.50

Structural Elements in Particle Physics and Statistical Mechanics. Proc. NATO Advanced Summer Institute on Theoretical Physics, August-September 1981, Freiburg. J. Honerkamp, K. Pohlmeier, H. Römer, eds. 378 pp. Plenum, New York, 1983. \$65.00

Gauge Symmetries and Fibre Bundles: Applications to Particle Dynamics. A. P. Balachandran, G. Marmo, B.-S. Skagerstam, A. Stern. 140 pp. Springer-Verlag, New York, 1983. \$7.00. *text*

Electroweak Interactions at High Energies. Proc. DESY Workshop, September 1982. R. Kogerler, D. Schildknecht, eds. 383 pp. World (US dist. Heyden, Philadelphia), 1983. \$44.00

Advances in Nuclear Science and Technology. Vol. 15. J. Lewins, M. Becker, eds. 406 pp. Plenum, New York, 1983. \$57.50. *compendium*

Progress in Particle and Nuclear Physics. Vol. 10. D. Wilkinson, ed. 323 pp. Pergamon, New York, 1983. \$102.00

Astronomy, Cosmology and Space Physics

Catalog of Cometary Orbits. B. G. Marsden. 96 pp. Enslow, Hillside, N.J., 1983. \$10.00

Galaxies. Reprint. T. Ferris. 191 pp. Stewart, Tabori, & Chang, New York, 1982. \$27.50. *general readership*

Teacher's Guide to Astronomy: From the Earth to the Universe. J. M. Pasachoff. 236 pp. Saunders, New York, 1983. *no price stated*

Astronomy and Astrophysics Abstracts. Astronomisches Rechen-Institut Heidelberg. Vol. 32, Literature 1982, Part 2. S. Bohme, W. Fricke, H. Hefele, I. Heinrich, W. Hofmann, D. Krahn, V. R. Matas, L. D. Schmadel, G. Zech, eds. 848 pp. Springer-Verlag, New York, 1983. \$66.00

The Realm of the Nebulae. Reprint. E. Hubble. 207 pp. Yale U.P., New Haven, Conn., 1982. \$30.00 cloth, \$8.95 paper

Astrophysical Jets. Proc. International Workshop, Torino, Italy, October 1982. A. Ferrari, A. G. Pacholczyk, eds. 327 pp. Reidel (US dist. Kluwer, Boston, Mass.), 1983. \$48.00

Evolution of the Universe. I. D. Novikov. 176 pp. Cambridge U.P., New York, 1983. \$14.95. *general readership*

Activity in Red-Dwarf Stars. Proc. 71st Colloquium of the International Astronomical Union, Catania, Italy, August 1982. P. B. Byrne, M. Rodono, eds. 669 pp. Reidel (US dist. Kluwer, Boston, Mass.), 1983. \$85.00

100 Billion Suns: The Birth, Life, and Death of the Stars. R. Kippenhahn. 264 pp. Basic Books, New York, 1983. \$25.00. *general readership*

Vectorial Astrometry. C. A. Murray. 353 pp. Hilger (US dist. Heyden, Philadelphia), 1983. \$49.00. *text and reference*

Mindsteps to the Cosmos. G. S. Hawkins. 340 pp. Harper & Row, New York, 1983. \$19.95. *general readership*

The Left Hand of Creation: The Origin and Evolution of the Expanding Universe. J. B. Barrow, J. Silk. 256 pp. Basic Books, New York, 1983. \$17.95. *general readership*

The Radio Universe. Third Edition. J. S. Hey. 246 pp. Pergamon, New York, 1983. \$13.50. *general readership*

Astronomy from Space: Sputnik to Space Telescope. J. Cornell, P. Gorenstein,

eds. 248 pp. MIT Press, Cambridge, Mass., 1983. \$17.50. *general readership*

The Adjustment and Testing of Telescope Objectives. H. D. Taylor. 112 pp. Hilger (US dist. Heyden, Philadelphia), 1983. \$13.50

Atlas of Deep-Sky Splendors. Fourth Edition. H. Vehrenberg. 242 pp. Sky, Cambridge, Mass., 1983. \$39.95

Solar and Stellar Magnetic Fields: Origins and Coronal Effects. Symposium No. 102, Zurich, August 1982. J. O. Stenflo, ed. 564 pp. Reidel (US dist. Kluwer, Boston), 1983. \$67.50 cloth, \$32.50 paper

Solar-Terrestrial Physics: Principles and Theoretical Foundations. Based upon Proc., Theory Institute, Boston College, August 1982. R. L. Carovillano, J. M. Forbes, eds. 859 pp. Reidel (US dist. Kluwer, Boston), 1983. \$115.00

Spacewarps. J. Gribbin. 211 pp. Delacorte, New York, 1983. \$16.95. *general readership*

Diffuse Matter in Galaxies. Cargèse 1982. Proc. NATO Advanced Study Institute, September 1982. J. Audouze, J. Lequeux, M. Levy, A. Vidal-Madjar, eds. 262 pp. Reidel (US dist. Kluwer, Boston, Mass.), 1983. \$39.50

Atomic, Molecular and Chemical Physics

Problems in Molecular Structure. G. J. Bullen, D. J. Greenslade, eds. 466 pp. Pion (US dist. Methuen, New York), 1983. \$32.00. *intermediate text*

Advances in Chemical Physics. Vol. 53. I. Prigogine, S. A. Rice, eds. 402 pp. Wiley, New York, 1983. \$55.00. *compendium*

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Physics of Atoms and Molecules. B. H. Bransden, C. J. Joachain. 686 pp. Longman, New York, 1983. \$26.00. *undergraduate text*

Optics and Acoustics

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Colour Science in Television and Display Systems. W. N. Sproson. 221 pp. Hilger (US dist. Heyden, Philadelphia), 1983. \$36.00

Applied Charged Particle Optics. Part C. Very-High-Density Beams. A. Septier, ed. 545 pp. Academic, New York, 1983. \$74.50. *compendium*

Waves and Photons: An Introduction to Quantum Optics. E. Goldin. 211 pp. Wiley, New York, 1983. \$25.95

Speech of the Hearing Impaired: Research, Training, and Personnel Preparation. I. Hochberg, H. Levitt, M. J. Osberger, eds. 427 pp. University Park, Baltimore, 1983. \$39.95. *compendium*

Fourier Optics: An Introduction. E. G. Steward. 185 pp. Wiley, New York, 1983. \$24.95. *undergraduate text*

Single-Mode Fiber Optics: Principles and Applications. L. B. Jeunhomme. 275 pp. Dekker, New York, 1983. \$45.00

Waves and Fields in Optoelectronics. H. A. Haus. 402 pp. Prentice-Hall, Englewood Cliffs, N.J., 1983. \$28.95. *text*

Theory and Mathematical Physics

Nonlinear Oscillations, Dynamical Systems, and Bifurcations of Vector Fields. J. Guckenheimer, P. Holmes. 453 pp. Springer-Verlag, New York, 1983. \$32.00. *undergraduate text*

Nonlinear Methods of Spectral Analysis. Second Edition. S. Haykin, ed. 263 pp. Springer-Verlag, New York, 1983. \$25.00. *compendium*

Stochastic Processes: Formalism and Applications. Proc. Winter School, University of Hyderabad, India, December 1982. G. S. Agarwal, S. Dattagupta, eds. 324 pp. Springer-Verlag, New York, 1983. \$16.50

Green's Functions in Quantum Physics. Second Edition. E. N. Economou. 314 pp. Springer-Verlag, New York, 1983. \$19.50. *graduate text*

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Ergodic Theory. K. Petersen. 329 pp. Cambridge U.P., New York, 1983. \$49.50. *graduate text*

Microcomputer Quantum Mechanics. J. P. Killingbeck. 177 pp. Hilger (US dist. Heyden, Philadelphia), 1983. \$28.00

Introduction to Non-Equilibrium Quantum Statistical Mechanics. S. Fujita. 165 pp. Krieger, Malabar, FL, 1983. \$12.50

Functional Integrals in Quantum Field Theory and Statistical Physics. V. N. Popov. 299 pp. Reidel (US dist. Kluwer, Boston, Mass.), 1983. \$65.00

A Sophisticate's Primer of Relativity. Second Edition. P. W. Bridgman, Wesleyan U. P., Middletown, Conn., 1983. \$20.00 cloth, \$8.95 paper

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Molecular Quantum Mechanics. Second Edition. P. W. Atkins. 471 pp. Oxford U.P., New York, 1983. \$45.00 cloth, \$27.95 paper. *undergraduate text*

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tional Centre for Theoretical Physics, Trieste, June-July 1981. G. Denardo, H. D. Doebner, eds. 294 pp. World (US dist. Heyden, Philadelphia), 1983. \$33.00

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Sculptured Surfaces in Engineering and Medicine. J. P. Duncan, S. G. Mair. 378 pp. Cambridge U.P., New York, 1983. \$39.50 cloth, \$10.95 paper. *handbook*

Introduction to Health Physics. Second Edition. H. Cember. 519 pp. Pergamon, New York, 1983. \$60.00 cloth, \$29.50 paper. *text*

Modeling, Simulation and Parameter-Estimation of the Human Cardiovascular System. D. Möller, D. Popović, G. Thiele. 253 pp. Vieweg (US dist. Heyden, Philadelphia), 1983. \$36.00. *monograph*

Biophysics. M. W. Volkenshtein. 640 pp. Mir (US dist. Imported, Chicago), 1983. \$12.95. *text*

Thermodynamics and Statistical Physics

Addendum to an Approach to Rheology through Multi-Variable Thermodynamics. H. H. Hull. 21 pp. Pittsburgh, Pa., 1982. \$4.00

Thermal Conductivity 17. Proc., June 1981, Gaithersburg, Md. J. G. Hust, ed. 793 pp. Plenum, New York, 1983. \$110.00

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Scientists, the Arms Race and Disarmament. A Unesco/Pugwash Symposium. J. Rotblat, ed. 323 pp. Taylor & Francis, New York, 1983. \$24.95

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Facing the Threat of Nuclear Weapons. S. D. Drell. 120 pp. U. of Washington P., Seattle, 1983. \$4.95 paper, \$10.00 cloth.

Equity Issues in Radioactive Waste Management. R. E. Kasperson, ed. 381 pp. Oelgeschlager, Gunn & Hain, Cambridge, Mass., 1983. \$30.00. *compendium*

The History of Modern Physics 1800-1950. S. A. Goudsmit. 259 pp. Tomash, Los Angeles, Cal., 1983. \$28.00

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Taming the Atom: Facing the Future with Nuclear Power. I. Blair. 247 pp. Hilger (US dist. Heyden, Philadelphia), 1983. \$11.50. *general readership*

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Seismic Velocity Analysis and the Convolutional Model. E. A. Robinson. 290 pp. International Human Resources Development Corp., Boston, 1983. \$46.00. *undergraduate text*

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Miscellaneous

McGraw-Hill Dictionary of Scientific and Technical Terms. Third Edition. S. P. Parker, ed. 1846 pp. McGraw-Hill, New York, 1983. \$70.00

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