But, as much as we can, we should keep his research spirit alive.

For a book of this scope there are relatively few errors, including an unfortunate one concerning general relativity. Some names are misspelled, for example that of Robert J. Van de Graaff—of all places in a book published by the MIT Press! All in all, the book should prove an inspirational gift for budding scientists and enjoyable reading for older ones.

Recent Developments in Computing, Processor and Software Research for High-Energy Physics

Edited by Rene Donaldson and Michael N. Kreisler

459 pp. Fermilab (Publications Division), 1984. *Free on request*

The importance of computing in physics has increased tremendously in recent years. But even with the new, more powerful processors, many important problems cannot be addressed with commercially available computers. In many cases physicists have developed special techniques to solve their specific problems in an economical way. This approach is widely and successfully used in experimental and theoretical high-energy physics.

There are many aspects to the computing problem in high-energy physics. These include trigger processors and specialized track reconstruction processors for experiments, and multiprocessor computer systems for lattice-gauge calculations. This broad range of computing problems, and the variety of solutions to these problems, is the subject of the proceedings of the symposium held at Guanajuato, Mexico, on 8–11 May 1984.

Specialized hardware for trigger systems and for on-line and off-line event reconstruction was a major topic at the meeting. These devices have become an important part of the detector systems for experiments at fixed-target and colliding-beam facilities. The systems discussed include analog processors and pipelined digital devices. Parallel multiprocessor systems have been used for analysis of event-structured data from experiments.

Other topics at the meeting included more conventional approaches and general-purpose processors. The discussion included hardware descriptions, algorithms for parallel computers and software for event processing. (The May 1983 and May 1984 issues of PHYSICS TODAY provide a useful introduction to these topics.) The proceedings reviewed here discuss other aspects of computing hardware and software.

The articles in these proceedings cover a wide range of topics. They will be useful to researchers who must address similar problems in a variety of disciplines. The question-and-answer section following each paper helps convey the vitality of this rapidly developing field.

The area most neglected in these proceedings is software. This is an important part of the computing problem, and has important implications for the cost, time scale and reliability of computing. The topic is, perhaps, the subject of a future meeting.

STEWART C. LOKEN
Lawrence Berkeley Laboratory

new books

Solid-State Physics and Electronics

Defect Properties and Processing of High-Technology Nonmetallic Materials. *MRS Symposia Proceedings Vol. 24.* Proc. Symp. Boston, Mass., November 1983. J. H. Crawford Jr, Y. Chen, W. A. Sibley, eds. 482 pp. North-Holland, New York, 1984. $85.25

Adsorption Processes on Semiconductor and Dielectric Surfaces I. *Springer Series in Chemical Physics 32.* V. F. Kiselev, O. V. Krylov. 287 pp. Springer-Verlag, New York, 1985. $43.50. *Monograph*

Dynamical Phenomena at Surfaces, Interfaces and Superlattices. *Springer Series in Surface Sciences 3.* Proc. Conf. Erice, Italy, July 1984. F. Nizzoli, K.-H. Rieder, R. F. Willis, eds. 329 pp. Springer-Verlag, New York, 1985. $29.50

Dynamical Processes and Ordering on Solid Surfaces. *Springer Series in Solid-State Sciences 59.* Proc. Seventh Taniguchi Symp., Kashikojima, Japan, Sept., 1984. A. Yoshimori, M. Tsukada, eds. 195 pp. Springer-Verlag, New York, 1985. $29.00

Energy Transfer Processes in Condensed Matter. *NATO ASI Series.* Proc. NATO Adv. Study Institute, Erice, Italy, June 1983. B. Di Bartolo, ed. 696 pp. Plenum, New York, 1984. $105.00

Localization, Interaction, and Transport Phenomena. *Springer Series in Solid-State Sciences 61.* Proc. Intl. Conf., August 1984. B. Kramer, G. Bergmann, Y. Bruynseraede, eds. 264 pp. Springer-Verlag, New York, 1985. $29.00

Molecular Semiconductors: Photoelectrical Properties and Solar Cells. J. Simon, J.-J. André. 288 pp. Springer-Verlag, New York, 1985. $59.00. *Monograph*

Moment Formation in Solids. *NATO ASI Series.* Proc. Conf. Vancouver Island, September 1983. W. J. L. Buyers, ed. 336 pp. Plenum, New York, 1984. $49.50

Nuclear Magnetic Resonance of Liquid Crystals. *NATO ASI Series.* Proc. NATO Adv. Study Institute, San Miniato, Italy, July 1983. J. W. Emsley, ed. 572 pp. Reidel, Boston, 1985.

Optimum Signal Processing: An Introduction. S. J. Orfandis. 349 pp. Macmillan, New York, 1985. $31.95. *Graduate text*

Plasma Etching in Semiconductor Fabrication. *Plasma Technology 1.* R. A. Morgan. 316 pp. Elsevier, New York, 1985. $72.25. *Monograph*

Proceedings of the 17th International Conference on the Physics of Semiconductors. Held in San Francisco, Calif., August 1984. J. D. Chadi, W. A. Harrison, eds. 1580 pp. Springer-Verlag, New York, 1985. $135.00

Pulsed Laser Processing of Semiconductors. *Semiconductors and Semimetals 23.* R. F. Wood, C. W. White, R. T. Young, eds. 693 pp. Academic, New York, 1985. $65.00. *Compendium*

Rapidly Solidified Metastable Materials. *MRS Symposia Proceedings Vol. 28.* Proc. Symp. Boston, Mass., November 1983. B. H. Kear, B. C. Giessen, eds. 448 pp. North-Holland, New York, 1984. $49.50

Semiconductor Contacts: An Approach to Ideas and Models. *Intl. Series of Monographs on Physics 70.* K. Henisch. 377 pp. Oxford U.P., New York, 1985. $67.50

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Theory of Defects in Solids: Electronic Structure of Defects in Insulators and Semiconductors. A. M. Stoneham. 955 pp. Clarendon, Oxford (US dist. Oxford U.P., New York), 1975. $29.95. *Text.*

Quantum Electronics and Lasers

Gas Flow and Chemical Lasers 1984. *Institute of Physics Conference Series 72.* Proc. of the Fifth Intl. Symp. on Gas Flow and Chemical Lasers, Oxford, August 1984. A. S. Kaye, A. C. Walker, eds. 534 pp. Adam Hilger, Boston, 1985. $59.00

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Semiconductors and Semimetals: Lightwave Communications Technology, Vol. 22. Part B: Semiconductor Injection Lasers, 1. W. T. Tsang, ed. 386 pp. Academic, New York, 1985. $55.00. *Compendium*

Understanding Laser Technology. B. Hitz. 226 pp. PennWell, Tulsa, Okla., 1985. $35.00. *Introductory text*

Atomic, Molecular and Chemical Physics

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Advances in Atomic and Molecular Physics, Vol. 20. D. Bates, B. Bederson, eds. 477 pp. Academic, New York, 1985. $95.00. *Compendium*

Advances in Chemical Physics, eds. Vol. LIX. I. Prigogine, S. A. Rice., 376 pp. Wiley, New York, 1985. $80.00. *Index to vols. I–LV*

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Electron Impact Ionization. T. D. Märk, G. H. Dunn, eds. 383 pp. Springer-Verlag, New York, 1985. $58.50. *Compendium*

Lange's Handbook of Chemistry. 13th edition. J. A. Dean, ed. 92 pp. McGraw-Hill, New York, 1985. $57.00

Molecular Potential Energy Functions. J. N. Murrell, S. Carter, S. C. Farantos, P. Huxley, A. J. C. Varandas. 197 pp. Wiley, New York, 1984. $34.95. *Monograph*

Photophysics and Photochemistry in the Vacuum Ultraviolet. *NATO ASI Series.* S. P. McGlynn, G. L. Findley, R. H. Huebner, eds. 959 pp. Reidel, Boston, 1985. $99.00. *Compendium*

Theory of Molecular Fluids, Vol. 1: Fundamentals. *Intl. Series of Monographs on Chemistry 9.* C. C. Gray, K. E. Gubbins. Oxford U.P., New York, 1985. $79.00

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Biophysical Aerodynamics and the Natural Environment. A. J. Ward-Smith. 172 pp. Wiley, New York, 1985. $38.95. *Monograph*

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Induction of Thyroid Cancer by Ionizing Radiation. *NCRP Report No. 80.* 93 pp. National Council on Radiation Protection and Measurements, Bethesda, Md., 1985. $13.00

Physical Chemistry: Principles and Applications in Biological Sciences. Second edition. I. Tinoco Jr, K. Sauer, J. C. Wang. 706 pp. Prentice-Hall, Englewood Cliffs, N.J., 1985. $32.95. *Text*

Physics of Electron Beam Therapy. *Medical Physics Handbooks 13.* S. C. Klevenhagen. 204 pp. Adam Hilger, Boston, 1985. $28.00. *Monograph*

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MODERN PROBLEMS IN CONDENSED MATTER SCIENCES, Volume 10

Electron-Electron Interactions in Disordered Systems

edited by A.L. EFROS *and* M. POLLAK

1985 xiv + 628 pages
Price: US $140.75/Dfl. 380.00
Subscription Price: US $119.75/Dfl. 323.00
ISBN 0-444-86916-6

Two fundamental problems of condensed-matter physics commanded the attention of theorists in past decades: disorder and the Coulomb interaction between electrons.

The present volume deals with the interplay of disorder and the Coulomb interaction. Prominent experts give state-of-the-art reviews of the theoretical and experimental work in this field and make it clear that the interplay of the two effects is essential especially in low-dimensional systems. Chapters addressing the insulating regime, the weakly localized regime, the metallic regime, and the neighborhood of the metal-insulator transition are included. Reflecting the importance of contributions to developments in this field from all parts of the world, distinguished authors from the U.S.A., U.S.S.R., Europe and Japan have contributed to the volume.

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Gas-Phase Chemiluminescence and Chemi-Ionization

edited by ARTHUR FONTIJN

1985 xii + 372 pages
Price: US $40.75/Dfl. 110.00
ISBN 0-444-86950-6

The phenomena of chemiluminescence (or more broadly chemi-excitation and chemi-ionization have major similarities from a fundamental kinetic and dynamic point of view. However, since the former has primarily been investigated using optical spectroscopic techniques and the latter largely by mass spectroscopic (and other gaseous electronic) methods, the two phenomena have apparently never explicity been discussed together in one volume. In addition to a number of review articles on each individual subject, several meetings and books have had chemiluminescence and bioluminescence as their theme and those have been dominated by condensed phase work. On the other hand, chemi-ionization is often discussed in the context of gaseous electronics, plasma chemistry and combustion. It is the goal of this book to present a more unified understanding of the two phenomena.

This up-to-date overview is aimed at both workers in the field and at beginning graduate students. As a particular aid to the latter, each author has included a brief review of the subject and indicated fruitful areas for future research.

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STUDIES IN STATISTICAL MECHANICS, Volume 12

The Wonderful World of Stochastics

A Tribute to Elliott W. Montroll

edited by MICHAEL F. SHLESINGER *and* GEORGE H. WEISS

1985 about 250 pages
Price: US $45.00/Dfl. 140.00
ISBN 0-444-86937-9

Elliott W. Montroll had a profound influence on physics, beginning with his classic works on imperfect gases, the Ising model and lattice dynamics in the early 1940's. His innovative research continued over the next four decades with work ranging from the flow of electrons in amorphous semiconductors, to the flow of traffic on highways. This memorial volume contains ten original contributions by noted scientists on statistical and mathematical physics, a bibliography and review of Montroll's work, plus reprints of twelve of Montroll's classic papers.

Excerpt from the Preface:
'There are gifted scientists and there are people endowed with the ability to bring pleasure to any gathering. Elliott Montroll belonged to that rare group who possess both.'

Joel L. Lebowitz

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Niels Bohr

His life and work as seen by his friends and colleagues

edited by S. ROZENTAL

1967. repr. as a paperback 1985
vi + 355 pages
Price: US $24.95/Dfl. 75.00
ISBN 0-444-86977-8

A COMMENT FROM THE PRESS:
'. . . It is a great strength of the book that in most of the contributions the scientific and factual are mixed with the personal so that a vivid portrait emerges gradually, like a statue seen from many points of view.'
George Thomson, Contemporary Physics

This collection of essays on Niels Bohr was first published almost twenty years ago. The contributors, who all knew Bohr well, give a unique historical account of his life, his work, and his way of thinking.

The first part of the book covers the various periods of Niels Bohr's life and his scientific activities. The second part contains a number of contributions which give a picture of his varied interests and his activities in fields other than fundamental scientific research. Part three contains a few recollections of a more personal character.

The book concludes with a reprint of the Open Letter to the United Nations, published in 1950, which is a testimony of Bohr's concern for avoiding a world wide nuclear conflict. In this document he has set out the ideas which were foremost in his mind in his later years concerning nuclear armament and which are still of topical importance.

CONTENTS: Introduction. Childhood and Youth. The Decisive Years 1922-1918 *(L. Rosenfeld and E. Rudinger)*. Glimpses of Niels Bohr as Scientist and Thinker *(O. Klein)*. Quantum Theory and Its Interpretation *(W. Heisenberg)*. Recollections from the Years 1929-1931 *(H.B.G. Casimir)*. Niels Bohr in the Thirties. Consolidation and extension of the concept of complementarity *(L. Rosenfeld)*. The interest is focussing on the Atomic Nucleus *(O.R. Frisch)*. The Forties and the Fifties *(S. Rozental)*. The War Years and the Prospects Raised by the Atomic Weapons *(A. Bohr)*. Reminiscenses from the Post-war Years *(A. Pais)*. Niels Bohr and His Youngest Disciples *(J. Kalckar)*. Review of Niels Bohr's Research Work *(C. Møller and M. Pihl)*. Niels Bohr and International Collaboration *(V.F. Weisskopf)*. Niels Bohr and the Royal Danish Academy of Sciences and Letters *(J. Pedersen)*. Niels Bohr and the Danish Atomic Energy Research Establishment *(V. Kampmann)*. Niels Bohr and the Danish Community *(M. Pihl)*. Fifty Years of Friendship *(R. Courant)*. The Versatility of Niels Bohr *(P.A.M. Dirac)*. Science and Administration *(H.H. Koch)*. Memories of Tisvilde *(W. Scharff)*. An Impression *(M. Andersen)*. My Father *(H. Bohr)*. Open Letter to the United Nations by Niels Bohr. Chronological Survey. List of Pictures.

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Model Research: The National Advisory Committee for Aeronautics, 1915–1958. Vols. 1 and 2. *The NASA History Series.* A. Roland. 769 pp. NASA, Scientific and Technical Information Branch, Washington, D.C., 1985. *Price not stated*

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