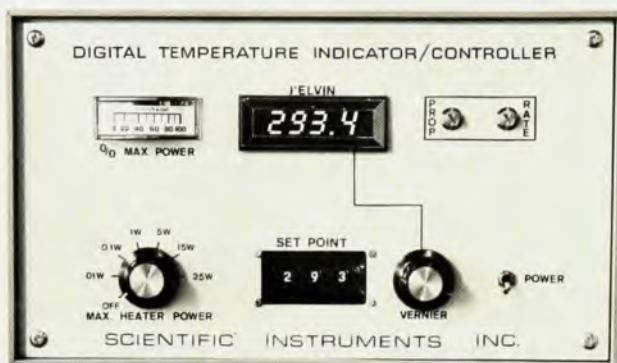


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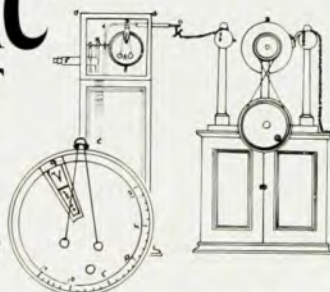
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search. Here the index is spotty—for example, the term “character”, used in at least four senses, is not listed at all—and this again makes for unnecessary page shuffling.

Despite such shortcomings, the book can be a time-saving adjunct in courses on chemistry or group theory, and is worth trying out on our own students.

HELLMUT J. JURETSCHKE

Department of Physics
Polytechnic Institute of New York
Brooklyn

Chemical and Biochemical Applications of Lasers, Vol. 3

C. B. Moore, ed.

325 pp. Academic, New York, 1977.
\$16.50

This book is concerned with laser isotope separation and infrared laser photochemistry, topics that are timely and of both scientific and technological significance. The book is divided into two chapters: “Laser isotope separation” written by C. Bradley Moore and Vladilen Letokhov, and “Multiple photon infrared laser photochemistry” by Rafael Ambartsumian and Letokhov. These authors have made *outstanding* contributions to this field and are the logical people to write such a text.

The book is invaluable to any student or scientist who is entering this research field. It is well organized and as up-to-date as can be reasonably expected. The text is well referenced and illustrated, and the notation used throughout the text is consistent and clear. The manner of presentation is such as to encourage creative thought. For instance, the end of each chapter contains ideas that are very innovative and for which only one or two publications may exist in the literature. Conceptual foundations are carefully laid out and explained in detail. Examples of current research result are used to punctuate the text, and these results are presented in a concise, tasteful manner so as to inform, but not bore, the reader.

Many ideas are put forth that are speculative and that may point to important new future research areas. I found this style very stimulating and worthwhile. The usual conservative leaning of the “review article” is not present in this book, and the authors offer considerable insight into the logical extensions of the present experiments. Readers should be aware of this writing style and not take everything in the text as the last word on the subject, as the strength of the book lies in its coverage of a very rapidly expanding research field rather than its accuracy. The style of presentation is somewhat unique, as 75%

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Elementary Modes of Excitation in Nuclei

Proceedings of the International School of Physics "Enrico Fermi", Course LXIX.

edited by **A. BOHR** and **R. A. BROGLIA**, Niels Bohr Institute, Denmark.

1978 xx + 466 pages
Price: US \$78.25/Dfl. 180.00
Subscription Price:
US \$66.50/Dfl. 153.00
ISBN 0-444-85153-4

The concept of elementary modes of excitation occupies a central place in the study of nuclear dynamics. These modes reveal themselves directly as the building blocks of the nuclear excitation spectra. The understanding of these modes and their couplings also secures a basis for new, further exploration of the nucleus.

The topics selected in this volume emphasize focal points of current development, concurrently illustrating general methods developed for the analysis of nuclear dynamics.

CONTENTS: Preface. Some Aspects of Rotational Motion (*A. Bohr*). Elementary Excitations in the Nucleus (*B. R. Mottelson*). Nuclear Superfluidity and Field Theory of Elementary Excitations (*D. R. Bés*). Time-Dependent Self-Consistent Field Theory for Heavy-Ion Reactions (*A. K. Kerman*). Nuclear Structure at High Angular Momentum (*F. B. Stephens*). Rotational Motion: Particle-Rotation Coupling (*I. Hamamoto*). Particle-Vibration Coupling: Octupole Mode (*I. Hamamoto*). The Study of Giant Resonances in Nuclei by Inelastic Scattering (*G. R. Satchler*). Pairing and Seniority in Finite Nuclei (*I. Talmi*). Realistic Shell Model Calculations (*B. H. Wildenthal*). Study of the Yrast States in the Rare-Earth Oblate Nuclei (*J. Dudek*). Gamma-Vibrations in Fast-Rotating Oblate Nuclei (*J. Dudek*). Nuclei at Very High Angular Momentum (*S. Åberg*). Band Mixing in the Nucleus ^{156}Dy (*J. Vervier*). Shape Coexistence and Shape Isomerism in Neutron-Deficient Mercury Isotopes (*D. Proetel*). Experimental Study of Electric-Multipole Excitations in ^{16}O (*P. Paul*). Microscopic Theory of Collective Vibrations in Nuclei (*J. P. Blaizot*). Nuclear Field Theory of Two-Phonon States (*P. F. Bortignon*). Three-Nucleon Transfer Applied to the (p, α) Reaction (*J. W. Smits*). Certain Aspects of the $(^3\text{He}, n)$ Reaction (*D. Evers*).

Radiation Effects on Superconductivity

Proceedings of the International Discussion Meeting on Radiation Effects on Superconductivity, Argonne, Illinois, U.S.A., 13-16 June 1977

edited by **B. S. BROWN**, U.S.A., **H. C. FREYHARDT**, Germany, and **T. H. BLEWITT**, U.S.A.

Reprinted from: **Journal of Nuclear Materials**, Vol. 72, Nos. 1 and 2

1978 300 pages
Price: US \$65.25/Dfl. 150.00
ISBN 0-444-85150-X

These proceedings represent the most complete compilation of the present state of knowledge in the field, covering both basic and applied research. Basic research presented was concerned with changes in the electronic and thermal (phonon) properties of the superconductor. Research on applied areas dealt mainly with modification of superconducting materials of technological interest. Discussions of experiments dealing with such secondary superconducting properties as flux pinning were also presented.

INVITED PAPERS: Radiation Induced Damage in Metals (*W. Schilling*). Effect of Irradiation on Reversible Properties of Superconductors (*A. R. Sweedler*). Ion Implantation and Superconductivity (*B. Stritzker*). Fundamental Fluxoid-Defect Interactions in Irradiated Superconductors (*E. J. Kramer*). Effects of Irradiation on Critical Currents of Alloy and Compound Superconductors (*S. T. Sekula*). Radiation Considerations for Superconducting Fusion Magnets (*M. Abdou*).



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Magnetic Alloys and Oxides

Proceedings of an International Conference, 15-18 August 1977, Haifa, Israel

edited by **A. J. FREEMAN**, U.S.A.; **A. A. HIRSCH** and **G. BARNEA**, Israel.

Reprinted from the **Journal of Magnetism and Magnetic Materials**, Vol. 7, Nos. 1-4

1978 375 pages
Price US \$91.50/Dfl. 210.00
ISBN 0-444-85162-3

This volume contains the proceedings of an international conference which brought together theoreticians and experimentalists working on magnetic alloys and oxides. In addition to exploring the many facets of the subject, the topic of industrial applications received attention, and surveys on manufacturing applications were also presented.

Tachyons, Monopoles and Related Topics

Proceedings of the First Session of the Interdisciplinary Seminars on "Tachyons and Related Topics", Erice, 1-15 September, 1976

edited by **ERASMO RECAMI**, Italy.

1978 x + 285 pages
Price: US \$37.00/Dfl. 85.00
ISBN 0-444-85165-8

The past decade has witnessed a dramatic increase in the amount of research on the extension of relativistic and quantum theories to faster-than-light reference frames and/or objects. "Extended Special Relativity" has been developed to a good level of understanding, and progress has been accomplished in extending General Relativity and Quantum Field Theory to tachyons.

Until now, however, no book was available which could rightly justify itself as an initial reference point for facilitating theoretical and experimental research on tachyons and related topics. This volume is a collection of contributions presented at the first international meeting on such subjects. All the papers have been updated to January, 1978, and many of them contain permanent results.

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of the text was written by the Russian contributors. The text is written in a very logical manner, however, and the reader should have no problem following it.

On the critical side, the book draws heavily from the immediate spheres of influence of the authors, and experimental results are most frequently taken from their own laboratories. Although this is not too serious a criticism, it is important that the reader keep this in mind.

CURT WITTIG

Departments of Physics
and Electrical Engineering
University of Southern California

book note

Historical Studies in the Physical Sciences, Vol. 8. R. McCormmach, L. Pyenson, eds. 300 pp. Johns Hopkins U.P., Baltimore, 1977. \$17.50

Historical Studies is a series of annual volumes that encourage "substantial studies in the history of the physical sciences from the eighteenth century to the present" and "studies that explore new problems and methods in the intellectual and social history of the physical sciences." In this eighth volume, six of the seven papers deal with the history of physics; half of these are devoted to nineteenth-century aspects, the other half to twentieth-century topics. Edward MacKinnon discusses "Heisenberg, Models, and the Rise of Matrix Mechanics," while Daniel Serwer writes on "Pauli, Heisenberg, and the Rejection of the Mechanical Atom, 1923-25." In his "Temple to Science: Cooperative Research and the Birth of the California Institute of Technology," Robert H. Kargon argues that the institution's early scientific excellence can best be understood by examining George Ellery Hale's perception of the scientific and institutional needs of astrophysics.—CBW

new books

Particles, Nuclei and High-Energy Physics

Proceedings of the Seventh Hawaii Topical Conference in Particle Physics (Honolulu, August 1977). R. J. Cence, P. N. Dobson Jr, S. Pakvasa, S. F. Tuan, eds. 481 pp. U. P. of Hawaii, Honolulu, 1978. \$15.00

Atomic, Molecular and Chemical Physics

Structures and Approximations for Electrons in Molecules. D. B. Cook. 294 pp. Halsted (Wiley), New York, 1978. \$32.50

Structure and Collision of Ions and Atoms