

example, the Fourier transform is covered in Chapters 3 and 6 and exponential weighting in Chapters 6 and 7. In spite of the large amount of space devoted to the transform itself, it is not explained as clearly as it has been in other places, notably by E. Oran Brigham (Prentice-Hall, 1974). Further, in spite of the general mathematical bent of the section on data handling, the limits of signal averaging are never set forth clearly.

The layout of Shaw's book is generally excellent, although running heads throughout the chapters would have been helpful. The price of the book, however, does seem excessive.

In summary, both are useful and needed texts that should find wide application in the nmr community. They both contain practical experimental advice and discussions of the utility of a number of nmr techniques.

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book notes

Infrasound and Low Frequency Vibration. W. Tempest, ed. 364 pp. Academic, London, 1977. £13.50

It was not until the early 1960's that jet engines and other sources of new, improved noise introduced high levels of infrasound ("airborne sound in the frequency range below 20 Hz") into the human environment, according to the editor; infrasound studies before that time were academic in character and relatively few. This volume, with 15 contributors, is intended to set forth the "state of the art" in such studies. Its contents emphasize the effects, some of them serious, of infrasound and vibration on *people*, with chapters on motion sickness, noise-induced annoyance and physiological and psychological effects of exposure. Areas of concern that are more physically oriented include the detection and analysis of infrasound and low-frequency vibration, particularly in various transportation systems. The book is addressed to professionals in acoustics, audiology and psychophysics.

Evolution of the Solar System. H. Alfvén, G. Arrhenius. 599 pp. National Aeronautics and Space Administration, Washington, D.C., 1976. \$11.00

This thick volume represents a fusion of the authors' two initially independent approaches to the study of the solar system's origin and evolution. Chapters grouped in five sections (present state and basic laws; the accretion of celestial bodies; plasma and condensation; physical and chemical structure, and "special problems"—which include the Earth-

Moon system and origin of Earth's ocean and atmosphere) carry the story from the formation of the Sun to the evolution of planets, satellites and asteroids. Hannes Alfvén and Gustaf Arrhenius claim that they have tried "to make the physics understandable to chemists and the chemistry understandable to physicists," in this book designed to be useful to upper-level undergraduates as well as to "experts in space physics, meteoritics, Earth science, astronomy and cosmochemistry."

Science and Government Report International Almanac 1977. D. S. Greenberg, ed. 305 pp. Science and Government Report, Washington, D.C., 1977. \$54.00

Reviews of recent science-policy developments in more than 30 advanced and developing nations constitute the bulk of this readable and informative almanac. One learns, for example, that Party Chairman Hua Kuo-Feng and other new leaders in the People's Republic of China appear to be following "policies that will lead to an increased interest in technology acquisition . . ." and that 1976 was a great year for science and technology in Brazil. After the 30-nation survey the book features a 25-page directory of scientific organizations and personnel and a collection of science-policy documents (the US National Science and Technology Act of 1976, some of President Jimmy Carter's campaign statements, a Japanese White Paper on Science and Technology and others). The almanac's editor, Daniel S. Greenberg, says this is the first of an intended series; he hopes it will prove useful for "persons concerned with science and technology," including administrators and political leaders.

Laser Applications in Medicine and Biology, Vol. 3. M. L. Wolbarsht, ed. 348 pp. Plenum, New York, 1977. \$27.50

The five contributors of this volume's four papers survey recent theoretical and practical advances in life-science applications for lasers. Nikolai F. Gamaleya reviews Soviet laser biomedical research, including some quite novel developments. S. F. Cleary writes about "Laser Pulses and the Generation of Acoustic Transients in Biological Material," and Paul R. Wedendal and Hans I. Bjelkhagen discuss "Holography in Dentistry." "Otolological Applications of Lasers" is the subject of Chester R. Wilpizeski's contribution. Practitioners of laser R&D and researchers in medicine and biology may find the book useful.

Zirconium: Physico-chemical Properties of Its Compounds and Alloys. C. B. Alcock, K. T. Jacob, S. Zador, O. Kubaschewski-von Goldbeck, H. Nowotny, K. Seifert, O. Kubaschewski. 268 pp. International Atomic Energy Agency, Vienna, 1976. \$16.00

The sixth in a series of special issues of *Atomic Energy Review* devoted to the physico-chemical properties of metals

important in reactor techniques does for zirconium what earlier issues have already done for plutonium, niobium, tantalum, beryllium and thorium. Critically evaluated data are provided for thermodynamic properties, densities, crystallographic structures, phase diagrams and diffusion rates for the metal, its compounds and alloys. Appropriately for a reference work of this type, the book is packed with tables, diagrams and lists of references to the work cited. Although the copyright date is 1976, references appear to be nearly all earlier than 1972.

—FCB and JTS

new books

Particles, Nuclei and High-Energy Physics

Neutron Physics (Springer Tracts in Modern Physics, Vol. 80). L. Koester, A. Steyerl. 135 pp. Springer-Verlag, New York, 1977. \$28.20

Atomic, Molecular and Chemical Physics

The Hartree-Fock Method For Atoms: A Numerical Approach. C. F. Fischer. 308 pp. Wiley-Interscience, New York, 1977. \$22.95

Optics and Acoustics

Architectural Acoustics (Benchmark Papers in Acoustics, Vol. 10). T. D. Northwood, ed. 428 pp. Dowden, Hutchinson and Ross, Stroudsburg, Penna. (Distributor: Halsted, New York), 1977. \$30.00

Quantum Electronics and Lasers

Introduction to Optical Electronics, 2nd edition. A. Yariv. 438 pp. Holt, Rinehart and Winston, New York, 1976. \$20.95

Fluids and Plasmas

Numerical Methods in Fluid Dynamics (Springer Series in Computational Physics, Vol. 1). M. Holt. 253 pp. Springer-Verlag, New York, 1977. \$31.70

Crystallography, Low-Temperature and Solid-State Physics

Magnetic Ions in Metals: A Review of Their Study by Electron Spin Resonance. R. H. Taylor. 118 pp. Halsted, New York, 1977. \$14.00

The Plastic Deformation of Simple Ionic Crystals. M. T. Sprackling. 242 pp. Academic, London, 1977. £9.20

Kristallisation und Entmischung amorpher Germanium-Legierungen. U. Köster. 89 pp. Westdeutscher Verlag, Wiesbaden, German Federal Republic, 1976. DM 28.00

Preparation and Properties of Solid State Materials, Vol. 3: III-V Alloys, Convective Instabilities, and Nucleation. W. R. Wilcox,

R. A. Lefever, eds. 248 pp. Marcel Dekker, New York, 1977. \$29.50

Surface Characteristics of Fibers and Textiles, Part 2. M. J. Schick, ed. 669 pp. Marcel Dekker, New York, 1977. \$34.50

Crystal Form and Structure (Benchmark Papers in Geology, Vol. 34). C. J. Schneer, ed. Dowden, Hutchinson and Ross, Stroudsburg, Penna. (Distributor: Halsted, New York), 1977. \$32.00

Anisotropy Effects in Superconductors. H. W. Weber, ed. 316 pp. Plenum, New York, 1977. \$32.50

Physics of Semiconductors (Proc. of the 13th Int. Conf., Rome, August–September 1976). F. G. Fumi, ed. 1328 pp. North-Holland, Amsterdam, 1976. \$95.00

Characterization of Metal and Polymer Surfaces, Vols. 1 and 2. L.-H. Lee, ed. 517 and 465 pp., respectively. Academic, New York, 1977. \$26.50 and \$24.00, respectively

Astronomy, Cosmology and Space Physics

Pulsars. F. G. Smith. 239 pp. Cambridge U.P., New York, 1977. \$19.50

Theory and Mathematical Physics

Geometric Structure of Systems-Control Theory and Physics, Part B (Interdisciplinary Mathematics, Vol. 11). R. Hermann. 484 pp. Math Sci, Brookline, Mass., 1976. \$35.00

The Geometry of Non-Linear Differential Equations, Bäcklund Transformations, and Solitons, Part A (Interdisciplinary Mathematics, Vol. 12). R. Hermann. 313 pp. Math Sci, Brookline, Mass., 1976. \$24.00

Vector Fields: Vector Analysis Developed through its Applications to Engineering and Physics. J. A. Shercliff. 329 pp. Cambridge U.P., New York, 1977. \$28.50 cloth-bound, \$7.95 paperbound

Interactive Data Analysis: A Practical Primer. D. R. McNeil. 186 pp. Wiley-Interscience, New York, 1977. \$9.95

Three-Dimensional Nets and Polyhedra. A. F. Wells. 268 pp. Wiley-Interscience, New York, 1977. \$29.95

Qualitative Methods in Quantum Theory. A. B. Migdal. 437 pp. W. A. Benjamin (Advanced Book Program, Reading, Mass., 1977. \$21.50

Introduction to the Strong Interactions. N. W. Dean. 377 pp. Gordon and Breach, New York, 1976. \$34.50

Decomposition of Superpositions of Density Functions and Discrete Distributions. P. Medgyessy. 308 pp. Halsted, New York, 1977. \$27.50

A First Course in Rational Continuum Mechanics: Vol. 1, General Concepts. C. Truesdell. 280 pp. Academic, New York, 1977. \$23.00

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Laser Applications in Medicine and Biology, Vol. 3. M. L. Wolbarsht. 348 pp. Plenum, New York, 1977. \$27.50

Laboratory Systems and Spectroscopy (Computers In Chemistry and Instrumentation, Vol. 5). J. S. Mattson, H. B. Mark Jr, H. C. MacDonald Jr, eds. 286 pp. Marcel Dekker, New York, 1977. \$32.50

Spectrometric Techniques, Vol. 1. G. A. Vanasse, ed. 355 pp. Academic, New York, 1977. \$29.50

Heat, Thermodynamics and Statistical Physics

Statistics and Experimental Design in Engineering and the Physical Sciences, Vol. 2, 2nd edition. N. L. Johnson, F. C.

Leone. 489 pp. Wiley, New York, 1977. \$24.95

Advances in Heat Transfer, Vol. 13. J. P. Hartnett, T. F. Irvine Jr. 280 pp. Academic, New York, 1977. \$30.00

Statistical Mechanics, Part A: Equilibrium Techniques (Modern Theoretical Chemistry, Vol. 5). B. J. Berne, ed. 242 pp. Plenum, New York, 1977. \$39.50

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Environmental Health: Quantitative Methods (Proc. of a Conf. held at Alta, Utah, July 1976). A. Whittemore, ed. 259 pp. SIAM, Philadelphia, 1977. \$19.50 □

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