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Subject Areas

• SURFACE SCIENCE

Chemisorption; Atom, Molecule and Ion Interactions with Surfaces; etc.

• THIN FILMS

Various Fabrication Techniques; Chemical Vapor Growth; Ion Implantation; Sputtering; Liquid Phase Epitaxy; etc.

• VACUUM METALLURGY

Physical Vapor Deposition Processes for Thick Films of Metals & Compounds; New Developments in Plasma Melting of Metals & Alloys; etc.

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The final section of the book is devoted to special topics. These chapters are entitled "The molecular partition function in terms of local bond properties," "The transition-state theory of chemical kinetics" and "The liquid state." Each of these chapters gives a rather detailed discussion of problems that all seem to come under the general heading of advanced topics in chemical physics.

In conclusion let me note that this book includes many interesting examples that are worked out in full detail. Because the strength of the book lies in these examples, it could be useful as a supplementary text in a course in statistical mechanics that emphasizes chemical-physics problems.

GENE F. MAZENKO
*Harvard and MIT
Cambridge, Mass.*

Complex Permittivity: Theory and Measurement (B. K. P. Scaife, ed.)

We have learned that this book, reviewed in March, page 79, is published in the US by Crane, Russak. The US price is \$12.00.

new books

Elementary Particles

Optical Concepts in High-Energy Physics. K. Gottfried. 27 pp. CERN, Geneva, 1972.

Proceedings of the 1972 CERN School of Physics (Conf. Proc. 1972 CERN School of Physics. Grado, Italy, 15-31 May 1972). 597 pp. CERN, Geneva, 1972.

Nuclei, Nuclear Physics

Annual Review of Nuclear Science, Volume 22. Emilio Segre, ed. 506 pp. Annual Reviews, Palo Alto, Cal., 1972. \$10.00.

Nuclear Physics: An Introduction (2nd Ed.) W. E. Burcham, 686 pp. Longman, London, 1973. £6.50.

The Two Body Force in Nuclei. (Conf. Proc. 7-10 Sept. 1971, Gull Lake, Mich.) S. M. Austin, G. M. Crawley, eds. Plenum, New York, 1972. \$25.00.

Chemical Physics

Emission, Absorption and Transfer of Radiation in Heated Atmospheres. Baxter H. Armstrong, Ralph W. Nicholls. 295 pp. Pergamon, Elmsford, N.Y. \$21.00.

Fluids and Plasmas

Annual Review of Fluid Mechanics, Volume 5. M. Van Dyke, W. G. Vincenti, eds. 443 pp. Annual Reviews, Palo Alto, Cal. 1973. \$10.00.

Fifth European Conference on Controlled Fusion and Plasma Physics (Conf. Proc. 21-25 August 1972, Grenoble, France) 250 pp. Association EURATOM-CEA, Grenoble, France, 1972. 55 F.

Acoustics

Underwater Sound. Vernon M. Albers, ed. 469 pp. Dowden, Hutchinson & Ross, Stroudsburg, Pa., 1972.

Optics

Coherence of Light. Jan Peřina. 315 pp. Van Nostrand Reinhold, New York, 1972. \$19.95.

Quantum Electronics and Lasers

Laser Handbook, Volumes 1, 2. F. T. Arcechi, E. O. Schulz-Dubois, eds. 1027, 1948 pp. Elsevier, New York, 1973. \$175.00.

Electricity and Magnetism

Fundamental Electrostatics. S. W. Hockey. Barnes and Noble, New York, 1973. \$3.25.

Materials Science

Annual Review of Material Science. R. A. Huggins, ed. 780 pp. Annual Reviews, Palo Alto, Cal. 1972.

Diffraction of Elastic Waves and Dynamic Stress Concentration. Yih-Hsing Pao, Chao-Chow Mow. 694 pp. Crane Russak, New York, 1973. \$18.00.

Infrared and Raman Spectra of Crystals. George Turrell. 384 pp. Academic, New York, 1972. \$26.50

Irradiation Effects in Fissile Materials. J. Leteurtre and Y. Quere. 128 pp. Elsevier, New York, 1972. \$15.50

Les Textures Dans les Métaux de Réseau Cubique. Pierre Coulomb. 217 pp. Dunod, Paris, 1972. 78 F.

Materials Science. Arthur L. Ruoff. 928 pp. Prentice-Hall, Englewood Cliffs, N. J. 1973.

Polarons in Ionic Crystals and Polar Semiconductors (Conf. Proc., Antwerp Advanced Study Institute, 13-28 Aug., 1971). Jozef. T. Devresse, ed. 807 pp. Elsevier, New York, 1972. \$48.50.

Reactivity of Solids (Conf. Proc. Seventh International Symposium on the Reactivity of Solids, 17-21 July 1972, Bristol, UK) J. S. Anderson, M. W. Roberts and F. S. Stone, eds. 812 pp. Wiley, New York, 1973. \$35.00.

Thermoelectricity in Metals and Alloys. R. D. Barnard. 259 pp. Halsted, New York, 1973. \$21.00.

Thick Film Circuits. G. V. Planer, L. S. Phillips. 152 pp. Crane Russak, New York, 1973. \$14.50.

Semiconductor Opto-Electronics. T. S. Moss, G. J. Burrell and B. Ellis. 441 pp. Halsted. New York, 1973.

Vapour Growth and Epitaxy (Conf. Proc. Second International Conference on Vapour Growth and Epitaxy, 21-25 May 1972, Jerusalem, Israel) G. W. Cullen *et al.*, eds. 382 pp. North-Holland, Amsterdam, 1972. \$40.75.

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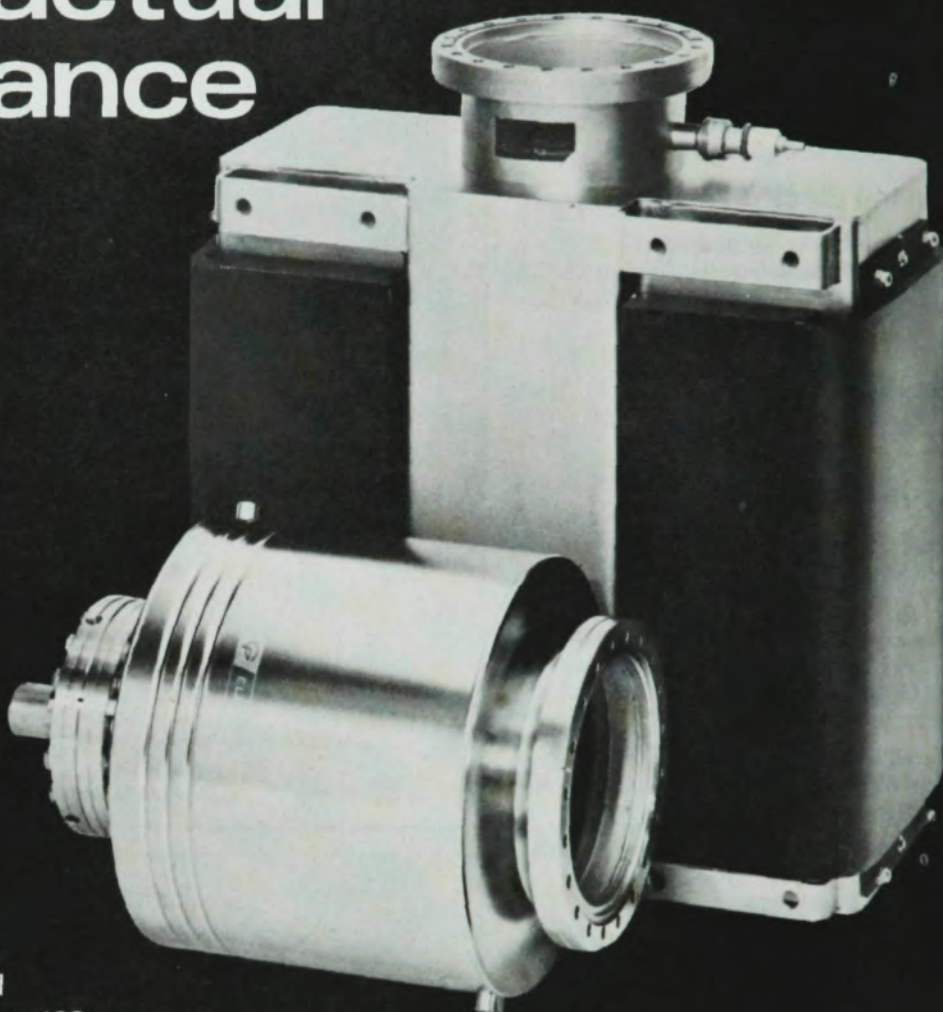
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304 pp. Academic, New York, 1973.
\$15.00.

Astronomy, Space Physics

Astronomy Data Book. J. Hedley Robinson, 271 pp. Halsted, New York, 1973.
\$10.95.

New and Full Moons 1001 BC to AD 1651.
Herman H. Goldstine. 221 pp. American
Philosophical Society, Philadelphia, 1973.
\$5.00.

On the Origin of the Solar System (Conf.
Proc. 3-7 April 1972, Nice, France) Hubert
Reeves, ed. 400 pp. Edition du CNRS,
Paris, 1972.

**Physics and Chemistry in Space, Volume
5: Coronal Expansion and Solar Wind.**
A. J. Mundhausen. 238 pp. Springer,
New York, 1972.

The Solar System. Zdeněk Kopal. 152
pp. Oxford U.P., New York, 1973. \$6.00.

Geophysics

Magnetosphere-Ionosphere Interactions.
(Conf. Proc. Advanced Study Institute
14-23 April 1971, Dalseter, Norway) Kristen
Folkestad, ed. Universitetsforlaget, Oslo,
1972. \$28.00.

Theory and Mathematical Physics

Are Quanta Real? J. M. Jauch. 106 pp.
Indiana U.P., Bloomington, Ind., 1973.
\$6.95.

Mechanik Relativitat Gravitation. G.
Falk, W. Ruppel. Springer, New York,
1973. \$12.00.

**Methodological Foundations of Relativistic
Mechanics.** Marshall Spector. 174 pp.
U of Notre Dame Press, Notre Dame, Ind.,
1973. \$10.95.

**Partial Wave Amplitudes and Resonance
Poles.** By J. Hamilton and B. Tromborg.
144 pp. Oxford U.P., Oxford, 1972. \$24.00

Perturbation Methods in Non-Linear Systems.
G. E. O. Giacaglia. 369 pp.
Springer, New York, 1972.

Relativistic Quantum Mechanics. L. J.
R. Aitchison. 260 pp. Branes and Noble,
New York, 1973. \$18.50.

**Stabilité Structurale et Morphogenèse:
Essai d'une Théorie Générale des Modèles.**
René Thom. 362 pp. Addison-Wesley,
Reading, Mass., 1972. \$28.00

**Theoretical Physics: An Advanced Text,
Volume 3, Quantum Mechanics.** B. G.
Levich, Yu. A. Vdovin and V. A. Myamlin.
621 pp. Halsted, New York, 1973. \$28.75.

Variational Analysis. Marston Morse.
260 pp. Wiley, New York, 1973. \$17.50.

Instrumentation and Techniques

Computer Glossary for Engineers and Scientists.
Wen M. Chow, C. J. Sippl. 245
pp. Funk and Wagnalls, New York, 1973.
\$6.95.

The Impact of Computers on Physics
(Conf. Proc. First European Conference on
Computational Physics of the EPS, 10-14
April 1972, CERN), Elsevier, New York,
1973. \$25.00.

Oxford



Symmetry Principles in Particle Physics

By J. McL. EMMERSON. This is a concise account of the symmetry principles and conservation laws which form a large part of the basis of particle physics. Symmetry ideas are presented as a foundation for detailed experimental data, unit of symmetry theory is stressed, and a unified formalism is used. 8 figures. (*Oxford Studies in Nuclear Physics*) \$18.75

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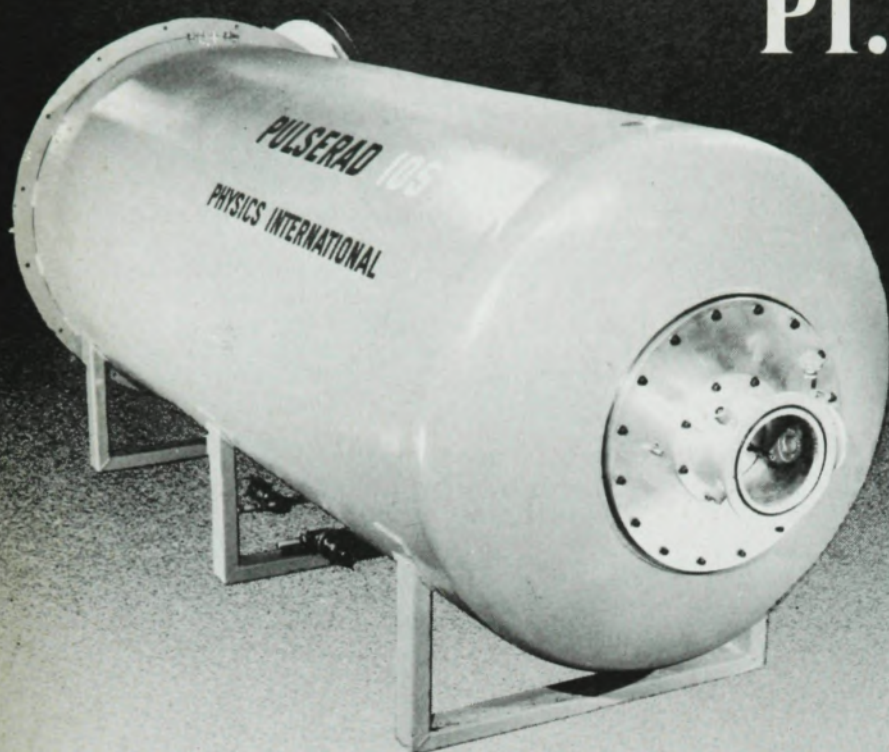
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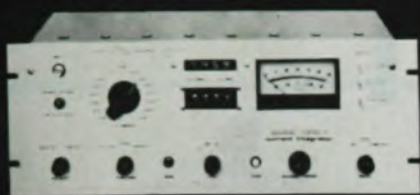
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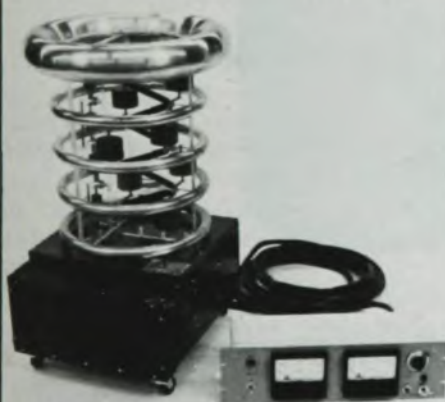
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An Introduction to Radiation Protection. Alan Martin, Samuel A. Harbison. 216 pp. Halsted, New York, 1972. \$7.75.

Light Sources. W. E. Elenbaas. 240 pp. Crane, Russak, New York, 1973. \$20.00.

The Optical Microscope Manual. Brian J. Ford. 205 pp. Crane, Russak, New York, 1973. \$7.75.

Photo-Electronic Image Devices (Conf. Proc., 5th Symposium on Photo-Electronic Image Devices, 13-17 Sept., 1971, Imperial College, London). J. D. Mcbee, D. McMullon, E. Kahan, eds. 578 pp. Academic, New York, 1972. \$35.00.

Probabilités et Statistique en Recherche Scientifique. Alex Rosengard. 311 pp. Dunod, Paris, 1972, 55 F.

Proceedings of the 1972 CERN Computing and Data Processing School (Conf. Proc. 10-24 September 1972, Pertisau, Austria) CERN, Geneva, 1972.

Radioisotope Laboratory Techniques (Third Edition) R. A. Faires, B. H. Parks. 312 pp. Halsted, New York, 1973. \$11.50.

Collisions, Coalescence and Crystals. A. Ralph Morgan. 58 pp. Barnes and Noble, New York, 1973. \$2.75.

Student Texts

Forces and Particles: An Outline of the Principles of Classical Physics. A. B. Pippard. 321 pp. Halsted, New York, 1972. \$14.00.

Physics: Concepts and Models. E. J. Wenham, G. W. Darling, J. A. N. Snell and B. Taylor. 544 pp. Addison-Wesley, Reading, Mass., 1972.

History and Philosophy

Biographical Memoirs of the Fellows of the Royal Society, Volume 18. 699 pp. The Royal Society, London, 1972. \$22.40.

Heirarchy Theory. Howard H. Pattee, ed. 156 pp. George Braziller, New York, 1973. \$6.95.

The Night Country. Loren Eiseley. 236 pp. Scribners, New York, 1973. \$2.95.

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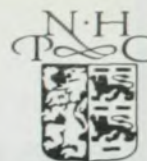
From Shore to Ocean Floor. Seymour Simon. 86 pp. Franklin Watts, New York, 1973. \$4.95.

How Did We Find Out About Electricity. Isaac Asimov. 64 pp. Walker, New York, 1973. \$4.50.

L'Energie Nucléaire. Jules Gueron. 126 pp. Presses Universitaires de France, Paris, 1973.

Miscellaneous

Physical Constants, (Ninth (SI) Edition). W. H. J. Childs, 107 pp. Halsted, New York, 1973. \$6.95. □



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The Growth of Crystals from Liquids

By **J. C. Brice**, Mullard Research Laboratories, Redhill, Surrey, England

Selected Topics in Solid State Physics, Vol. 12
(E. P. Wohlfarth, Editor)

The book can be split roughly into four parts. The first is introductory, the second covers the theoretical aspects of the subject, the third part describes the practical aspects of growth from liquids and the final part is essentially a postscript which attempts to gather some of the ideas put forward in the previous chapters and to present them in a wider context.

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Ion Implantation

By **G. Dearnaley**, Nuclear Physics Division, **R. S. Nelson**, Metallurgy Division, **J. H. Freeman**, Chemistry Division, **J. H. Stephen**, Electrical and Applied Physics Division, A.E.R.E., Harwell, Didcot, Berkshire, England

Ion implantation is a new and rapidly growing technology which has become an important process in the manufacture of semiconductor devices. As well as reviewing the application of ion implantation to device technology, the book attempts to provide the reader with the basic physical knowledge necessary for a full understanding of the process, together with an appreciation of the equipment most suitable for both research and industrial applications.

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