

NEW BOOKS IN PHYSICS

***Aglintsev, K. K.** Дозиметрия ионизирующих излучений (Dosimetry of Ionizing Radiations) Second, revised edition. Moscow, Gostekhizdat, 1957, 503 pp., illustr., bibliography pp. 492-499, 7,000 copies, 18.50 rub.

Babakov, I. M. Теория колебаний (Theory of Oscillations). Textbook for higher technical institutions of learning. Moscow, Gostekhizdat, 1958, 628 pp., illustr. 15,000 copies, 11.90 rub.

Contents: Part I. Linear Systems with Finite Degrees of Freedom. Chapters: 1. Systems with One Degree of Freedom. 2. Equations of Small Oscillations of a System with Several Degrees of Freedom. 3. Integration of Equations of Small Oscillations. 4. Review of Operational Calculus. 5. Forced Oscillations of a System with a Finite Number of Degrees of Freedom. 6. Approximate Methods for Determining the Fundamental Frequency. 7. Approximate Methods of Determining the Higher Frequencies. 8. Resonance Phenomena in Machinery.

Part 2. Linear Systems with Infinite Number of Degrees of Freedom. Chapters: 9. General Properties of Small Oscillations of Elastic Rods. 10. Longitudinal and Torsional Oscillations of Straight Rods. 11. Transverse Oscillations of Straight Rods. 12. Approximate Methods of Calculation of Oscilla-

tions in Straight Rods of Variable Cross Section. 13. Transverse Oscillations of Plates.

Part 3. Stability of Motion and Nonlinear Oscillations. Chapters: 14. Introduction to the General Theory of Stability of Motion. 15. Stability in the First Approximation. 16. Simplest Nonlinear Systems. 17. Certain General Methods of Nonlinear Mechanics. Appendix: Tables, Author Index, Subject Index.

Beck, A. Thermionic Valves, Their Theory and Design. Translated from the English by K. N. Trofimov and I. E. Ovsievich, edited by L. A. Kotomina, Moscow, "Soviet Radio" Press, 1958. [Cambridge University Press, 1953.]

Blokhin, M. A. Физика рентгеновских лучей. (Physics of X-rays) Second edition, revised, Moscow, Gostekhizdat, 1957, 518 pp. illustr., bibliography at the end of the book by chapters (347 titles). 7,000 copies, 17.50 rub.

Bruining, H. Physics and Application of Secondary Electron Emission. Translated from the English by B. S. Kul' varskaya and G. V. Stepanov, edited by V. N. Favorin, Moscow, "Soviet Radio" Press, 1958, 8.05 rub. [McGraw-Hill, New York, 1954.]

Vainshtok, I. S. Ультразвук и его применение в машиностроении (Ultrasound and Its Application to Machine Building) Moscow, Mashgiz, 1958, 140 pp., illustr., one set of diagrams. Bibliography pp. 134-138 (109 titles). 8,000 copies, 4.65 rub.

*Books marked with an asterisk were placed on sale in 1958.

Chapter headings: 1. Physical Principles of Commercial Application of Ultrasound. 2. Methods of Generating Ultrasonic Oscillations. 3. Phenomena Arising in Substances under the Influence of Ultrasound. 4. Ultrasonic Apparatus. 5. Ultrasonic Mechanical Finishing. 6. Ultrasonic Soldering and Tinning. 7. Ultrasonic Cleaning of Parts. 8. Possible Applications of Ultrasonics in Metallurgy. 9. Protection of Boilers Against Scale Formation and Sonic Coagulation of Aerosols. 10. Ultrasonic Defectoscopy. 11. Ultrasound in Material Research. 12. Ultrasonic Measurements.

Ventsel', E. S. Теория вероятностей (Theory of Probability) Moscow, State Publishing House for Physical and Mathematical Literature, 1958, 464 pp, diagrams, one sheet of tables. 15,000 copies, 9.55 rub. in case.

Chapter headings: 1. Introduction. 2. Fundamental Concepts of the Theory of Probability. 3. Principal Theorems of the Theory of Probability. 4. Repetition of Experiments. 5. Random Quantities and their Distribution. 6. Normal Distribution Law. 7. Determination of the Distribution Law of Random Quantities on the Basis of Experimental Data. 8. Systems of Random Quantities. 9. Normal Law of Distribution for a System of Random Quantities. 10. Numerical Characteristics of Functions of Random Quantities. 11. Linearization of Functions. 12. Laws of Distribution of Functions of Random Arguments. 13. Limit Theorems in the Theory of Probability. 14. Processing of Experiments. 15. Fundamental Concepts of the Theory of Random Functions. 16. Canonical Expansions of Random Functions. 17. Stationary Random Functions. Appendix 1. Tables. 2. Grid of Normal Scattering Law. Subject index.

Вопросы электролюминесценции (Problems of Electroluminescence) (Translations of articles). Moscow-Leningrad, Gosenergoizdat, 1958, 32 pages with illustrations (Foreign Electronics). Bibliography at the end of each article. 7100 copies, 1.60 rub.

Voronchev, T. A. Импульсные тиратроны (Pulsed Thyratrons), Moscow, "Soviet Radio" Press, 1958, 164 pp, diagrams. Bibliography pp 161-162 (36 titles), 6.35 rub.

Chapter headings: 1. Internal Information on Pulsed Thyratrons. 2. Physical Phenomena in Pulsed Thyratrons During the Part of the Cycle Prior to Discharge. 3. Physical Phenomena in Pulsed Thyratrons During the Conducting Portion of the Cycle. 4. Physical Phenomena in Pulsed Thyratrons in the Post-Discharge Portion of the

Cycle. 5. Analysis of the Circuits of a Linear Modulator with DC Supply. 6. Technological and Structural Features of Pulsed Thyratrons.

*Всесоюзное совещание по спектроскопии (Tenth All-Union Conference on Spectroscopy) L'vov, 1956. Transactions (editorial board headed by G. S. Landsberg) L'vov University Press, 1957 (Ministry of Higher Education, Ukrainian S.S.R., the I. Franko L'vov State University, Physics collection...). Vol. 1. Molecular Spectroscopy, 409 pp. illustr. 17 inserted illustrations [No. 3(8)]. Bibliography at the end of each article, 4,000 copies, 33 rub.

*Дозиметрическая, радиометрическая и электронно-физическая аппаратура (Dosimetric, Radiometric, and Electron-Physical Apparatus) (Editor in chief, I. G. Kokin), Moscow, Atomizdat, 1957, 99 pp. illustr. (Ministry of Radiotechnical Industry, U.S.S.R., Scientific Research Institute, Information Collection No. 1). 2,000 copies, no price.

Contents: 1. Electron-Physical Instruments for Nuclear Research. 2. Sanitary-Dosimetric Instruments. 3. Instruments for Geological Prospecting. 4. Other Instruments.

Zaborenko, K. B. Радиоактивность (Radioactivity). Edited by Distinguished Scientist Professor V. I. Baranov. Second, revised edition. Moscow, Gostekhizdat, 1958, 80 pp. illustr. (Scientific Popular Library, No. 54). List of publications in the series "Scientific Popular Library, 1945-1957" on pp 78-80. 75,000 copies, 1.20 rub.

Shielding of Nuclear Reactors. Translated from the English and edited by S. G. Tsy-pin, Moscow, Foreign Literature Publishing House, 1958, 344 pp. illustr. two sheets of graphs (Reports of the Atomic Energy Commission, U.S.A.). Bibliography at the end of each chapter. 26.40 rub.

Van der Ziel, A. Noise in Radio Engineering and Physics. Translated from the English, edited by L. S. Gutkin. Moscow-Leningrad, Gosenergoizdat, 1958.

Исследования по люминесценции (Research on Luminescence) Collection of articles, editorial board headed by F. D. Klement. Tartu, 1958, 362 pp., graphs (Academy of Sciences, Estonian S.S.R. Transactions of the Institute of Physics and Astronomy, No. 7). Summary of articles in English, bibliography at the end of each article. 800 copies.

***Kaufman, M. S., and Yankin, G. M.**

Электронные приборы (Electron Tubes). Edited by Professor R. A. Nilender. Part 2, Moscow-Leningrad, Gosenergoizdat, 1957, 320 pp. illustr. 15,000 copies, 7.40 rub.

Chapter headings: 10. Receiving and Amplifying Tubes. 11. Oscillator Tubes. 12. Electron Tubes for Microwaves. 13. Klystrons, Magnetrons, and Traveling and Backward Wave Tubes. 14. Photo-electronic Tubes. 15. Cathode-Ray and Electron-Optical Tubes. 16. X-ray Tubes. 17. Semiconductor Rectifiers and Amplifiers. Dischargeless Devices.

Kitaigorodskii, A. I. Теория структурного анализа (Theory of Structural Analysis), Moscow, U.S.S.R. Acad. Sci. Press, 1957, 284 pp., diagrams. 5,000 copies, 10.65 rub.

Chapter headings: 1. Mathematical Introduction. 2. Fundamentals of the Theory. 3. Structural Amplitudes and Products as Random Quantities. 4. Theory of Connection of Structural Amplitudes. 5. Investigation of Contraction of Electron Density. 6. Methods Correlating the Measured and Calculated Structural Amplitudes. Conclusions.

Komarovskii, A. N. Защитные оболочки ядерных реакторов (Protective Shields for Nuclear Reactors) Moscow, Atomizdat, 1958, 67 pp. illustr., bibliography pp 66-67 (49 titles). 5,650 copies, 2.70 rub.

Kothari, Homi-Bhabha, and Khanlokar, Nuclear Explosions. Translated from the English by N. F. Kravtsova, edited by N. P. Dushnov, Moscow, Foreign Literature Press, 1958.

Short German-Russian Dictionary on Nuclear Physics and Nuclear Engineering. Compiled by Yu. M. Kaplanskaya, A. M. Lidvanskii, and N. F. Manushin, edited by Doctor of Technical Sciences D. I. Voskoboinik. Moscow, Gostekhizdat, 1958, 303 pp., 20,000 copies, 8.90 rub. (Compiled from materials of the Institute of Scientific Information of the Academy of Sciences, U.S.S.R.).

Krize, S. N. Усилительные устройства (Amplifier Circuits) Textbook for Communication High Schools. Moscow, Svyaz'izdat, 1958, 315 pp. illustr. Bibliography p.304 (16 titles). 50,000 copies, 7.40 rub.

Contents: Part 1. General Information on Amplifier Circuits. 2. Power Amplifiers. 3. Voltage Amplifiers.

Krichevskii, E. S., Fedorovich, L. G., and Fetisov, V. F. Электрооборудование оптико-механических приборов (Electric Equipment for

Optical-Mechanical Instruments) Textbook for Technical High Schools. Moscow, Oborongiz, 1958, 468 pp. illustr. seven sheets of diagrams. Bibliography pp. 460-464. 8,000 copies, 12.20 rub.

Chapter headings: 1. Electrotechnical Materials Used for the Manufacture of Parts and Components of Electric Equipment for Instruments. 2. Electric and Electronic Parts Used in Electric Equipment for Instruments. 3. Electric Motors and Sources of Supply Used in Electric Equipment for Instruments. 4. Electron Tubes and Amplifier Circuits. 5. Current and Voltage Stabilizers. 6. Radiation Sources and Receivers. 7. Electric Heating in Optical-Mechanical Instruments. 8. Principles of Electron Optics and its Technical Application. 9. Electric Diagrams of Instruments.

Krugman, L. M. Transistors and Their Applications. Translated from the English by M. A. Barg. Moscow-Leningrad, Gosenergoizdat, 1957. [N.Y., Rider, 1955].

Kuznetsov, B. G. Принципы классической физики (Principles of Classical Physics) Moscow, U.S.S.R. Acad. Sci. Press 1958, 323 pp. (Academy of Sciences, U.S.S.R., Institute of History of Natural Sciences and Technology). Bibliography and footnotes. 7,000 copies, 13.20 rub.

Contents: 1. Introduction. 2. The Principle of Relativity. 3. The Principle of Least Action. 4. The Principle of Conservation of Energy. 5. The Principle of Irreversibility. 6. The Principle of Near Action.

Lazarev, P. P. Сочинения (Written Works) (Editorial commission headed by S. I. Vavilov. Introductory article by V. V. Shuleykin. Biographical outline by B. V. Deryagin and M. P. Volarovich). Vol. 1, Moscow-Leningrad, Published U.S.S.R. Acad. of Sci. Press 1957.

Vol. 1. (Works on biophysics. Research in adaptation. Outline of the history of Russian science. Edited and introductory article by B. V. Deryagin). 895 pages with illustrations, nine sheets of illustrations. "Bibliography of the works of P. P. Lazarev, pp. 855-891; "Annotation of the Works Not Contained in the Present Publication" pp 823-853, compiled by M. P. Volarovich, V. V. Efimov, B. V. Deryagin, and S. S. Kovner. Bibliography, pp. 39-40 (25 titles), 35,000 copies, 42.90 rub.

Landsberg, Grigori Samuilovich, Избранные труды (Collected Works) Edited by Doctor of Physical-Mathematical Sciences I. L. Fabelinskii (Introductory article by S. L. Mandel'shtam and I. L. Fabelinskii, pp. 5-40). Moscow, U.S.S.R. Acad. Sci. Press 1958, 476 pp. illustr., one por-

trait. 4,000 copies, 27.45 rub. Bibliography of the works by G. S. Landsberg and relevant literature, pp. 464-474, compiled by T. O. Vredenkobetskoi. Bibliography at the end of each chapter.

Contents: 1. Molecular Scattering of Light. 2. Raman Scattering of Light. 3. Applied Spectroscopy (Atomic and Molecular). 4. Various Papers. 5. Survey Papers and Unpublished Manuscripts.

***Landsberg, G. S.**, *Оптика (Optics)*, Textbook for State Universities. Fourth revised edition. Moscow, Gostekhizdat, 1957, 759 pp. illustr. (Physics General Course, Vol. 3), 50,000 copies, 15.65 rub.

L'vov, V. E., *Жизнь Альберта Эйнштейна (Life of Albert Einstein) 1879-1955*. Moscow, Molodaya Gvardiya (Young Guard) 1958, 320 pp. illustr. seven sheets of illustrations (Lives of Outstanding Persons). Bibliography pp. 316-319. 15,000 copies, 6.55 rub.

***Lyubarskii, G. Ya.**, *Теория групп и ее применение в физике (Group Theory and Its Application in Physics)* Moscow, Gostekhizdat, 1959, 354 pp. 6,000 copies, 13.20 rub.

Chapter headings: 1. Elements of Group Theory. 2. Certain Specific Groups. 3. Theory of Representation of Groups. 4. Operations with Commutation of Groups. 5. Commutation of Certain Groups. 6. Small Oscillations of Symmetric Systems. 7. Second-Order Phase Transitions. 8. Crystals. 9. Infinite Groups. 10. Representations of the Rotation Groups and of the Complete Orthogonal Group. 11. The Clebsch-Gordan and Racah Coefficients. 12. The Schrödinger Equation. 13. Equations Invariant with Respect to the Euclidian Group of Space Motions. 14. Absorption and Raman Scattering of Light. 15. Representations of the Lorentz Group. 16. Relativistically Invariant Equations. 17. Nuclear Reactions.

Appendices: Bibliography at the end of each chapter, subject index.

Migulin, V. V., *Лекции по основам радиолокации (Lectures on the Principles of Radar)* Moscow, Moscow University Press, 1958, 123 pp., diagrams, 26,000 copies, 3.10 rub.

Contents: Foreword. Introduction. Chapters: 1. General Principles of Operation of Radar Systems. 2. Basic Energy Relations. 3. Influence of Radio-Wave Propagation Conditions. 4. Operation of Antennas in Transmission and Reception. 5. Reflection and Scattering. 6. Noise in Receivers and Maximum Sensitivity of Receivers. 7. Principle Methods of Determining the Direction of the Reflecting Object (Direction Finding). 8. Radar

Measurements of Range Using Frequency Modulation. 9. Measurements of Range Using Pulse Modulation and the Operating Features of Pulse Systems. 10. General Characteristics of Radar Systems. 11. Selection of Moving Targets.

International Conference on Peaceful Use of Atomic Energy, Geneva, 1955. Transactions of the International Conference on Peaceful Use of Atomic Energy, held in Geneva 8 to 20 August 1955 (United Nations). Vol. 5. Physics of Reactors. 1958. Moscow, U.S.S.R. Acad. Sci. Press, 1958.

Bethe-Hoffman. *Mesons and Fields* (in two volumes). Translation from the English edited by Academician I. E. Tamm, Vols. 1-2, Moscow, Foreign Literature Press, 1957.

Massey, G. and Barhop, E., *Electron and Ion Collisions*. Translation from the English edited by S. M. Osovets. Moscow, Foreign Literature Publishing House, 1958. The book contains also "Theory of Scattering of Slow Electrons" by G. Massey.

Mitsusima, Santiro, *Structure of Molecules and Internal Rotation*. Translation from the English by V. M. Gryaznov and V. D. Yagodovskiy. Edited by Professor V. M. Tatevskiy. Moscow, Foreign Literature Publishing House, 1957.

Danger to Humans from Ionizing Radiation. Translated from the English by A. E. Kal'manson. Foreword to the Russian edition by Professor F. G. Krotkov. Foreign Literature Publishing House, 1958.

The book is intended for doctors, biologists, physicists, engineering-technical workers, and all persons dealing with sources of ionizing radiation.

***Orestov, I. L.**, *Холодный свет (Люминесценция) [Cold Light (Luminescence)]*. Second edition, Moscow, Gostekhizdat, 1957, 40 pages with illustrations (Scientific-Popular Library, No. 82) 50,000 copies, price 0.60 rubles.

*Fundamental Formulas of Physics. Edited by D. Menzel. Translated from the English under the editorship of I. S. Shapiro. Moscow, Foreign Literature Press, 1957. [Prentice Hall, 1955.]

Fundamentals of Transistor Electronics. Translated from the English under the editorship of E. I. Gal'perin. Moscow, "Soviet Radio" Press, 1958. [No reference to author or editor of original].

Petrov, I. N., *Полупроводниковые приборы (Transistor Devices)*. Moscow, Voenizdat, 1957, 128 pp., bibliography. 2.25 rubles.

Introduction. 1. Fundamental Properties of

Semiconductors. 2. Types and Constructions of Semiconductor Devices. (The purpose of this brochure is to explain the operating principle and the construction of several semiconductor devices, and describe the physical processes that occur in semiconductors).

Petrov, P. A., Ядерные энергетические установки (Nuclear Power Installations). Moscow-Leningrad, Gosenergoizdat, 1958, 526 pp. illustr. Bibliography at the end of each chapter. 15,000 copies, 10.75 rubles.

Chapter headings: 1. Basic Concepts of Nuclear Physics. 2. Nuclear Reactions. 3. Physics of Nuclear Reactors. 4. Operation of Nuclear Reactors. 5. Shielding Against Radiation. 6. Removal of Heat From Nuclear Reactors. 7. Materials of the Active Zone of the Reactor. 8. Construction and Arrangements of Nuclear Power Installations. 9. Use of Nuclear Reactors for the Generation of Electricity. Appendices: 1. Calculation of a Nuclear Power Reactor. 2. Effective Absorption Cross Sections for Thermal Neutrons. 3. Nomogram for Determination of Quantities. 4. Prices of Nuclear Materials in the U.S.A.

Получение изотопов. Мощные гамма-установки. Радиометрия и дозиметрия. (Production of Isotopes. High Power Gamma Ray Installations. Radiometry and Dosimetry). Collection of Articles. Editorial staff: Yu. S. Frolov (Editor in chief) and others. Moscow, U.S.S.R. Acad. Sci. Press, 1958, 294 pp., illustr. (Academy of Sciences, U.S.S.R., Main Administration for the Use of Atomic Energy at the Council of Ministers U.S.S.R. Transactions of the All-Union Scientific-Technical Conference on the Use of Radioactive and Stable Isotopes and Radiations in the National Economy and in Science, 4-12 April, 1957).

The binding has the following heading: All-Union Conference on Use of Isotopes and Nuclear Radiation. Bibliography at the end of each chapter, 5,000 copies, 17.35 rub.

***Pohl, R. W.** Mechanics, Acoustics and the Theory of Heat. Translation from the 13th German edition by K. A. Leont'ev and V. M. Yuzhakov, rev. and suppl. Edited by N.P. Suvorov. Moscow, Gostekhizdat, 1957. [Springer, 1955].

Wright, D. Semiconductors. Translated from the English by B. Ya. Moizhes, edited by S. S. Shalyt. Moscow, Foreign Literature Press, 1957. [Methuen, London, 1955.]

***Russell, Bertrand.** Human Knowledge, Its Scope and Limits. Translated by N. V. Vorob'yev. Editor and author of introductory article, E. Kol'man. Moscow, Foreign Literature Press, 1957.

Rizkin, A. A. Основы теории усилительных схем (Fundamentals of the Theory of Amplifier Circuits). Third edition, revised and supplemented. Moscow, "Soviet Radio" Press, 1958, 527 pp. illustr. 18.80 rub.

Chapter headings: 1. General Methods of Analysis of Amplifier Circuits. 2. Selective Amplifiers. 3. Voltage Amplifiers for Audio Frequencies. 4. Feedback Amplifiers. 5. Certain Feedback-Amplifier Circuits. 6. Broadband Amplifiers. 7. Pulse Amplifiers. 8. Audio Power Amplifiers. 9. Transistor Amplifiers. 10. Special Types of Amplifiers.

Sutton, O. G. Micrometeorology. Investigation of Physical Process in the Lower Layers of the Atmosphere. Translated from the English under the editorship of D. L. Laykhtman. Leningrad, Gidrometeoizdat, 1958.

Slyusarev, G. G. О возможном и невозможном в оптике (The Possible and Impossible in Optics). Second edition, revised. Moscow, Gostekhizdat, 1957, 178 pp. illustr. 12,000 copies, 2.90 rub.

Spitzer, L. Physics of Fully Ionized Gases. Translated from the English under the editorship of R. A. Demirkhanov. Moscow Foreign Literature Press, 1957.

*Telemetering and Remote Control. Transactions of the National Conference on Telemetering held in Chicago 1954. Collection of articles, translated from the English under the editorship of S. V. Alekseev and A. V. Lebedev. Foreign Literature Press, 1957.

Философские вопросы современной физики (Philosophical Problems of Modern Physics) Collection of articles and translations. Edited by I. V. Kuznetsov and M. E. Omel'yanovskii. Moscow, Gospolitizdat, 1958, 248 pp. 15,000 copies, 7 rub.

Contents: M. E. Omel'yanovskii, Dialectical Materialism and Modern Physics. B. M. Kedrov, On the Classification of Sciences. V. A. Fock, Critics of Bohr's Views on Quantum Mechanics. Louis De Broglie (France), Interpretation of Wave Mechanics. V. S. Sorokin, Law of Conservation of Motion and Measure of Motion in Physics. Thomas A. Brody (Mexico) Formation and Region of Applicability of Scientific Concepts. N. V. Markov, Philosophical Significance of the Theoretical Inheritance of N. I. Lobachevskii. Wladyslaw Krajewski (Poland), The Struggle of Marjan Smoluchowski for Scientific Atomistics. E. Kol'man, What is Cybernetics?

Fogel'son, B. A. Волноводы (Waveguides). Moscow, Voenizdat, 1958, 125 pp. illustr. (Radar Engineering), 2 rub.

Contents: I. Waves and Wave Motion. 1. General Information. 2. Phase and Group Velocities of Waves. 3. Electromagnetic Waves. II. Guiding Properties of Metallic Plane. 2. Waves Between Parallel Planes. III. Hollow Waveguides. 1. Rectangular Waveguides. 2. Round Waveguides. IV. Elements of Waveguide Systems. 1. Stationary Junctions. 2. Movable Junctions. 3. Matching Elements. 4. Branches. V. Connection Between Waveguide Systems and HF Sources and Receivers. Appendix.

Frenkel', Ya. I. Введение в теорию металлов (Introduction to the Theory of Metals) edited by S. V. Vonsovskii. Third edition, Moscow, State Publishing House for Physical-Mathematical Literature, 1958. 368 pp., illustr. ("Physical-Mathematical Engineering Library") Bibliography at the end of each chapter, 8,500 copies, 11.60 rub.

Frish, E. S. and Timoreva, A. V. Курс общей физики (Textbook of General Physics) Text for universities. Moscow, State Publishing House for Physical-Mathematical Literature, 1958, Vol. 1. Physical Fundamentals of Mechanics. Molecular Physics. Vibrations and Waves. Ninth Stereotyped Edition, 1958, 463 pp., illustr. 100,000 copies, 10.60 rub.

Kharkevich, A. A. Спектры и анализ (Spectra and Analysis). Third revised edition, Moscow, Gostekhizdat, 1957, 236 pp. Bibliography, 32 titles. 10,000 copies, 6.80 rub.

Contents: 1. Spectra. 2. Analysis. 3. Spectra of Random Processes. Appendices (Many additions and corrections have been made in the third edition).

Sharonov, V. V. Природа планет (The Nature of the Planets). Moscow, State Publishing House for Physical-Mathematical Literature. 1958, 552 pp., illustr. and maps. Bibliography at the end of each chapter. 30,000 copies, 19.05 rub.

Chapter headings: 1. Introduction. 2. Telescopic Investigation of the Surface of Planets and Satellites. 3. Geometrical and Mechanical Characteristics of the Solar System. 4. Topography and Cartography. 5. Topographic Description of Individual Members of the Solar System. 6. Integral Photometer.

7. Photometry of the Planet Disks. 8. Optics of Planetary Atmospheres. 9. Physical Conditions on the Planets and Satellites. Alphabetical Index.

Schulz, M. A. Control of Nuclear Power Reactors. Translated from the English by I. B. Vikhanskii and V. V. Korolev, edited by D. I. Voskoboinik. Moscow, Foreign Literature Publishing House, 1957. [McGraw-Hill].

Shuppe, G. N. Электронная эмиссия металлических кристаллов (Electron Emission of Metallic Crystals) Tashkent, Press of the Central-Asia University, 1957, 112 pp., illus. (Ministry of Higher Education, U.S.S.R., V. I. Lenin Central-Asia State University, Transactions, New series, No. 115, Physical-Mathematical Sciences, Book 17). Bibliography pp. 109-111 (141 titles). 500 copies, 5-rub.

Элементарный учебник физики (Elementary Textbook of Physics) edited by Academician G. S. Landsberg. Second edition, revised. Vols. 1-3, Moscow, State Publishing House of Physical-Mathematical Literature. 1958, Vol. 1. Mechanics. Heat. Molecular Physics, 1958, 523 pp., illustr. 50,000 copies (reprint), 12 rub. Vol. 2. Electricity and Magnetism. 1958, 448 pp. illustr. 50,000 copies (reprint), 9.95 rub.

Andrew, E. Nuclear Magnetic Resonance. Translation from English by N. M. Pomerantsev and E. N. Skubur. Edited by V. N. Lazukin. Moscow, 1957. [Cambridge, 1955].

Yakobi, B. S. Работы по электрохимии (Papers on Electrochemistry). Collection of articles and materials edited by A. N. Frumkin. Introductory article by editor and comments by M. I. Radovskii. Moscow-Leningrad. U.S.S.R. Acad. Sci. Press. 1957, 304 pp (Academy of Sciences, U.S.S.R. Institute of History of Natural Sciences and Technology). Bibliography in the notes on pp. 192-207. 3,000 copies, 13.15 rub.

Contents: A. N. Frumkin, B. S. Yakobi's Work in the Field of Electrochemistry. Texts in the appendices: I. G. Spasskii, The First Years of Galvanoplastics in Russia. Materials on the History of the Development and Introduction of Galvanoplastics.

— T. O. Vreden-Kobetskaya
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G. Hertz (Herausgegeben von). Lehrbuch der Kernphysik. Band I. Experimentelle Verfahren, pp 227. B. G. Teubner Verlagsgesellschaft, Leipzig, 1958.

The book reviewed is the first volume of an interestingly conceived collective* textbook of nuclear physics, which when completed will consist of three volumes. The second volume will be devoted to the physics of the nucleus, and the authors plan for it to play the central role. It is assumed that along with the development of the factual material, a proper place will also be allotted to theoretical problems. Finally, the third volume will be devoted to applied nuclear physics: reactors, isotope separation, radiochemistry, and the use of stable and radioactive isotopes. In the editor's foreword Professor G. Hertz states the purpose of the entire undertaking in the following manner. Modern nuclear technology is progressing rapidly, but the development of nuclear physics is far from complete. Under these conditions it becomes very important to train a large number of physicists as specialists in the field of nuclear physics. It is for physicists specializing in this field that this book is intended. The book can also be useful to engineers educated in other fields of engineering and who are retraining to become nuclear engineers. This textbook is thus intended for all these readers, and also for physicists who are working in other fields but who make use of the methods of nuclear physics for special purposes. The authors had in mind to write not an elementary introduction and not a collection of special monographs, but a serious textbook for a basic treatment of the subject. The task so formulated is exceedingly difficult. The editor, the outstanding physicist G. Hertz, who as the partner in the famous "Frank and Hertz experiment" is now known even to school boys interested in physics, has naturally understood it only too well and one must therefore agree with his most correct opinion, expressed in the foreword, that each part of such a textbook should be written by a specialist engaged in this problem or one who is developing the particular experimental procedure.

A specialist can readily, and with suitable emphasis, choose the most important fresh material and treat it didactically in the most suitable manner.

The content of the reviewed first volume is as follows. An introduction of 36 pages describes very

*The reviewed volume was compiled by Dr. F. Bernard, Prof. A. Eckard, Prof. W. Harman, Prof. G. Hertz, A. Loesche, Prof. I. Schintlmeister, and Prof. K. Weiss.

briefly the modern ideas concerning the atomic structure and the principles of quantum theory. The remainder of the book is divided into three parts. Part A (pp 37-103) is devoted to methods of experimental determination of the principal characteristics of the nucleus; charge, radius, mass, and momenta. The methods considered for the determination of the radius of the nucleus are those connected with the action of nuclear forces (α -decay periods, effective cross section for the scattering of α particles and fast neutrons, etc.), as well as those connected with the electrostatic interactions (β -decay energy, scattering of fast electrons, μ -mesic atoms). The theoretical problems are really not considered, and the formulas are given without derivations, with reference (in some cases) to the second volume. The next to be considered are methods of determining the atomic mass. In this part (pp 48-79) there is a very well grounded survey of modern corpuscular optics and mass spectrometry. Again, derivations are given here only for the simplest cases. To master this section completely the reader will probably have to resort to more extensive books and monographs devoted to corpuscular optics.

The last part of Part A is devoted to determination of the nuclear moments. All modern methods are considered: magnetic and quadrupole resonance, hyperfine structure of atomic spectra, molecular spectra, and atomic beams. The theoretical Sect. 11 is devoted to the interaction between the nucleus and electric and magnetic fields, a topic important to the understanding of the methods later described. The concept of electric and magnetic multipoles and of dipole and quadrupole interactions is introduced here. As is known, these are cumbersome problems, difficult to master. However, the treatment is so compact that it will probably be inaccessible to the average student.

Part B is devoted to methods of observation of nuclear particles. The usual methods of observation and detection of fast particles are considered: all types of counters, cloud chamber, and nuclear emulsions. Modern improvements of cloud chambers — diffusion and bubble chambers — are barely mentioned. Various electrometers used for the measurement of ionization current are described and the principles of radio electronics are expounded. The last paragraph of this part is devoted to the spectrometry of α and β particles.

Part C, the last, is devoted to elementary-particle accelerators. Compared with the preceding parts of the book, the exposition is more descriptive and therefore also more elementary.

The authors mention but few names in the book

and in general this is proper in a textbook. The Soviet reader will notice with satisfaction due credit to papers and names of Soviet physicists, with one very surprising exception. As is known, the principle of self-phasing, which plays a decisive role in the construction of modern resonant accelerator, was first formulated by the Soviet physicist V. I. Veksler and later, independently by the American physicist MacMillan. This situation, particularly the priority of V. I. Veksler, has long been acknowledged in the entire world, in the literature of almost all countries. Yet the compiler of the chapter on accelerators (Professor A. Eckardt), while readily mentioning authors of much less important papers, limits himself to an indirect reference to Veksler in connection with a fact that is rather special and of no principal significance (nor is, incidentally, MacMillan mentioned). The purpose of this clearly intentional silence on work that has influenced decisively the modern techniques of obtaining particles with super high energies is quite puzzling.

As a whole the book can be classified as a useful summary. The two bibliographies at the end of the book, a list of original papers and a list of scientific books and monographs, make it easier for the reader, who will undoubtedly have to resort to simultaneous reading of other books and articles.

— E. V. Shpol'skii

D. A. Wright. *Semiconductors*. Translated from the English by B. Ya. Moizhes, edited by S. S. Shalyt. Foreign Literature Press, 1957. [Methuen, 1955].

Modest in size (154 pages of small format), Wright's book contains a very readable exposition of many problems in semiconductor physics. The first two chapters contain an outline of the principal concepts of electron theory of metals and semiconductors (within the framework of the usual Sommerfeld and Bloch models, with warning concerning the difficulties of the band theory as applied to substances of the nickel-oxide type). The exposition is a successful one. The author gives a clear picture of the phenomena, without resorting thereby to the complex mathematical formalism of modern theoretical physics. Naturally, the principal formulas,

which must nevertheless be used, can be introduced in such a treatment only purely dogmatically; however, the availability of many good textbooks (to which reference is made) makes this quite permissible in a book of this type.

Next to be considered is the emission of electrons from the surface of a solid, the determination of the concentration of electrons on semiconductors, secondary emission, contact between a metal and a semiconductor, thermionic cathodes, and photocathodes. This list of chapters already shows that the book is written in a somewhat different plan than has become customary in recent times. The principal emphasis is on cathode electronics and allied problems, and here the author develops his argument in considerable detail (although, apparently, somewhat subjectively), sometimes perhaps even overloading it with details. At the same time problems of principal and technical importance to the physics of contact phenomena, as well as kinetic problems, are discussed at best sketchily; some important problems (such as recombination of carriers in a semiconductor) are not considered at all. Apparently this is due to the author's personal interests. To some extent such subjectivity of exposition is naturally unavoidable; nevertheless, in this case the emphasis on cathode electronics (for all its importance) must be considered excessive. This is more so regrettable, since the book demonstrates splendidly the author's ability to expound briefly and clearly even comparatively difficult topics. Were the material more uniformly distributed, Wright's work could serve as a beautiful introduction to modern semiconductor physics. However, even in its present form it can be useful to engineers interested in elements of this science. On the other hand, the "cathode" portion of the book, which illuminates an important and interesting region to which little attention has undeservedly been paid heretofore in our popular literature, will interest also specialists in solid state physics.

As a whole, Wright's book must be favorably reviewed and its translation into Russian is fully justified. No special complaints can be made concerning the quality of the translation.

— V. Bonch-Bruevich
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