

## NEW BOOKS ON PHYSICS

**A**NDREEV, P. A., Kanaev, A. A., and Fedorovich, E. D. *Жидкометаллические теплоносители ядерных реакторов (Liquid-metal Coolants for Nuclear Reactors)*. Edited by A. A. Kanaev, L., Sudpromgiz, 1959, 384 pp. illustr. Bibliography on pp. 374--382 (171 titles). 4000 copies, 14.35 rub.

Contents: From the Authors. Introduction. Section 1. Properties of Liquid Metals. Chapters: 1. Physical Properties. 2. Chemical Properties. 3. Hydraulics and Heat Exchange in Liquid Metals. 4. Corrosion Properties of Structural Materials in Liquid-metal Media. Section 2. Design and Operation of Liquid-metal Systems. 5. Design of Systems. 6. Equipment of Liquid-metal Systems. 7. Operation of Liquid-metal Systems. Section 3. Certain Soviet Research on Liquid-metal Coolants. Appendices. Literature.

Akhiezer, A. N. and Berestetskii, V. B. *Квантовая электродинамика (Quantum Electrodynamics)*. Second revised edition. M., Fizmatgiz, 1959, 656 pp. illustr. 10,000 copies, 26.40 rub.

Contents: Foreword to the Second Edition. From the Foreword to the First Edition. Chapter I. Quantum Mechanics of the Photon. 1. Photon Wave Function. 2. Photon Momentum Eigenstate. 3. Angular Momentum. Photon Spin. 4. Photon Momentum and Parity Eigenstates. 5. Scattering of a Photon by a System of Charges. 6. Photon Field Potentials. 7. Photon System. 8. L-vectors and Spherical Functions. Chapter II. Relativistic Quantum Mechanics of the Electron. 9. The Dirac Equation. 10. Electron and Positron States. Momentum and Polarization Eigenstates. 11. Electron Momentum and Parity Eigenstate. 12. The Electron in an External Field. 13. Motion of an Electron in the Field of the Nucleus. 14. Scattering of Electrons. 15. Nonrelativistic Approximation. Chapter III. Quantum Electromagnetic and Electron-positron Fields. 16. Quantization of the Electromagnetic Field. 17. Commutators of the Electromagnetic Field. 18. Quantization of the Electron-positron Field. 19. Anticommutators of the Electron-positron Field. Chronological and Normal Prod-

ucts of Field Components. Current Density. 20. General Properties of Wave Fields. 21. Quantization of Fields. Connection between Spin and Statistics. Chapter IV. Principal Equations of Quantum Electrodynamics. 22. Interacting Electromagnetic and Electron-positron Fields. 23. Equations of Quantum Electrodynamics in the Interaction Representation. Invariant Perturbation Theory. 24. Scattering Matrix. 25. Graphical Representation of the Elements of the Scattering Matrix. Scattering Matrix in Momentum Space. 26. Probabilities of Various Processes. Chapter V. Interaction of Electrons with Photons. 27. Emission and Absorption of a Photon. 28. Photon Scattering by a Free Electron. 29. Bremsstrahlung. 30. Emission of Long-wave Photons. 31. Photoeffect. 32. Formation of Electron-positron Pairs. 33. Transformation of Electron-positron Pairs into Photons. 34. Method of Equivalent Photons. 35. Photon Scattering by a Bound Electron. Emission of Two Photons. Chapter VI. Retarded Interaction between Two Charges. 36. Electron and Positron Scattering by an Electron. 37. Retarded Potentials. 38. Interaction Energy of Two Electrons Accurate to  $v^2/c^2$ . 39. Positronium. 40. Internal Conversion of Gamma Rays. 41. Conversion with Pair Production Nuclear Excitation by Electrons. 42. Coulomb (Monopole) Transitions. Chapter VII. Investigation of the Scattering Matrix. 43. Properties of Exact Solutions of Equations of Quantum Electrodynamics. Propagation Function. 44. Structure of the Scattering Matrix. 45. Renormalization of the Electron Charge. 46. Divergences in the Scattering Matrix and their Removal. 47. Calculation of Proper-energy and Vertex Parts. 48. Limits of Applicability of Quantum Electrodynamics. 49. Generalization of Green's Function. Chapter VIII. Radiative Correction to Electromagnetic Processes. 50. Effective Potential Energy of the Electron. Radiative Correction to the Magnetic Moment of the Electron and to the Coulomb Law. 51. Radiative Correction to the Scattering of the Electron. 52. Radiative Corrections to Photon Scattering by an Electron, Two-photon Pair Annihilation, and

Bremsstrahlung. 53. Radiative Correction to Atomic Levels. 54. Photon-photon Scattering and the Lagrangian of the Electromagnetic Field. 55. Photon Scattering in the Coulomb Field of the Nucleus. Chapter IX. Electrodynamics of Particles with Zero Spin. 56. Equations of the Field of Scalar Particles. 57. Scattering Matrix in Scalar Electrodynamics. 58. Scattering of Scalar Particles. 59. Scattering of Photon by a Scalar Particle. Photon Bremsstrahlung by a Scalar Particle. 60. Production and Annihilation of Pairs of Scalar Particles. 61. Vacuum Polarization of Scalar Particles. Concluding Remarks. Subject Index.

S. Bahavantam and T. Venkatarayudu. Theory of Groups and its Application to Physical Problems. Translated from the English by V. L. Gurevich. Edited by Academician N. N. Bogolyubov. M., Foreign Literature Press, 1959. (Published by Andhra University, Waltair, 1951).

Beta- and Gamma-ray Spectroscopy. Edited by K. Siegbahn. Translated from the English. Edited by L. V. Groshchev and V. B. Berestetskii. M., Fizmatgiz, 1959. (North Holland Publishing Company, Amsterdam, 1955).

Blokhin M. A. Методы рентгено-спектральных исследований (Methods of X ray Spectral Research). M., Fizmatgiz, 1959. 386 pp. illustr. Bibliography on pp. 371--382. 5000 copies, 15.00 rub.

Contents: Foreword. Introduction. Chapters: 1. Excitation of X-rays. 2. Auxiliary Apparatus. 3. Measurement of Intensities of X-rays. 4. Spectral Analysis of X-rays. 5. Processing the Experimental Results. 6. Qualitative Analysis. 7. Quantitative Analysis by Primary X-ray Spectra. 8. Quantitative Analysis by Secondary X-ray Spectra. 9. Absorption Analysis. Appendices I -- IV. Literature. Subject Index.

Bonch-Osmolovskaya N. A. Атомный фотоэффект в области  $\gamma$ -лучей (Atomic Photoeffect in the Gamma-ray Region). Edited by Corresp. Member U. S. S. R. Acad. Sci. B. S. Dzheleпов. M. -- L., U. S. S. R. Acad. Sci. Press, 1959. 50 pp. illustr. (Academy of Sciences, U. S. S. R., Library). Bibliograph (42 titles). 950 copies, 2.10 rub.

Contents: Introduction. 1. Photoeffect on the K Shell. 2. Photoeffect on the L and M Shells. 3. Angular Distribution of Photoelectrons. 4. Angular Distribution of the Photoelectrons Knocked Out by Polarized  $\gamma$  Rays. Literature. Appendix.

Buyanov A. F. Управляемый электрон

(The Controlled Electron). M., Profizdat, 1959. 139 pp. illustr. 10,500 copies, 2.10 rub.

Contents: Structure of the Atom. The Rotating Electron. The Controlled Electron. The Age of Radioelectronics. Breaking the Monopoly of the Vacuum Tube. The Electronic "Brain." The Path to the Stars.

Вариационные принципы механики (Variational Principles of Mechanics). Collection of articles. Postscript and remarks by the editor, L. S. Polak. M., Fizmatgiz, 1959. 932 pp. illustr. 5000 copies, 37.25 rub.

Вопросы физики металлов и металловедения (Problems in the Physics of Metals and Metal Research). (Collection of articles. Editorial board: Acad. V. B. Svenchnikov (Chief) et al.). Kiev, Ukr. S. S. R. Acad. Sci. Press. 1959. 211 pp. illustr. (Academy of Sciences, Ukr. S. S. R., Collection of Scientific Papers of the Institute of Metal Physics, No. 9). Bibliography (252 titles). 3000 copies, 8.50 rub.

Voronkov, I. M. Курс теоретической механики (A Course of Theoretical Mechanics). For higher technical institutes of learning. 8-th edition, stereotyped. M., Fizmatgiz, 1959. 596 pp. illustr.

Galanin, A. D. Теория ядерных реакторов на тепловых нейтронах (Theory of Thermal-neutron Reactors). (2-nd revised and enlarged edition). M., Atomizdat, 1959. 383 pp. illustr. Bibliography (68 titles). 6000 copies, 12.40 rub.

Haydon, A. G. and Wolfgard, H. G. The Flame, Its Structure, Radiation, and Temperature. Translated from the English by N. S. Chernetskii. Edited by S. A. Gol'denberg. M., Metallurgizdat, 1959. 333 pp. illustr. Bibliography (380 titles). 3000 copies, 16.85 rub.

Golubev, I. F. Вязкость газов и газовых смесей (Viscosity of Gases and Gas Mixtures). (Handbook). M., Fizmatgiz, 1959. 375 pp. illustr. Bibliography (161 titles). 6000 copies, 12.40 rub.

Contents: Foreword. Chapters: 1. Viscosity of Gases. 2. Experimental Measurement of Gas Viscosity. 3. Results of Experimental Measurements. 4. Viscosity of Gases at Atmospheric Pressure. 5. Viscosity of Compressed Gases. 6. Viscosity of Gas Mixtures. Appendices. Literature.

Dunlap, W. Introduction to Semiconductor Physics. Translated from the English edited by

V. L. Bonch-Bruevich. M., Foreign Literature Press, 1959.

Dzheleпов, B. S. Изобарные ядра с массовым числом  $A=74$  (Isobar States with Mass Number  $A = 74$ ). M.--L., U.S.S.R. Acad. Sci. Press, 1959. 39 pp. illustr. U.S.S.R. Acad. Sci. Radium Institute, Properties of Atomic Nuclei, No. 1). Bibliography (114 titles). 4000 copies, 1.85 rub.

Contents: 1. Introduction.  $Ge^{74}$ . 2. Information on the Decay of  $Ge^{74}$ . 3. Properties of the Ground State of  $Ge^{74}$ . 4. First Excited State of  $Ge^{74}$ ,  $E_1 = 596.3$  kev. 5. Second Excited State of  $Ge^{74}$ ,  $E_2 = 1190$  kev. 6. Higher Excitation Levels of  $Ge^{74}$ . 7. Cross Section for the Activation of  $Ge^{74}$  by Neutrons. 8. General Information. 9. Half-life. 10.  $As^{74}\beta^+$  and  $\beta^-$  Spectra. 11. K and L Capture in  $As^{74}$ . 12.  $\gamma$  rays from As. 13. Conversion Electrons As. 14.  $\beta^-\gamma^-$ ,  $\beta^+\gamma^-$ , and X  $\gamma$  Coincidences. 15. Decay Scheme of  $As^{74}$ . 16. Branching in the Decay Scheme of  $As^{74}$ . 17. Quantum Characteristics of the Levels of  $Ge^{74}$  and  $Se^{74}$ , Obtained in the Decay of  $As^{74}$ . 18. Quantum Characteristics of the Ground State of  $As^{74}$ . 19. On the K/ $\beta^+$  ratio for the Decay of  $As^{74}$  to the  $Ge^{74}$  Level with Excitation Energy 569.3 kev. 20. Decay and Electron Capture Leading to the 1190 kev Level of  $Ge^{74}$ . 21. Competition between the  $\beta^+$  and  $\beta^-$  Decay in  $As^{74}$ . 22. Mass of  $As^{74}$ . 23. Production and Chemical Separation of  $As^{74}$ -- $Se^{74}$ . 24. Properties of the Ground State. 25. Excited States of  $Se^{74}$ -- $Br^{74}$ . 26. Principal Properties and Decay Scheme. 27. Other Isotopes with Mass Number  $A = 74$ . 28. Remarks Concerning Possible Experiments.

Dobrogurskiĭ, S. O., Kazakov, V. A., and Titov, V. K. Счетно-решающие устройства (Computers). (Text book for higher technical institutes of learning). M., Oborongiz, 1959. 463 pp. illustr. Bibliography (30 titles). 20000 copies, 11.50 rub.

Contents: Foreword. Introduction. Part I. Computing Mechanisms. Part II. Electric and Electromechanic Computers. Part III. Elements of Servomechanisms.

Itskhoki, Ya. S. Импульсные устройства (Pulsed Circuits). M., "Soviet Radio" Press, 1959. 728 pp. illustr. Bibliography (268 titles). 21.15 rub.

Contents: Introduction. Chapters: 1. Principal Methods of the Analysis of Pulse Processes. 2. Transmission of Pulses through a Linear System. 3. Pulse Amplifiers. 4. Linear Methods of Transforming the Wave Form and

Parameters of Pulses. 5. Linear Shaping Networks. 6. Relaxation Pulse Generators. 7. Pulse Frequency Dividers. 8. Triggers. 9. Linear Sweep Voltage and Current Generators. 10. Nonlinear Methods of Conversion of Wave Forms of Voltages and Parameters of Pulses. 11. Semiconductor Pulse Circuits. Appendices. Literature.

Kalugin K. S., Margulis U. Ya., Trukhanov K. A., and Uspenskiĭ, L. N. Практическое руководство дозиметрии и (Practical Handbook of Dosimetry). M., Medgiz, 1959. 150 pp. illustr. Bibliography on p. 145. 10,000 copies, 5.60 rub.

Contents: Foreword. Chapters: 1. Physical Principles of Dosimetry. 2. Ionization Chambers and Counters. 3. Dosimetric Instruments and their Operation. 4. Measurement of Activity. Literature. Appendices: 1. Constants of Certain Artificial Radioactive Isotopes. 2. Half-attenuation Layers for  $\beta$  Radiation. 3. Tables for Multiplication by 64.

Kitaigorodskii A. I. Введение в физику (Introduction to Physics). Text book for technical colleges. M., Fizmatgiz, 1959. 704 pp. illustr. 50,000 copies, 14.50 rub.

Contents: Parts: I. Mechanical and Thermal Motion. Chapters: 1. Principal Law of Mechanics. 2. Mechanical Energy. 3. Momentum. 4. Rotation of a Solid Body. 5. Vibrations. 6. Traveling Waves. 7. Standing Waves. 8. Problems in Acoustics. 9. Temperature and Heat. 10. Thermodynamic Processes. 11. Entropy. 12. Kinetic Theory of Gases. 13. Process of Transition to Equilibrium. Part II. The Electromagnetic Field. Chapters: 14. The Electric Field. 15. The Magnetic Field. 16. The Electromagnetic Field. 17. The Energy Transformations in the Electromagnetic Field. 18. Electromagnetic Radiation. 19. Propagation of Electromagnetic Waves. 20. Interference Phenomena. 21. Scattering. 22. Diffraction of X-rays by Crystals. 23. Birefringence. 24. Theory of Relativity. 25. The Quantum Nature of the Field. Part III. Structure and Property of Matter. Chapters: 26. Beams of Charged Particles. 27. Wave Properties of Microparticles. 28. Atomic Structure. 29. The Molecule. 30. The Atomic Nucleus. 31. Nuclear Transformations. 32. Atomic Structure of Bodies. 33. Phase Transformations. 34. Deformation of Bodies. 35. Dielectrics. 36. Magnetic Materials. 37. Electron Structure and Property of Bodies. Appendix. Tables of Formulas in Electrodynamics. Subject Index.

**Kanakov P. K.** Теория подобия и ее применение в теплотехнике (Similarity Theory and its Application in Heat Power Engineering). М.--Л., Gosenergoizdat, 1959. 208 pp. illustr. Bibliography (35 titles). 5500 copies, 5.90 rub.

Contents: Introduction. Chapters: 1. Equations of Nonstationary State of a Solid Medium and Uniqueness Conditions. 2. Similarity Theory. 3. Application of Similarity Theory in Analytic Solutions of Certain Problems. 4. Application of Similarity Theory to the Processing of Experimental Data. Simulation.

**Kravets, T. P.** Труды по физике (Physics Papers). (Introductory article by G. P. Faerman, pp. 5--29. Remarks by Yu. N. Gorokhovskii and others. Editorial Board: Acad. V. I. Smirnov et al.). М.--Л., U. S. S. R. Acad. Sci. Press, 1959. 339 pp. illustr. (Academy of Sciences U. S. S. R. Division of Physical and Mathematical Sciences, S. I. Vavilov State Optical Institute).

Contents: From the Editor. G. P. Faerman. Torichan Pavlovich Kravets (Outline of his Life and Activity). Papers on Physical Optics. Papers on Scientific Photography. Papers on Geophysics. Appendices.

Appendices: B. S. Neporent, On the Paper by T. P. Kravets "Absorption of Light in Solutions of Dyed Substances." M. V. Savost'yanova, The Work of T. P. Kravets and His Students on the Latent Image. Yu. N. Grokhovskii, On the Work of T. P. Kravets' School on Photographic Sensitometry. 2000 copies, 15.45 rub. Bibliography (87 titles).

**Levantovskii V. I., Leshkovtsev V. A., and Rakhlin I. E.** Советская ракета исследует космос (The Soviet Rocket Investigates the Cosmos). М., Fizmatgiz, 1959. 128 pp. illustr. 150000 copies, 2.10 rub.

Contents: In Place of a Foreword. The Nearest Neighbors of the Earth -- Bodies of the Solar System. Our Nearest Neighbor, the Moon. Cosmic Rockets. Artificial Earth Satellites. Artificial Planets. Flights to the Moon and Other Celestial Bodies. How to Observe the Motion of Cosmic Rockets. What Interests Us in the Cosmos. Study of Cosmic Rays. The "Corona" of the Earth's Sphere. Corpuscular Radiation from the Sun and Interatomic Gas Matter. Meteoritic Particles. The Magnetic Fields of the Earth and the Moon. Reconnaissance of Celestial Bodies. Cosmic Expeditions.

**Leipunskii O. I.** Гамма-излучение атомного взрыва (Radiations from Atomic Explosions). М., Atomizdat, 1959, 154 pp. illustr. Bibliography (27 titles). 7000 copies, 4.60 rub.

Contents: Symbols. Foreword. Introduction. Chapters: 1. Principal Sources of  $\gamma$  Radiation in Atomic Explosions. 2. Propagation of  $\gamma$  Radiation in Absorbing Media. 3.  $\gamma$ -radiation Dose of an Atomic Explosion. Literature. Appendix I.  $\gamma$  Radiation from Fission Fragments. Appendix II. Additional Information on the Penetration of  $\gamma$  Rays through Matter.

Лекционные демонстрации по физике (Lecture Demonstration on Physics). Edited by Prof. A. B. Mlodzaevskii. М., Fizmatgiz, 1959 No. 9. K. P. Yakovlev. The Structure of the Atom and Atomic Processes. 1959. 140 pp. illustr. Bibliography (10 titles). 10000 copies 2.10 rub.

Contents: Foreword. I. Introduction. II. Structure of the Atom. III. General Properties of Radioactive Radiation. IV. Natural Radioactivity. V. Properties of  $\alpha$ ,  $\beta$ , and  $\gamma$  Rays. VI. Methods of Observation of Individual Ionizing Particles. VII. Neutrons and Nuclear Reactions.

**Lapp R. E.** Atoms and Persons. Abbreviated translation from the English by B. G. Rubal'skiĭ with foreword by Gen. Maj. I. N. Sobolev. М., Foreign Literature Press, 1959.

**Kikryukov, V. E.** Теплопроводность и электропроводность металлов и сплавов (Heat Conduction and Electric Conductivity of Metals and Alloys). М., Metallurgizdat, 1959. 260 pp. illustr. Bibliography on pp. 255--260. 4000 copies, 9.35 rub.

Contents: Foreword. Chapters: 1. Analysis of Modern Theories of Conduction of Heat and Electricity in Metals and Alloys and Problems in Experimental Research. 2. Methods of Measurement of Heat and Electric Conduction of Metals and Alloys. 4. Thermal Properties of Metals and Alloys. 5. Connection between Thermal and Electric Properties of Metals and Alloys. Literature.

**Muto T. and Takagi U.** Theory of Order-Disorder Phenomena in Alloys. Translated from the English by Ya. P. Selisskii. М., Foreign Literature Press, 1959.

**Mathews, P.** Relativistic Quantum Theory of Interactions of Elementary Particles. Translated from the English by V. I. Ritus and Yu. D. Usachev. М.; Foreign Literature Press, 1959. The book contains also: V. I. Ritus and Yu. D.

Usachev, "On the Modern Status of Theories of Weak Interactions." Bibliography (78 titles).

7.55 rub.

Научная литература по полупроводниковым электронным приборам (Scientific Literature on Semiconductor Electronic Devices) (detectors and transistors). Bibliography. 1945--1955. M.--L., U. S. S. R. Acad. Sci. Press, 1959. 328 pp. (Academy of Sciences U. S. S. R., Institute of Semiconductors). 2700 copies, 12.40 rub.

Compiled by V. P. Zhuze, E. I. Gusenkova, and M. L. Bobnova.

Neiman M. S. Автоматические процессы и явления (Automatic Processes and Phenomena). (General Properties of Theorem of Systems with Control Loops). M., "Soviet Radio" Press, 1958. Published 1959. 148 pp. illustr. Bibliography on p. 146. 3.05 rub.

Contents: Foreword. Chapters: 1. Automatic Processes and Control Loops. 2. Statistical Self Regulation. 3. External and Internal Self Regulation. Instability and Discreteness. 5. Self Oscillation. 6. Principal Outlines of the General Theory of Automatic Processes. 7. Control Loops Equivalent to the Paradox of Formal Logic. 8. On the Synthesis of Systems that Simulate Certain Properties of Simplest Living Organisms. Literature.

Некоторые проблемы прочности твердого тела (Certain Problems in the Strength of Solids). Collection of articles devoted to the 80-th birthday of Academician N. N. Davidenkov of the Ukr. S. S. R. Academy of Sciences. Editorial staff: Acad. A. F. Ioffe, F. F. Vitman (Editor in Chief) and others. M.--L., U. S. S. R. Acad. Sci. Press, 1959. 386 pp. illustr. Bibliography and the end of each article and in the footnotes. 2000 copies, 24.20 rub.

Novozhilov Yu. V. Элементарные частицы (Elementary Particles). M., Fizmatgiz, 1959. 184 pp. illustr. 15,000 copies, 2.75 rub.

Contents: Foreword. Introduction. What is an Elementary Particle? Chapters: 1. At the Threshold of the World of Elementary Particles. 2. First Steps in the World of Elementary Particles. 3. Particles Necessary for the Explanation of Nuclear Forces. 4. First Results. 5. Strange Particles. 6. Accomplishments in Recent Years. Conclusion.

Основы биологической и медицинской физики (Principles of Biological and Medical Physics). Translated from the English by M. M. Senyavin. Foreword by the Editor Prof. L. A. Tumerman. M., Foreign Literature Press, 1959. (Authors:

R. Stacy, D. Williams, R. Warden, R. Mac-Morris).

Ostrogradskii M. V. Полное собрание трудов (Collected Works). In 3 Volumes. (Editorial Commission: Acad. I. Z. Shtokalo (Chief) et al.). Kiev, Ukr. S. S. R. Acad. Sci. Press, 1959. Volume I. (Editors in Chief N. N. Bogolyubov and I. Z. Shtokalo). 1959. 312 pp. illustr. Appendix by I. Z. Shtokalo and I. B. Pogrebyskii "M. V. Ostrogradskii's Papers on Mathematical Physics." 2000 copies, 26.60 rub.

Contents: From the Editors. I. Memoir on the Propagation of Waves in a Cylindrical Basin. II. From the "Scientific Bulletin" of the Academy of Sciences. III. On One Particular Case of Equilibrium of Incompressible Liquids. IV. Analysis of the Paper by Prof. Braschman "Statics of Solids and Liquids". V. On the Motion of Liquids. VI. Analysis of the Paper by Mr. Davidov Entitled "Theory of Equilibrium of Bodies Immersed in Liquids". VII. Analysis of the Paper by Mr. Davidov Entitled "Theory of Capillary Phenomena." VIII. Note on an Integral Encountered in the Calculation of Attraction between Spheroids. IX. Note on Certain Formulas Pertaining to the Attraction between a Sphere and a Spheroid. X. Note on the Theory of Heat. XI. Second Note on the Theory of Heat. XII. From the "Scientific Bulletin" of the Academy of Sciences. XIII. On an Equation Pertaining to the Propagation of Heat within Liquids. XIV. On the Integration of Partial Differential Equations Concerning Small Vibrations of an Elastic Medium. XV. Memoir on the Integration of Partial Differential Equations Pertaining to Small Vibrations of Elastic Bodies. XVI. Note on the Equilibrium of an Elastic String. XVII. Note on Various Problems in Analysis. XVIII. Analysis of the Works by Mr. Somov, Extraordinary Professor of the St. Petersburg University, entitled "Analytic Theory of Wave Motion in the Ether." XIX. On the Mutual Magnetization of Bars. XX. Second Note on the Same Problem. Course of Celestial Mechanics. Appendix: Two lectures on the book by Lame: "Lectures on Analytic Theory." I. Z. Shtokalo, I. B. Pogrebyskii, "M. V. Ostrogradskii's work in Mathematical Physics.

Price B., Horton C., and Spinni C. Protection Against Nuclear Radiation. Translation from the English edited by Candidate of Physical-Mathematical Sciences, S. G. Tsypin. M., Foreign Literature Press, 1959.

Применение ультразвуки к исследованию вещества (Application of Ultrasonics to the Investigation of Matter). No. 8. Edited by Prof. V. F. Nozdrev and B. B. Kudryavtsev. M., Publication of the Moscow Oblast' Pedagogical Institute, 1959. 172 pp. 1000 copies, 4.00 rub.

Contents: V. F. Nozdrev -- Certain New Problems in the Investigation of the Critical State by Acoustic Methods (On the Summaries of the International Colloquium of 1957 in Paris). A. S. Predvoditelev -- On the Dispersion of Acoustic Waves in Rarefied Gases. Article 1. A. D. Ziper, V. F. Yakovlev -- Pulse Method of Multiple Transformation of an Ultrasonic Signal in the Investigation of Liquid Media. V. Ilgunas and E. Yaronis -- On the Problem of Theory of Interferometers with Variable and Constant Lengths. Yu. S. Trenlin -- On Certain Results of Measurement of the Speed of Ultrasound in Gases by Pulse Methods. M. P. Volarovich, D. V. Balashov -- Investigation of the Speed of Ultrasound in Nitrogen at Pressures up to  $1050 \text{ kg/cm}^2$ . K. G. Akhmetzyanov, M. G. Shirkevich -- Speed of Ultrasound in Compressed Vapors of Ethyl Alcohol and Determination of the Specific Heats  $C_p$  and  $C_v$ . I. I. Perepechko -- The Propagation of Ultrasound in Rarefied Gases. F. Kuchera -- On Certain Conditions of Applicability of the Rao Rule for Solutions. A. S. Shilyaev and B. B. Kudryavtsev -- Speed of Ultrasound and Surface Tension in Triple Liquid Systems. M. V. Bessonov -- Measurement of Speed and Absorption of Ultrasound in Melts at High Temperatures. A. A. Senkevich -- Propagation and Absorption of Ultrasonic Waves in Gases and Liquids in Light of Molecular-Kinetic Representations. L. Rotkhard -- Investigation of the Internal Structure of Silica Gel with the Aid of Ultrasound. Information. B. B. Kudryavtsev -- Fifth Seminar on Acoustics in Olsztyn.

Rybalov A. G. Лампы с бегущей и обратной волной (Traveling and Backward Wave Tubes). M., M., Voenizdat, 1959. 62 pp. illustr. (Radar Technology), 1.10 rub.

Contents: Introduction. Traveling Wave Tube. Characteristics of Traveling Wave Tubes. Backward Wave Tube. Construction of Traveling Wave and Backward Wave Tubes, their Field of Application, and Operating Features.

Skucik E. Principles of Acoustics. Translated from the German by A. L. Sosedova and V. P. Glotova. Edited by Yu. M. Sukharevskii. Vol. II. Foreign Literature Press, 1959. 565 pp. illustr.

Smith M. C. Fundamentals of Metal Physics. Translated from the English. Edited by B. Ya. Lyubov. M., Metallurgizdat, 1959. 454 pp. illustr. Bibliography (60 titles). 5200 copies, 21.50 rub.

Sokolovskii, Yu. I. Кибернетика настоящего и будущего (Cybernetics in the Present and Future). On "Thinking" Machines, Artificial Sensitive Organs, Automatic Translation of Books, Mathematical Logic, and Physiology of Nervous Activity. Khar'kov Book Publishing House, 1959. 191 pp. illustr. Bibliography on pp. 183--189. 16,000 copies, 3.35 rub.

Contents: Foreword. Chapters: 1. What is Cybernetics? 2. How is Information Measured? 3. Storage and Dissemination of Information. 4. Automatic and Remote Control. 5. Electronic Computers. 6. Translating and Chess-playing Machines. 7. Cybernetics of the Future. 8. Cybernetics and Physiology. Appendix: The "Golden Rule" of Information Theory. Memory Tubes. What to Read on Cybernetics.

Soloveichik, I. E. and Anishchenko, P. M. Знаковая индикация и ее применение в современных радиоэлектронных системах (Display of Symbols and Its Use in Modern Radioelectronic Systems). (Brief Survey of Papers Published in the Foreign Press in 1947 through July of 1958). M., "Soviet Radio" Press, 1959. 123 pp. illustr. (Radioelectronics Abroad). Bibliography on pp. 118-21, 4.95 rub.

Contents: Introduction. I. Methods of Reproduction Used in Systems for Control in Air Traffic and Guidance and in Output Devices of Computers. II. Cathode Ray Tubes with Symbol Display and their Operating Principles. III. Brief Information on Radioelectronic Systems Using Symbol-displaying Tubes. IV. Use of Symbol-displaying Tubes in Control Systems without Digital Computers. Literature.

Tarasov, V. V. Новые вопросы физики стекла (New Problems in the Physics of Glass). M., Gosstroizdat, 1959. 270 pp. illustr. Bibliography (291 titles), 2000 copies, 11.80 rub.

Contents: Foreword. Chapters: I. High Polymer Structure of Inorganic Glass. II. Theory of Specific Heat of Solids and Glasses in Connection with Their Structure. III. Use of Theory of Specific Heat of Chain Structures to a Study of Certain Types of Glass. IV. Associated Structure and Compressibility of Liquids in Liquid Systems with Intermolecular Hydrogen Bonds. V. Compressibility and Structure of Glass. Appendices.

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