

New books on physics and related sciences

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Sadovskii M A *Selected Works. Geophysics and the Physics of Explosion* (Ed.-in-chief V V Adushkin; compiled by A A Kalmykov) (Moscow: Nauka, 1999) 335 pp.

Covering the period from 1938 to 1994, this selection includes the works of Academician M A Sadovskii, some of them co-authored by other scientists, on such topics as the seismic effect of explosions, the earthquake focus, the prognosis of earthquakes, seismic safety, the geomechanics of rocks, and modeling of the geophysical medium. For geophysicists, seismologists, and those interested in geophysical problems. (Nauka Publ. regular mail address: 117864 GSP-7, Moscow V-485, Profsoyuznaya ul. 90)

Rubakov V A *Classical Gauge Fields* (Moscow: Editorial URSS, 1999) 336 pp. Bibliography: 174 refs. RFBR Project 99-02-30011.

This book has developed from a lecture course given to third and fourth year students in theoretical physics at the MSU Physics Department. The first part of the book discusses the conceptual foundations of the gauge field theory, the construction of gauge-invariant Lagrangians, and how the spectra of linear excitations, including those above a non-trivial ground state, can be described. The second part deals with the construction and interpretation of the soliton, 'Euclidean bubble,' instanton, and sphaleron solutions to nonlinear field equations. The third part describes effects due to the interaction of fermions with topological scalar and gauge fields. In the Appendix, the role of instantons as the saddle points of the Euclidean functional integral is briefly discussed. The material of the book can be studied in parallel with quantum mechanics and subsequently with quantum field theory, which makes the book a useful reference for senior students, post-graduate students, and research workers specializing in theoretical physics. (Editorial URSS Publ. contact information: tel./fax (7-095) 135-4423, tel. (7-095) 135-4246, e-mail: urss@urss.isa.ac.ru)

11th Congress of Biophysicists (23–27 August 1999, Moscow) Abstracts of reports in three volumes. (Ed. by A B Rubin) Vol. 1 (Pushchino: ONTI PNTs RAN Publ., 1999) 376 pp.

Supported by the RFBR Grant No. 98-04-58032 and devoted to one of the fundamental areas of science, the Congress aimed to discuss the current status and future directions of major biophysical disciplines and some related fields. The first volume contains the abstracts of the plenary lectures by Academicians V T Ivanov, A A Kraevskii, and A S Spirin,

and also the abstracts of papers on the structure and dynamics of proteins and their complexes (Symposium I), the structure and dynamics of nucleic acids and their complexes (Symposium II), energy transformation mechanisms in biosystems (Symposium III), the biophysics of the cell and intercellular interactions (Symposium IV), and the mechanisms of biological motility (Symposium V). (Science and Technology Information Department of the RAS Pushchino Scientific Center regular mail address: 142292 Pushchino, Moscow region, prospekt Nauki 3)

XXIXth International Conference on the Physics of the Charged Particles Interaction with Crystals (31 May–2 June 1999, Moscow) Abstracts (Ed. by A F Tulinov) (Moscow: Moscow State University Publ., 1999) 160 pp.

This collection contains the abstracts of the papers selected by the Organizing Committee to be presented at the Conference: Part I. Physics of orientational effects; Part II. Electron and positron emission in a solid; Part III. Atomization and surface effects; Part IV. Beam analysis of the composition and the structure of materials, and Part V. Charged-particle beam modification of material properties.

From the World's First Nuclear Power Station to the 21st Century Nuclear Power Industry. 10th Annual Conference of the Russian Nuclear Society (28 June–2 July 1999, Obninsk) Abstracts of papers and reports (Obninsk: GNTs RF FÉI Publ., 1999) 256 pp.

This volume provides abstracts of the papers and short communications presented at the 10th annual conference of the Russian Nuclear Society, organized to mark the 45th anniversary of the world's first nuclear power station. (GNTs RF FÉI Publ. regular mail address: 249020, Obninsk, Kaluga region, pl. Bondarenko 1)

The White Book of the Nuclear Power Industry (General Editor E O Adamov) (Moscow: GUP NIKIÉT, 1998) 356 pp. Bibliography: 273 refs.

Provides an analysis of the current status of the nuclear power industry and its place in the world's power supply systems from a 21st century perspective, for various development scenarios. Special attention is given to the most acute problems that hinder the development of the industry (safety, radioactive waste, and nonproliferation), and in particular innovative approaches to their solution are discussed in detail. The volume is prepared both in Russian and in English by the State unitary enterprise 'Research and Design Institute of Power Technologies.' (GUP NIKIÉT Publ. regular mail address: 101000, Moscow, PO/BOX 788, NIKIÉT; fax number: (7-095) 975-2019)

Glebov I A *Electric Machine Engineering, Electrical Power Engineering, and Electrophysics: Problems and Solutions* (St. Petersburg: Nauka, 1999) 528 pp.

This book presents a concise account of the current status of electric machine engineering in the world; reviews the state of the art in the employment of cryogenic techniques and superconducting devices for the study of the structure of elementary particles; and discusses innovative solutions in the field of turbo- and hydraulic generators, including their excitation and associated automatic control systems. Special attention is given to the cooperation of electric machines and semiconductor transducers, and to superconductor turbo-generators (history, current status, and perspectives). Four indices conclude the book: lists of scientific works (709 items) and inventions (45 items) co-authored by Academician I A Glebov; publications about him (333 items), and citations of his works in foreign books and journals in English and French (59 items). (St. Petersburg RAS Nauka Publ. regular mail address: 199034 St. Petersburg, Mendeleevskaya lin. 1)

The book listed above are currently available in the library stock of the MSU Physics Department (lib@phys.msu.su)

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