

PACS number: 01.30.Tt

New books on physics and related sciences

DOI: 10.1070/PU2007v050n01ABEH006276

Kirzhnits D A ***Lectures on Physics*** ('20th Century National Science Highlights' Series; Volume Editorial Board: V I Ritus (Chair), B M Bolotovskii, Yu M Bruk, V L Ginzburg, I V Rakobol'skaya, A A Shatskii, G V Shpatakovskaya); Scientific Council for the RAS Presidium's basic research program 'Publication of the works of prominent scientists; P N Lebedev Physics Institute, RAS' (Moscow: Izd-vo Nauka, 2006) 244 pp. ISBN 5-02-035358-2.

This book brings together three lecture courses — ''The structure of matter: from Democritus to quarks'', ''At the interface between nuclear and solid-state physics'', and ''Theory of response functions in conventional and monopole electrodynamics'' — which D A Kirzhnits, a prominent theoretical physicists and a Corresponding Member of the Russian Academy of Sciences, delivered to various audiences at various times. Reflecting the author's firm belief in the unified nature of physical science, these unique lectures offer faculty and students a refreshing look at both general principles and specific physical situations. This text is a valuable manual for studying a wide range of topics in such branches of physics as the classical theory of fields, elementary particle physics, nuclear physics, theory of superconductivity, theory of superfluidity, cosmology, astrophysics, and extreme states of matter. Research workers, lecturers, postgraduates and undergraduate students will find this book of interest. (The Russian Academy of Sciences Publishing Center 'Nauka': 117997 GSP-7 Moscow V-485, Profsoyuznaya ul. 90; tel. (7-495) 334-71-51; fax: (7-495) 420-22-20; e-mail: secret@naukaran.ru; URL: http//www.naukaran.ru/)

Zheltikov A M ***Ultrashort Pulses and Methods of Nonlinear Optics*** (Moscow: Izd-vo Fizmatlit, 2006) 296 pp. ISBN 5-9221-0693-7.

Ultrashort pulses of electromagnetic radiation from laser sources are an interesting physical phenomenon and a unique tool for studying fast processes in physics, chemistry, and biology. Femtosecond laser pulses allowed the first real-time observations of the dynamics of fast elementary molecular processes and provided instantaneous pictures of molecules and atomic groups at various stages of chemical reactions. Probing the dynamics of inneratomic electrons however, requires pulses of less than a femtosecond duration — the so-called attosecond pulses. The generation of such pulses was only made possible at the beginning of the 21st century through the use of nonlinear optical interactions between high-intensity ultrashort laser pulses. It is how spectacular advances in the generation and amplification of ultrashort light pulses shape the development of nonlinear optics and spectroscopy techniques that is the subject matter of this book. The monograph is intended for professionals, researchers, practising engineers, and undergraduate and postgraduate students specializing in the fields of optics and laser physics, as well as for readers with a general physics background who are interested in the problems of nonlinear optics. (Fiziko-Matematicheskaya Literatura & MAIK Nauka/Interperiodika Publishing House: 117997 Moscow, Profsoyuznaya ul. 90; tel. (7-495) 334-74-21; fax (7-495) 334-76-20; e-mail: fizmat@maik.ru; URL: http://www.fml.ru/)

Uspekhi Fizicheskikh Nauk **177** (1) 119 (2007)
Translated by E G Strel'chenko

Gantmakher V F ***Electrons in Disordered Media*** 2nd ed. revised and enlarged (Moscow: Izd-vo Fizmatlit, 2005) 232 pp. ISBN 5-9221-0578-7.

This book is intended for senior year undergraduate and postgraduate students specializing in solid-state physics, as well as for research workers and anyone professionally interested in understanding the fundamentals of physical processes that govern the behavior of electrons in solids. The book is written with a minimum of mathematics and mainly emphasizes the physics of and deep links and associations between phenomena under consideration. (Fiziko-Matematicheskaya Literatura & MAIK Nauka/Interperiodika Publishing House: 117997 Moscow, Profsoyuznaya ul. 90; tel. (7-495) 334-74-21; fax (7-495) 334-76-20; e-mail: fizmat@maik.ru; URL: http://www.fml.ru/)

Zasov A V, Postnov K A ***General Astrophysics*** (Fryazino: Izd-vo Vek-2, 2006) 496 pp. ISBN 5-85099-169-7. RFBR project No. 06-02-30049.

This book is the outgrowth of a lecture course on general astrophysics given by the authors for many years to undergraduate students in the Department of Physics at Moscow State University. Compared to traditional general courses, some topics are given a more thorough treatment here. Coverage includes basic mechanisms of radiation – matter interactions; modern methods of astronomical observations; physical processes in the interstellar medium; the formation, structure, and evolution of stars; formation of compact objects; elements of the physics of galaxies, and the fundamentals of modern cosmology. By and large, an overall physical picture of the Universe's structure and evolution emerges from the book. This text may serve as a modern, up-to-date general astrophysics manual for undergraduate and postgraduate students in the physics and astronomy disciplines. Recommended by the Classical University Teaching Methodology Association as a higher education textbook for students following national programmes in the disciplines 010701 Physics and 010702 Astronomy. (Vek-2 Ltd. Publ.: 141195 Fryazino, Moscow region, P.O. Box 107, e-mail: vek-2@mail.ru; URL: http:/www.vek2.nm.ru/)

Bogoliubov N N ***Collected Scientific Works*** 12-volume set ('Classics of Science' Series, compiled and edited by A D Sukhanov) ***Statistical Mechanics*** in 4 volumes. Vol. 6. ***Equilibrium Statistical Mechanics, 1945 – 1986*** (Eds N M Pla-

kida and A D Sukhanov) (Moscow: Izd-vo Nauka, 2006) 519 pp. RFBR project No. 06-01-14063.

This is the first time that such a complete collection — 12 volumes — by this classic figure in mathematics and natural sciences has been published. The collection is unique in that its constituents have never before been published together. Volume 6 contains Bogoliubov's fundamental monographs *Lectures on Quantum Statistics* and *Quasi-averages in Statistical Mechanics Problems*, which opened new, ground-breaking insights into this field of physics. Also included are some of his major papers, which in fact made statistical mechanics a part of modern mathematical physics, and whose ideas find application in other areas of theoretical physics as well. This book will be valuable to undergraduate and postgraduate students, research workers, and faculty specializing in mathematical physics, statistical mechanics, and the history of physics. (The Russian Academy of Sciences Publishing Center 'Nauka': 117997 GSP-7 Moscow V-485, Profsoyuznaya ul. 90; tel. (7-495) 334-71-51; fax: (7-495) 420-22-20; e-mail: secret@naukaran.ru; URL: http//www.naukaran.ru/)

Compiled by *E V Zakharova*
(e-mail: zaharova@ufn.ru)