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New books on physics and related sciences

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Cohen-Tannoudji C, Diu B, Laloe F *Quantum Mechanics* Two-volume edition (Translated from French by L N Novikov). Vol. 1. 2nd edition, revised and extended (Moscow: Izd. URSS, 2015) 976 pp. ISBN 978-5-9710-1470-6.
Cohen-Tannoudji C, Diu B, Laloe F *Quantum Mechanics* Two-volume edition (Translated from French by L N Novikov). Vol. 2. 2nd edition, revised and extended (Moscow: Izd. URSS, 2015) 656 pp. ISBN 978-5-9710-1471-3.

In the wide coverage of expounded material and detailed presentation of the mathematical apparatus, this book cannot be compared with any known publication. It is a universal textbook for students and postgraduates of all levels of training. The authors of the textbook are known not only for their contribution to modern atomic physics and spectroscopy, but also for their fruitful pedagogical activity in leading educational institutions in France. Basing the book on the traditional course of nonrelativistic quantum mechanics, the authors pursued their main goal of most comprehensively expounding quantum formalism, relying on the exceedingly rich experimental material accumulated by atomic and molecular spectroscopies, which should undoubtedly be welcomed not only from a purely scientific position, but also from the pedagogical point of view. The authors supplied the book with a large number of problems and exercises that rested on examples from different fields of atomic physics and spectroscopy which are of interest for practisingl researchers. Original: Cohen-Tannoudji C, Diu B, Laloe F Mécanique quantique (Palaiseau: École Polytechnique, 2006). (URSS Publishers: 117335 Moscow, Nakhimovskii prospect 56; tel./fax: +7 (499) 724-25-45; e-mail: urss@URSS.ru; URL: http://urss.ru/)

Kivshar' Yu S, Rozanov N N (Eds) *Nonlinearities in Periodic Structures and Metamaterials* (Moscow: Izd. Fizmatlit, 2014) 384 pp. ISBN: 978-5-9221-1593-3.

This book presents the results of theoretical and experimental research into nonlinear effects for waves propagating in media with periodic spatial variation of characteristics. For optical and microwave radiations, such media are chains of molecules and chains of metal nanoparticles, photonic crystals, and sets of optical fibers, plasmonic lattices, and metamaterials — that is, artificial media formed by a periodically repeated set of subwave elements — 'metaatoms'. For atomic matter waves, i.e., Bose–Einstein condensates, light-induced periodic lattices are related systems. The combination of structural periodicity and response nonlinearity leads to a whole number of bright quantum and classical effects, such as various nonlinear resonances and self-channeling providing a lightguide propagation of radiation in a linearly homogeneous medium and localized (soliton-like) structures. The book is intended for research workers, students, and postgraduates involved in or only beginning to study nonlinear physics, as well as researchers seeking ways to create miniature photon chips with tunable (controlled) characteristics. (Fizmatlit Publishing: 117342 Moscow, ul. Butlerova 17B; tel. +7 (499) 968-92-28; e-mail: fizmat@maik.ru; URL:http://www.fml.ru/)

Borisov A B, Kiselev V V *Quasi-one-dimensional Magnetic Solitons* (Moscow: Izd. Fizmatlit, 2014) 520 pp. ISBN 978-5-9221-1590-2.

This monograph exhibits a complete and consistent presentation of the current state of the theory of quasi-one-dimensional magnetic solitons. Along with the traditional description of nonlinear dynamics of magnetic substances with the aid of Landau–Lifshitz equations, the method of phenomenological Lagrangians of spin waves is presented. The most effective methods of integration of nonlinear equations, namely, the method of the inverse scattering problem and the 'dressing' procedure, are used to construct and analyze soliton solutions of the basic models of the theory of magnetism: the Landau–Lifshitz equations for an isotropic ferromagnet, for ferromagnets with anisotropy quadratic in magnetization, a two-sublattice ferromagnet, and also of chiral models for multisublattice magnets. Special versions of reductive perturbation theory have been developed for the study of weakly nonlinear dynamics of exchange-magnetostatic waves in finite-thickness plates, as well as magnetoelastic solitons. The strongly nonlinear dynamics in spiral structures of magnets without a center of inversion were analytically described in the framework of the sine-Gordon model. The book is addressed to research workers, postgraduates, and undergraduate students of institutes with corresponding specializations. (Fizmatlit Publishing: 117342 Moscow, ul. Butlerova 17B; tel. +7 (499) 968-92-28; e-mail: fizmat@maik.ru; URL: http://www.fml.ru/)

De Broglie L *Selected Scientific Works* Vol. 4. ***Thermodynamics of an Isolated Particle. Reinterpretation of Wave Mechanics. Reports and Talks*** (Moscow: Izd. Print-Atel'e, 2014) 464 pp. ISBN 978-5-88762-030-5.

The concluding volume of the selected scientific works of Louis de Broglie consists of the last papers, written in the 1950s, which can be thought of as his scientific testament. In the monographs *Thermodynamics of an Isolated Particle* and *Reinterpretation of Wave Mechanics*, an attempt was made to create a deterministic picture of wave mechanics. The Third Part of the edition contains the texts of reports and talks given by Louis de Broglie in connection with various memorable dates and solemn occasions. Most of this material is of historical interest, but a certain part of it is still scientifically

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topical even today. These works are published in Russian for the first time. The book is intended for physicists, philosophers, and those who study science [all questions connected with this edition should be addressed to the Physics Chair of MADI, tel. +7 (499) 155-04-92.]

Sadovskii M V ***Years, People, Science, and Life*** (Moscow–Izhevsk: Izd. RKhD, 2014) 308 pp. in (now press).

This book of reminiscences of the well-known Russian theoretical physicist and Academician of RAS, M V Sadovskii, describes the formation of the young scientist and his further career, and his meetings with many outstanding scientists and other interesting people. Great attention is paid to specific features of life in Soviet times and later, first of all in the world of scientists. Some important episodes related to the development of the physics of the condensed state of matter are described, in particular, the discovery of high-temperature superconductivity. The concluding parts of the book are devoted to the author's position on some general problems, such as the relationship between science and religion, and the state of the art in Russian science. (Scientific Publishing Center 'Regular and Chaotic Dynamics': Universitetskaya st. 1, 426034 Izhevsk, Russian Federation; tel. +7(3412) 50-02-95; e-mail: subscribe@rcd.ru; URL: http://shop.rcd.ru/)

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