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# New books on physics and related sciences

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**Kadomtsev B B** ***Selected Works*** In two volumes: Vol. II (Ed. by V D Shafranov; compiled by M B Kadomtsev, O P Pogutse, A V Timofeev, V D Shafranov) (Moscow: Fizmatlit, 2003) 584 pp. ISBN 5-9221-0430-6.

The second volume of Academician B B Kadomtsev's selected works contains reviews and popular science articles on plasma physics and controlled thermonuclear fusion. Topics covered include the theory of various types of instability and turbulence in a magnetic-field-confined plasma, as well as the theory of nonlinear waves and how they interact. In some papers, the general theory of and experiments on the magnetic plasma confinement are discussed, and in some others the problems of fusion power engineering are examined. Tokamak facilities are given particular attention in the book. Historical reviews of Soviet and Russian controlled fusion investigations and international cooperation in this area are included, and papers on the topical problems of quantum mechanics are featured. (Fiziko-Matematicheskaya Literatura & MAIK Nauka/Interperiodika Publishing: 117997 Moscow, Profsoyuznaya ul. 90; tel./fax (7-095) 334-74-21, 334-76-20; e-mail: fizmat@maik.ru; URL: http://www.fizmatlit.ru/)

**Tamm I E** ***Fundamentals of the Theory of Electricity*** College and university textbook. 11th ed. revised and enlarged (Moscow: Fizmatlit, 2003) 616 pp. ISBN 5-9221-0313-X.

The major principles of the theory of electricity are systematically examined, with particular emphasis on the physical content of the theory. The 11th edition, like the previous one, has been prepared unchanged in order that a modern reader can acquaint himself with the exact version this fundamental piece of world scientific literature was originally published in by Academician I E Tamm. A table of physical constants was added, a number of footnotes changed, some references updated, and, finally, the discovered misprints corrected. It is intended for college and university students in physics disciplines, for research workers, practising engineers, and technicians. (Fiziko-Matematicheskaya Literatura & MAIK Nauka/Interperiodika Publishing: 117997 Moscow, Profsoyuznaya ul. 90; tel./fax (7-095) 334-74-21, 334-76-20; e-mail: fizmat@maik.ru; URL: http://www.fizmatlit.ru/)

**Bogush A A, Moroz L G** ***An Introduction to the Theory of Classical Fields*** 2nd ed. (Moscow: Editorial URSS, 2004) 384 pp. ISBN 5-354-00553-1.

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Fundamentals of classical wave field theory for particles of various spins are presented in sufficiently accessible and concise form. Major principles underlying the development of general field theory are discussed in detail. A description of specific fields attributed to elementary particles with spins 0, 1/2, and 1 is given, which includes the use of first-order relativistic wave equations with the subsequent application of the covariant approach and its underlying projection operator technique. The classical formulation of the theory of interacting fields is presented, in whose framework certain specific electromagnetic interactions of elementary particles are described. The book evolved from special courses given at V I Lenin Belarussian University. It is intended for teachers and students in physics disciplines at the universities, pedagogical institutes and other colleges. In addition to persons specializing in theoretical physics, the book will also be useful to a wide range of readers whose interests relate to particle and nuclear physics, as well as to all other branches of modern physics, where the ideas and the mathematical apparatus of both classical and quantum field theories are being increasingly used. (Editorial URSS Publ.: 117312 Moscow, prosp. 60-letiya Oktyabrya 9, office 203 at the RAS Institute for Systems Analysis; tel./fax (7-095) 135-44-23, 135-42-46; e-mail: urss@urss.ru; URL: http://urss.ru/)

**Kilin S Ya** ***Quantum Optics: Fields and Their Detection*** 2nd ed. (Moscow: Editorial URSS, 2003) 176 pp. ISBN 5-354-00442-X.

This book examines those fundamental issues of modern quantum optics that are concerned with the existence and detection of specifically quantum field states with no classical analog. The book presents the first detailed discussion of squeezed optical field states that promise significant progress in the accuracy of optical measurements and in optical information transmission. The theory of continuous quantum measurements is presented. Also presented are elements of the theory of nondestructive quantum measurements that are necessary for detecting and creating sub-Poisson squeezed states with their properties of photon antibunching. The book is designed for specialists in nonlinear and quantum optics, laser spectroscopy, and quantum electronics and for undergraduate and postgraduate students in related disciplines. (Editorial URSS Publ.: 117312 Moscow, prosp. 60-letiya Oktyabrya 9, office 203 at the RAS Institute for Systems Analysis; tel./fax (7-095) 135-44-23, 135-4246; e-mail: urss@urss.ru; URL: http://urss.ru/)

**Kholevo A S** ***Statistical Structure of Quantum Theory*** (Moscow – Izhevsk: Institute for Computer Studies, 2003) 192 pp. ISBN 5-93972-207-5.

The book offers a systematic, concise, and widely ranging presentation of the mathematical foundation of quantum theory from the viewpoint of a probability specialist, with particular emphasis placed on statistical aspects. Among the topics covered are: the generalized statistical model of quantum mechanics, the quantum theory of statistical solutions, state evaluation, transmission capacities of quantum communication channels, open systems and the dynamics of continuous measurements, stochastic processes, and stochastic calculus in the Fock space. The book's review style presentation is intended for a broad audience, from physicists to specialists in probability theory and the theory of operators, from research workers to postgraduates. The book contains a large body of references. (Institute for Computer Studies: 426034 Izhevsk, ul. Universitetskaya 1; tel./fax: (7-3412) 50-02-95; e-mail: borisov@rcd.ru; URL: http://ics.org.ru/)

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