

New books on physics and related sciences

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Tserkovnikov Yu A *Statistical Mechanics: Selected Works* (Comp. ed. Yu G Rudoy) (Moscow: Yanus-K, 2010) 736 pp. ISBN 978-5-8037-0496-6. RFBR Project 10-01-07018.

This edition is a compilation of selected works of Yuri Aleksandrovich Tserkovnikov (1928–2008), an outstanding specialist in statistical mechanics, the method of two-time temperature-dependent Green's functions, plasma physics, and the theory of nonideal Bose gas. Tserkovnikov was one of the brightest stars in N N Bogoliubov's scientific school. This collection brings together 30 articles reflecting the main fields of Yu A Tserkovnikov's scientific activity over more than half a century, previously scattered through various journals. They remain scientifically and methodologically relevant. The book is intended for researchers, postgraduates, and senior-year university students in physics and mathematics specializing in statistical mechanics and its applications to condensed matter physics. The list of Yu A Tserkovnikov's published scientific papers is given at the end of the volume. (Yanus-K Publishing LLC: 127411 Moscow, ul. Uchinskaya 1; tel. (7-495) 245-58-92)

Gritsenko V A, Tyschenko I E, Popov V P, Perevalov T V *Dielectrics in Nanoelectronics* (Exec. ed. A L Aseev) (Novosibirsk: SB RAS Publishing Company, 2010) 258 pp. ISBN 978-5-7692-1081-5.

The monograph is devoted to the physics of dielectric films for silicon devices and their use in nanoelectronics. The authors analyze the structure of silicon oxide and silicon nitride films, semiconductor nanocrystals in dielectric films, the electronic structure of high-permittivity insulators, the technology of silicon-on-insulator structures, and the physics of flash memory devices. The monograph is intended for scientists and engineers working in the fields of semiconductor physics and semiconductor devices, as well as for students in bachelor's, master's, and postgraduate programs studying microelectronics and solid state physics. (Published by the Siberian Branch of RAS: 630090, POBox 187, Novosibirsk, Morskoi pr. 2; tel. (7-383) 330-17-58; fax (7-383) 333-37-55; e-mail: sprice@ad-sbras.nsc.ru; URL: <http://www.sibran.ru/>)

Gorodetskii M L *Giant-Q Optical Microcavities* (Moscow: FIZMATLIT, 2010) 416 pp. ISBN 978-5-9221-1283-3.

This monograph is devoted to the theory of optical high-Q microcavities and their applications in linear, nonlinear, quantum, and applied optics. Optical microcavities with whispering gallery type modes, which were first designed by

Russian scientists, uniquely combine submillimeter size with giant Q . These crystals are becoming more and more widespread in experimental physics and engineering, particularly in high-stability oscillators, and in a variety of sensors, transducers, filters, and other optoelectronic devices. The book is intended for both experts and students specializing in optics. (Publishing Company 'Fiziko-matematicheskaya literatura' MAIK 'Nauka/Interperiodika': 117997 Moscow, ul. Profsoyuznaya 90; tel. (7-495) 334-74-21; fax: (7-495) 334-76-20; e-mail: fizmat@maik.ru; URL: <http://www.fml.ru/>)

Zarubin P V *Laser Weapons — Myth or Reality? High-Power Lasers in the USSR and in the World. (Book for Curious Nonexperts in Laser Issues)* (Foreword by Academician O N Krokhin) (Vladimir: Transit-X LLC, 2009) 331 pp. ISBN 978-5-8311-0505-6. Bibliography 300 entries.

The book describes the efforts of many tens of thousands of people who have participated in the work on laser weapons, both in the USSR and abroad; it will be of interest to scientists, engineers, and anyone who is not indifferent to the history of science and technology. The book is based on documents and events, some of which could not be known to the public by virtue of the specific nature of the subject. It presents the well-known engineering foundation of the technology of high-power lasers and weapons systems, and the history of their development in the 1960s–1970s, expanded by added personal recollections and assessments by the author. The material presented is supported by the author's real experience in research and development in laser weapons in the USSR. The book includes excerpts from the author's discussion-interviews with RAS Full Members B V Bunkin, N G Basov, and E P Velikhov, and Corresponding Member B V Zamyshlyaev. The author of this book is Petr Vasil'evich Zarubin — Professor and Winner of the USSR State Prize and The Prize of the Russian Government — an active participant for more than 40 years and organizer of work on high-power lasers and systems based on them in the USSR. (To purchase the book please contact its publisher: Arzumanov Vladimir Gurgenevich, tel. (7-910) 777-49-33.)

Vizil'ter Yu V, Zheltov S Yu, Bondarenko A V, Ososkov M V, Morzhin A V *Processing and Analysis of Images in Respect to Machine Vision Problems* A course of lectures and practical works (Moscow: Fizmatkniga, 2010) 672 pp. ISBN 978-5-89155-201-2.

The book was written on the basis of courses of lectures taught to students and postgraduates of the special Faculty of Control and Information Systems at the Department of Management and Applied Mathematics of the Moscow Institute of Physics and Technology (State University). The book is intended for students, postgraduate students, and teachers at technical colleges as a textbook for the course

‘Automated Data Processing Systems and Management’. The material presented allows the private study of the core courses, ‘Image Processing and Analysis’ and ‘Machine Vision’, and the advanced course ‘Mathematical Methods for Image Analysis’ dealing with model-based vision and morphological image analysis. Each section of the book first outlines the fundamentals of the theory, then gives a description of the relevant practical assignments for which students are expected to use a specialized software package. A CD for the installation of this specialized software package for image processing and analysis is included. (Izdatel’stvo ‘Fizmatkniga’: 141700 Moscow region, Dolgoprudnyi, Institutskii per., 6-b; tel. (7-495) 410-23-79; e-mail: publishers@mail.mipt.ru)

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