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New books on physics and related sciences

'50 years of Nuclear Shells'. Abstracts (St.-Petersburg: PIYaF RAN Publ., 1999)
Based on the proceedings of the International Nuclear Physics Conference and 49th Topical Meeting on Nuclear Spectroscopy and Nuclear Structure held in Dubna, Moscow region, Russia, 21 – 24 April 1999, this book highlights the field of nuclear physics in six sections: experimental study of nuclei; techniques and methodology of nuclear experiment and applications of nuclear physics methods; theory of nuclear reactions; experimental study of nuclear reactions; theoretical description of the structure of the nucleus, and fundamental interactions in nuclear physics. (PIYaF RAN Publ. address: 188350 Gatchina, Leningrad region, Orlova Roshcha)

Magnetic Liquids '98 (Ivanovo: IGÉU Publ., 1998)
This book is a collection of papers presented at the 8th International Magnetic Liquids Conference held in Ples, Russia, in September 1998. Subjects include the physics, chemistry, and magnetohydrodynamics of magnetic colloidal systems as well as their heat-transfer and mass-exchange properties and applications in medicine, biology, and technology.

Optical Methods of Flow Analysis. Abstracts (Moscow: MÉI Publ., 1999) 272 pp.
The volume provides abstracts of the papers presented at the 5th International Science and Technology Conference 'Optical Methods of Flow Analysis' held in Moscow, 23 – 25 June 1999. The aim of the conference was the exchange of information and the discussion of the latest advances in both the traditional and newly-emerging areas of optical flow diagnostics, and the development of a reasonable research cooperation policy. The section titles are: laser anemometry; interference and shadow techniques; flow visualization techniques; methods for determining the concentration and size of particles; holographic interferometry and speckle interferometry; optical tomography; computer-assisted signal and image processing, and the application of optical methods. For the first time, diagnostic techniques in ecology and biomedicine were the subject of a separate conference section. (MÉI Publ. regular mail address: 111250 Moscow, ul. Krasnokazarmennaya, 14)

Luminescence and Attendant Phenomena Proceedings of the 4th All-Russian School and Workshop (Irkutsk, 19 – 23 October 1998) (Ed. by Prof. E F Martynovich) (Irkutsk: Irkutsk State University Publ., 1999) 290 pp.
The volume contains the proceedings of a school – workshop organized as part of the special-purpose federal program 'State Support for the Integration of Higher Education and Basic Science for 1997 – 2000'. Lectures by eminent scientists and reports by researchers and undergraduate and postgraduate students cover the luminescence of condensed media, the physics of radiation-induced defect formation, linear and nonlinear optical phenomena, laser physics, electron and vibration spectroscopy, and holography. (Irkutsk: Irkutsk State University Publ. regular mail address: 664003, Irkutsk, bul'v. Gagarina, 36)

Meĭerovich B É *Strong Current Channel* (Moscow: OOO FIMA, 1999) 376 pp. Bibliography: 187 refs.
Supported by Technical Research Institute president William Schneider, this book uses an arsenal of modern theoretical physics to systematize physical processes in strong current channels. The analysis of the physical nature of pinch equilibrium has allowed a self-consistent description of the immense diversity of phenomena observed in high-power electrical discharges. The results of the past 25 years of the author's work on the pinch effect are summarized. (OOO FIMA Publ. regular mail address: 121248 Moscow, bul'v. Ukrainskiĭ, 3/5, bld. 2)

Rezanov I A *History of the Interaction of Earth Sciences* (Moscow: Nauka, 1998) 223 pp. Bibliography: 266 refs.
Focusing on a large group of disciplines concerned with the Earth and its hydrosphere and atmosphere, this book examines both the interrelation of these disciplines and their links to other natural sciences. The text describes how the structure of Earth sciences has evolved and estimates the role of scientific methods in determining the development, differentiation, and integration of various disciplines. The modern research methods are disclosed and compared with those employed in the past when studying our planet. Also highlighted in the book are the basic scientific ideas behind the disciplines of the group under study, and prospects for the further integration of geological, geographical, and geophysical disciplines under the conditions of man's ever increasing influence on his environment. For a wide range of specialists in Earth sciences. (Nauka Publ. regular mail address: 117864 GSP-7, Moscow B-485, ul. Profsoyuznaya, 90)

Synergetics and the Methods of Science (Ed.-in-chief M A Basin) (St.-Petersburg: Nauka, 1998) 439 pp. RFBR project 97-06-87108.
Synergetics is the science that deals with the self-organization of complex nonequilibrium systems. In this collection, various aspects of synergetics are covered in papers by prominent Russian researchers originally given at a 1993 seminar initiated jointly by the St. Petersburg Association of Scientists and the St. Petersburg Science Centre of the Russian Academy of Sciences. The text introduces philosophical and methodological aspects of synergetics and summarizes the application of synergetic methods to various problems in natural sciences and humanities. For a wide range of readers interested in recent advances in our knowledge of the basic laws governing nonlinear processes in nature and science. (St. Petersburg RAS Nauka Publ. regular mail address: 199034 St.-Petersburg, Mendeleevskaya lin., 1)

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

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