Vol. 92 (1997) *ACTA PHYSICA POLONICA A* No. 6

REVIEWS OF BOOKS

A.K. Zvezdin, V.A. Kotov
Modern Magnetooptics and Magnetooptical Materials
Institute of Physics Publishing, Bristol 1997

This is an excellent book — comprehensive, timely, concise (in almost 400 pages) and well written. It contains nearly everything that a scientist or an engineer could want to know about modern magnetooptical methods and their applications.

The past 30 years of theoretical and experimental studies of magnetooptical effects and magnetooptical materials have been very fruitful. This is especially true in the area of magnetic thin films and multilayers and is directly related to the development of magnetooptical memories, disks and tapes. Fantastic progress is also observed in integrated magnetooptics. *Modern Magnetooptics and Magnetooptical Materials* is the first book to present the physics of magnetooptical effects (including magnetooptical effects in the X-ray region), magnetooptical properties of various magnetic materials and problems of applied magnetooptics. Here is both a textbook for beginners and a handbook for specialists working in the physics and applications of modern magnetic materials. The book consists of three parts. The first part concerns with physics of magnetooptical effects including problems of thin films and multilayers, non-linear magnetooptics, magnetooptical spectroscopy and magnetooptical observation of domain structure. The second part is devoted to the problem of magnetooptical materials. The authors have devoted a considerable space to present the properties of two most important magnetooptical materials: ferrimagnetic garnets (particularly bismuth-substituted iron garnets) and two-dimensional structures (thin films, sandwiches and compositionally modulated structures). In the last part of the book various magnetooptical applications in modern electronics are described including modulators, switches, magnetooptical memories and integrated magnetooptical devices. The chapters were designed to be independent, so that the reader can consider the book also as a reference book.

No other book that I can think of covers this range of topics with the level of clarity that this book does. The closest book would be *The Physical Principles of Magneto-optical Recording* by M. Mansuripur (Cambridge University Press, 1994) but it is limited mostly to technical applications of magnetooptical effects.

Zvezdin and Kotov's book should be useful for scientists, engineers and students. Much is presented, and presented with clarity and perspective. In sum, this book is a good one.

Henryk Szymczak