

BIBLIOGRAPHY

PACS numbers: 01.30.Vv; 42.15.-i; 42.25.-p; 42.81.-i; 42.82.-m

DOI: 10.1070/QE2006v036n12ABEH013483

Review of the book 'Optics and Lasers, Including Fibres and Optical Waveguides' by M. Young. Translated from English, Mikhailin V.V., Ed. (Moscow: Mir, 2005, 541 pp)

O.E. Nanii

The book of an American professor M. Young 'Optics and Lasers, Including Fibres and Optical Waveguides' is intended for teachers of colleges, practicing physicists, students and post-graduate students, engineers working in the field of modern optics and specialists using fibreoptic communication lines.

During the last four decades, optics has undergone substantive development, which necessitates the appearance of an up-to-date textbook on optics. Optics has become now an applied branch of science to a great extent, which requires the publication of a textbook on applied optics intended, in particular, for engineers working in allied fields of science and technology and using optical methods in their professional activity. Such a textbook should clearly present, on the one hand, basic principles used in optics, its applications and instruments and, on the other hand, there is no need to describe in detail some traditional fields of classical optics, in particular, such as experiments on accurate measurements of the speed of light. In my opinion, the book by M. Young satisfies these criteria to a great extent.

This modern textbook combines the presentation of traditional fields of classical optics with materials on optical fibres, integrated optics, lasers, coherent processing of optical signals, holography, and digital image processing.

M. Young surveys a broad panorama of modern applied optics, describing each topic in detail by using the minimum of higher mathematics. By presenting the classical material, he always turns to modern applied problems of current interest. The author himself has formulated the aim of his book as follows: 'My purpose, therefore, has been to write an up-to-date textbook that surveys applied or engineering optics, including lasers, optical processing, optical waveguides and other areas that may be called modern optics. I have attempted to treat each topic in enough depth to give it a considerable practical value, while keeping it as free from mathematical details as possible. Because I have surveyed applied optics in a very general way (including much more than I would attempt to incorporate into a single one-semester college course), this book should also be a useful

handbook for the practicing physicist or engineer who works from time to time with optics. Any of the material is appropriate to an introductory undergraduate course in optics, the work as a whole will be useful to the graduate student or applied physicist with scant background in optics.'

I think that the book by M. Young partially makes up for a deficiency in books in Russian intended first of all for experimenters. It will be useful, for example, for many researchers in laser optics working with elements of fibre and integrated optics and studying the problems of optical data processing and holography. It should be emphasised that the textbook contains a voluminous vocabulary of terms, which alleviates the reading and understanding of the material presented in the book by eliminating any ambiguous treating.

Of course, this book is not a handbook on the modern divisions of fibre optics and lasers. Some questions considered, for example, in the chapter 'Measurements of optical-fibre parameters' are partially no longer of current interest, whereas some 'hot' topics of fibreoptic communications were not considered at all.

I am impressed by the way the author presents the material in the book, which demonstrates the inherent relation between classical (geometrical and wave) divisions of optics and its modern divisions, including laser optics, holography, image processing, nonlinear optics, fibre and integrated optics.

The book also contains many useful original tasks developing the skill for calculating various optical systems and stimulating creative abilities of the reader.

Unfortunately, the number of book copies printed (1500) is obviously insufficient.

O.E. Nanii Department of Physics, M.V. Lomonosov Moscow State University, Vorob'evy gory, 119992 Moscow, Russia;
e-mail: nanii@rambler.ru

Received 23 November 2006

Kvantovaya Elektronika 36 (12) 1181 (2006)

Translated by M.N. Sapozhnikov