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About the Author

Jeremiah F. Hayes received the BEE from Manhattan College, the MS in mathematics from New York University and the PhD in Electrical Engineering from the University of California, Berkeley. Dr. Hayes has taught at Purdue University and McGill University, and on 01/01/01 he retired as Distinguished Professor Emeritus from Concordia University in Montreal. As well as academic positions, he was also a member of technical staff at Bell Telephone Laboratories. He is a Life Fellow of the Institute of Electrical and Electronic Engineers. In 1998, he was the fourth recipient of the Canadian Award for Telecommunications research.



Book Review / Revue de livre

Photonic Devices

Author: Jia-Ming Liu,
Cambridge University Press, 2005
ISBN-13 978-0-521-55195-3,
Pages: 1104

This book is composed of five parts: The first part presents a background for photonic devices; the other four parts are: "waveguides and couplers", "nonlinear photonics", "lasers" and "semiconductor optoelectronics".

The book covers the photonic devices subject in a relatively exhaustive way, devoting several chapters to some parts. Each chapter ends with a series of problems and advanced reading lists, which is a very useful for teaching and helpful in research as well. It is well written, well structured and coherently presented, and therefore easy to understand for interested readers. The figures and curves are illustrative and clearly marked.

To facilitate the comprehension of equations, the author provided at the beginning of the book an exhaustive 16 pages list of symbols used throughout the book. The reader can refer to this list whenever he/she lost the meaning of one symbol in any equation. A list of abbreviations is also given at the beginning of the document to explain the used acronyms. Fourteen pages have been devoted to only listing the captions of the figures illustrated in the document; this indicates how numerous are the figures and therefore how illustrative is the book.

Specific subjects

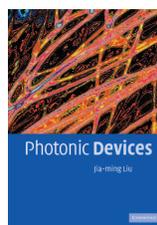
In addition to the fourth part handling semiconductors, more than the third of the document has been devoted to non-linear optics and non-linear optical devices (part II). However, despite G. Agrawal's abundant works in this field, only one of his publications ("Semiconductor Lasers", co-authored by N. K. Dutta, Second edition published in 1993 by Kluwer Academic) is referred to in this book.

We believe that an important field such as fiber non-linear optics is

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worth a separate chapter, although it is not totally ignored in the present edition. The devices associated to this field such as components for dispersion management or for nonlinear management are very useful. While solitons are very important in fiber based applications, they are briefly mentioned in the present book on pages 119, 154, 441 and 468. Covering fiber non-linear optics in more details in the next edition, based on Agrawal's work, should further enrich this part.

Optical fiber components such as fiber gratings are partially covered in an elegant way in the present edition. However, devices such as chirped gratings, micro-structured fiber components, photonic crystal fiber components and tapered optical fiber and sensors merit attention given their wide usefulness.



As well, diffractive optical elements in both versions: fixed (multilevel glass plates ... etc.) and reconfigurable (spatial light modulators) are almost totally absent from this publication. Such optical devices are very interesting in communications, instrumentation, metrology, measurements, displays, etc. The most popular diffractive optical element is the diffraction grating designed by Dammann in the 70s. A lot of documents are available online about this subject.

Recommendation

The readers should greatly benefit from this edition, but will benefit more if the next one includes at least a separate section on optical fiber components and applications. All in all, we congratulate the author and the publisher for such an excellent publication.