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Book review

Progress in Optics, vol. 49. Wolf, E (ed.). Elsevier, Amsterdam (2006) (xii + 600pp., US$ 155, Hardbound, ISBN: 978-0-444-52732-5)

This book was published as volume 49 of the exemplary Elsevier series "Progress in Optics" edited by Professor Emil Wolf. The book includes six chapters providing updated overviews of specific topical areas of optics. All chapters are contributed by actively working experts who have made significant personal contributions to the respective fields.

The first chapter by V. N. Mahajan discusses optical systems with Gaussian apodization or Gaussian pupils. The second chapter by A. Joshi and M. Xiao overviews the problem of electromagnetically induced transparency and its use to manipulate non-linear optical processes in multi-level atomic systems. The third chapter by H. Benisty and C. Weisbuch is essentially a mini-monograph and provides an excellent thorough introduction to the rapidly developing discipline of photonic crystals in two and three dimensions. The fourth chapter by C. Brosseau and A. Dogariu gives an overview of symmetry properties of arbitrary electromagnetic wavefields and discusses how to describe the polarization properties of the fields that are not transverse electromagnetic waves, for example, near fields. The fifth chapter by M. Dušek, N. Lütkenhaus, and M. Hendrych introduces the exciting field of optical cryptography and discusses its technological implementations and limitations. The final chapter by N. J. Cerf and J. Fiurášek provides a broad overview of optical quantum cloning.

Each chapter is written at a high scientific level and should be intelligible to graduate students and non-expert scientists. Although personal interests of the authors may have made the exposition in some of the chapters slightly biased, each overview is sufficiently general and serves as a representative, thorough introduction to the corresponding field. This makes the book a must for any research or university library and a valuable and useful addition to the personal library of any scholar in optics. The book has useful author and subject indices and is beautifully produced, with a robust, durable binding.

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