

Laser Physics

Simon Hooker and **Colin Webb**, both at Oxford University

'There is no question in my mind that for expository clarity and completeness this book far surpasses all the others I've seen. The authors are to be congratulated. I have little doubt it will become the standard Laser Physics text against which all others will have to be judged (and mostly found wanting). The treatment of explanatory footnotes is superb; it immediately raised the question of why it wasn't done this way years ago? The ability to jot down notes in a truly generous margin is also a great feature. It's not only a textbook for students; from my point of view everyone working with lasers will find it useful. It may become the standard quick reference for lasers; the book everyone reaches for when a question comes up.'

Alan White, Formerly of Bell Laboratories, and co-inventor of the red HeNe gas laser

In this book, the interaction of radiation and matter and the principles of laser operation are treated at a level suitable for fourth-year undergraduate courses or introductory graduate courses in physics, chemistry or engineering. The factors which determine efficiency, wavelength coverage, output power, and beam quality of the different classes of laser are treated both in terms of fundamental theory and practical construction aspects. Details of established types of solid-state, semiconductor, and gas lasers are examined together with the techniques that enable their output to be converted widely across the spectrum. The latest advances in high power fibre lasers, femtosecond lasers, and X-ray lasers are explained.

Solutions manual available for lecturers. Please visit www.oup.com/uk for more information.

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
August 2010 | 608 pages | 314 b/w line and halftone figures

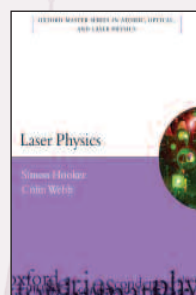
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Quantum Physics: A First Encounter

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Valerio Scarani, University of Geneva

Rachael Thew

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J. Garibaldi, *Journal of the Operational Research Society*

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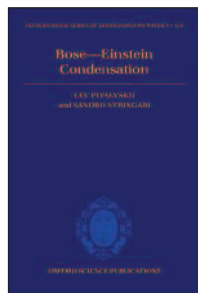
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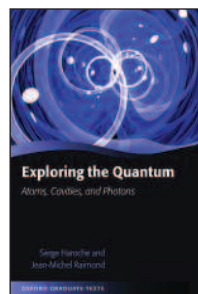
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Physics Today

The quantum world obeys logic at odds with our common sense intuition. This weirdness is directly displayed in recent experiments juggling with isolated atoms and photons.

They are reviewed in this book, combining theoretical insight and experimental description, and providing useful illustrations for learning and teaching of quantum mechanics.

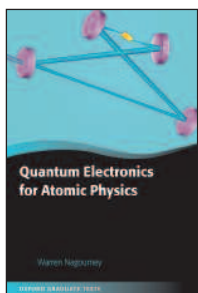
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2006 | 616 pages | 228 figures - 156 b+w line drawings and 72 b+w halftones

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Quantum Electronics for Atomic Physics



Warren Nagourney,
University of Washington,
Seattle

Quantum Electronics for Atomic Physics provides a course in quantum electronics for researchers in atomic physics. The book covers the usual topics, such as Gaussian beams, cavities, lasers, nonlinear optics and modulation techniques but

also includes a number of areas not usually found in a textbook in quantum electronics. Problem sets are included at the end of each chapter.

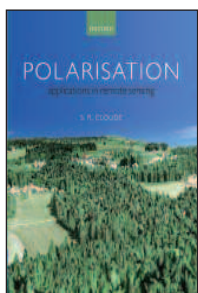
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Shane Cloude, AEL
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Physics Today

2009 | 472 pages | 260 line illustrations

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Laser Control of Atoms and Molecules

Vladilen Letokhov, Institute of Spectroscopy, Troitsk, Russia, and Member of the European Academy of Sciences

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Science

'The author evinces great enthusiasm and curiosity throughout.'

Steven Poole, *The Guardian*

'A wide-ranging and intriguing picture of how quantum mechanics constructs the world.'

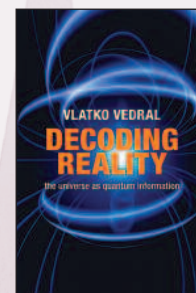
Seth Lloyd, *New Scientist*

Vlatko Vedral takes us on a voyage of discovery. In this engaging and mind-stretching book, he explores the nature of information and looks at quantum computing, discussing the bizarre effects that arise from the quantum world. He concludes by asking the ultimate question: where did all of the information in the Universe come from?

February 2010 | 240 pages

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Lectures on Light: Nonlinear and Quantum Optics using the Density Matrix



Stephen Rand, University of Michigan

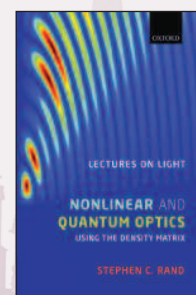
This book attempts to bridge the enormous gap between introductory quantum mechanics and the research front of modern optics and scientific fields that make use of light, in one step. Hence, while it is suitable as a reference for the specialist in quantum optics, it will also be useful to the non-specialists from other disciplines who need to understand light and its uses in research.

Solutions manual available for lecturers. Please visit www.oup.com/uk for more information.

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Optically Polarized Atoms

Understanding light-atom interactions

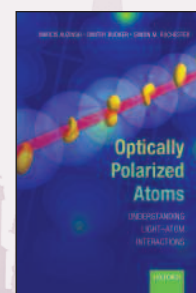
Marcis Auzinsh, University of Latvia, **Dmitry Budker**, University of California at Berkeley, and **Simon Rochester**, University of California at Berkeley

Optically Polarized Atoms is aimed at upper-division undergraduate and graduate students involved in research in Atomic, Molecular, and Optical Physics. It gives an intuitive, yet sufficiently detailed and rigorous introduction to light-atom interactions with a particular emphasis on the symmetry aspects of the interaction, especially those associated with the angular momentum of atoms and light. The book comes with a software package for a variety of atomic-physics calculations and further interactive examples that is freely downloadable from the book's web page, as well as additional materials (such as power-point presentations) available to Instructors who adopt the text for their courses.

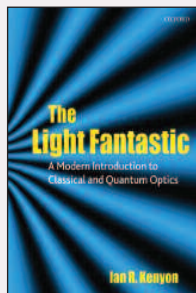
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Barry R. Masters, *Optics and Photonics News*

A thorough introduction to modern classical and quantum optics, appropriate for advanced undergraduates or beginning graduates. The emphasis is on building an understanding in straightforward steps. Digital cameras, LCD screens, laser welding, and the optical fibre-based internet illustrate the penetration of optics in twenty-first century life: many such modern applications are presented from first principles.

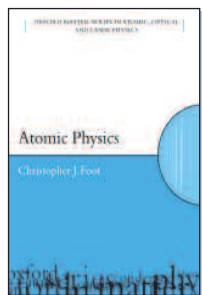
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Atomic Physics

C.J. Foot, University of Oxford

 suitable as a student text



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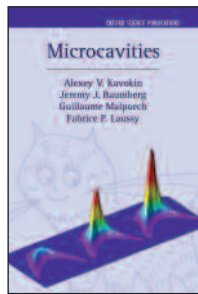
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This is the first book to cover a new and rapidly developing research field in physics. Confining light in small structures called microcavities produces new devices which exploit the quantum physics of light-matter interactions. It addresses the large variety of optical phenomena taking place in confined solid state structures: microcavities.

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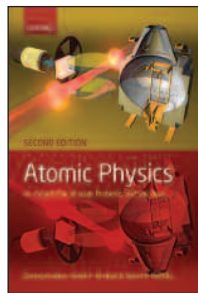
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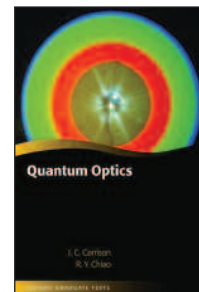
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Quantum Optics

John Garrison, University of California, Berkeley, and
Raymond Chiao, University of California, Merced



This book develops the theoretical and experimental basis of quantum optics, i.e. the interaction of individual particles of light (photons) with matter, starting from elementary quantum theory. The self-contained exposition will be useful to graduate students in physics, engineering, chemistry, as well as senior undergraduates in physics.

Oxford Graduate Texts

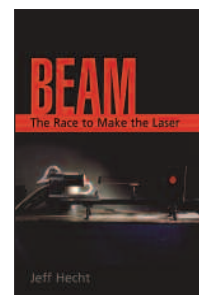
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Jeff Hecht, Freelance writer and correspondent, New Scientist

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The story is interesting in its

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Brooker: *Modern Classical optics* on page **3** in *Oxford Master Series*

Fox: *Optical Properties of Solids* on page **4** in *Oxford Master Series*

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