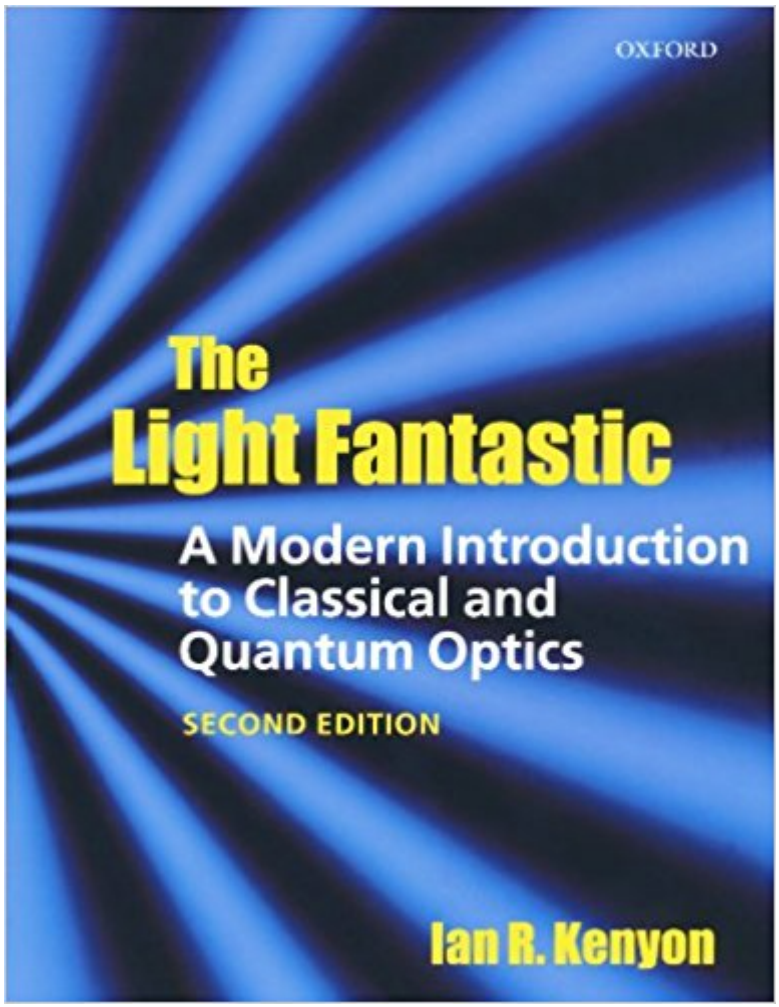
The Light Fantastic: A Modern Introduction To Classical And Quantum Optics



Synopsis

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 fiber-based internet illustrate the penetration of optics in twenty-first century life: many such modern applications are presented from first principles. Self-contained themes covered in the book include: - Paraxial ray optics for devices including matrix methods and aberrations.- Interference, coherence and interferometry. - Diffraction, spectrometry and Gaussian optics. - Fourier optics, holography and information processing. - Astronomical telescopes, adaptive optics and aperture synthesis. - Maxwell's theory; scattering, absorption and dispersion in bulk materials; multilayer filters. - Quantum phenomena, wave-particle duality and the uncertainty principle. - Schroedinger's analysis of spectra, photon properties. - Laser principles; He:Ne to MQW lasers and applications. - Detectors: photodiodes, CCDs, PMs and image intensifiers; response, noise and linearity. - Fiber optics: single mode fibre analysis; the modern data highway; fibre sensors. - Photon-atom interactions, optical cooling and optical clocks. - Second quantization, photon correlations, SPDC, entanglement.This thoroughly revised and updated edition includes new coverage of photonic crystals and Bloch waves, as well as quantum dots and microcavities.

Book Information

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Customer Reviews

Review from previous edition: "The well designed illustrations, strongly linked to the discussion, the

clear definition of terms and the easy to follow derivations of key equations make this an excellent choice for a graduate optics course. It is also an appropriate choice for advancedundergraduates. This highly recommended modern textbook can both explain the principles and applications of modern optics and stimulate creative minds." --Barry R. Masters, Optics and Photonics News

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Very confusing book, wish I could have rented it instead...