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Titolo	Quantum Photonics: Pioneering Advances and Emerging Applications / / edited by Robert W. Boyd, Svetlana G. Lukishova, Victor N. Zadkov
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Descrizione fisica	1 online resource (XXXI, 627 p. 268 illus., 134 illus. in color.)
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Disciplina	535.15
Soggetti	Quantum optics Lasers Electrodynamics Optical materials Quantum Optics Laser Classical Electrodynamics Optical Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	From the contents: Single-photon and nonlinear optical experiments in a pre-laser era -- Modern single-photon and quantum nonlinear optical experiments -- Experiments on quantum imaging and information -- Preparation of non-classical light sources -- Room-temperature single-photon sources -- Single-photon spectroscopy of a single molecule -- Quantum nonlinear optics with single photons enabled by strongly interacting atoms -- Atom-light interactions in photonic crystals -- Quantum plasmonics -- Nonlinear nanoplasmonics -- Nano-antennas for light -- Light-by-light coherent control using metamaterials -- Review of modern visual science on sensitivity of human eye to the low-light level -- Determining the lower limit of human vision using single-photon source -- Measurements of photon statistics with live photoreceptor cells -- Nonlinear optics with photonic crystals/in mid- and near-IR -- Nonlinear polarization optics -- Single-cycle pulses and nonlinear optical effects in THz waves.

Sommario/riassunto

This book brings together reviews by internationally renowned experts on quantum optics and photonics. It describes novel experiments at the limit of single photons, and presents advances in this emerging research area. It also includes reprints and historical descriptions of some of the first pioneering experiments at a single-photon level and nonlinear optics, performed before the inception of lasers and modern light detectors, often with the human eye serving as a single-photon detector. The book comprises 19 chapters, 10 of which describe modern quantum photonics results, including single-photon sources, direct measurement of the photon's spatial wave function, nonlinear interactions and non-classical light, nanophotonics for room-temperature single-photon sources, time-multiplexed methods for optical quantum information processing, the role of photon statistics in visual perception, light-by-light coherent control using metamaterials, nonlinear nanoplasmatics, nonlinear polarization optics, and ultrafast nonlinear optics in the mid-infrared.
