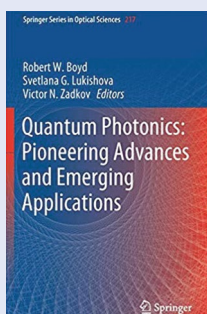


Single-Frequency Fiber Lasers

By Zhongmin Yang, Can Li, Shanhui Xu and Changsheng Yang

SPRINGER: 2019. 170PP. €114.39.

Fibre lasers have been intensively studied because of the search for laser sources that are scalable to high output power, compact and robust, with highly stable single-frequency operation, narrow linewidth and low noise. Consisting of ten chapters, this book reviews the single-frequency fibre laser technologies from fundamental principles to state-of-the-art progress. Topics that are discussed include the fundamental principles and enabling technologies of single-frequency fibre lasers, single-frequency active fibre lasers, nonlinear single-frequency lasers, single-frequency pulsed fibre lasers, and amplification technologies of continuous-wave and pulsed single-frequency lasers. Selected typical applications of single-frequency fibre lasers are also described.

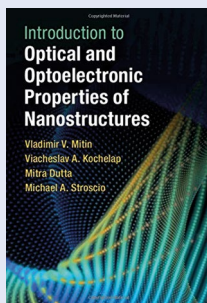


Quantum Photonics: Pioneering Advances and Emerging Applications

Edited by Robert W. Boyd, Svetlana G. Lukishova and Victor N. Zadkov

SPRINGER: 2019. 627PP. US\$179.99.

Made up of 19 chapters, this volume details novel experiments at the limit of single photons, and presents advances in the emerging research area of modern quantum photonics. Nanophotonics for room-temperature single-photon sources, time-multiplexed methods for optical quantum information processing, light-by-light coherent control using metamaterials, nonlinear nanoplasmonics and ultrafast nonlinear optics in the mid-infrared are among the modern quantum photonics results described. The book also includes reprints and historical descriptions of some of the first pioneering experiments at the single-photon level and on nonlinear optics, performed before the inception of lasers and modern light detectors. For instance, the first single-photon sources and single-photon interference experiments, the first paper on the experimental observation of interference fringes with feeble light, and the first experiments on measuring light pressure are discussed.

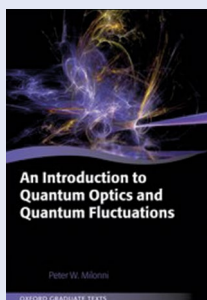


Introduction to Optical and Optoelectronic Properties of Nanostructures

By Vladimir V. Mitin, Viacheslav A. Kochelap, Mitra Dutta and Michael A. Stroscio

CAMBRIDGE UNIVERSITY PRESS: 2019. 414PP. £79.99.

This title presents up-to-date information on the optical properties of monolayer crystals, plasmonics, nanophotonics, ultraviolet quantum-well lasers, and wide-bandgap materials and heterostructures. It covers basic principles and includes detailed mathematical derivations. According to the publisher, the unified, multidisciplinary approach makes the book ideal for those with backgrounds in nanoscience, physics, materials science, and optical, electrical and mechanical engineering. The examples with solutions included in the text and the end-of-chapter problems will enhance the understanding of the readers.



An Introduction to Quantum Optics and Quantum Fluctuations

By Peter W. Milonni

OXFORD UNIVERSITY PRESS: 2019. 544PP. £65.00.

This book introduces the quantum theory of light and its broad implications and applications, covering current basic and applied research, such as quantum fluctuations and their role in laser physics and the theory of forces between macroscopic bodies. It has seven chapters. Foundational topics in classical and quantum electrodynamics are addressed in the first half of the book while the second half covers the Jaynes-Cummings model, dressed states and some distinctly quantum-mechanical features of atom-field interactions. The last two chapters focus on quantum fluctuations and fluctuation-dissipation relations, beginning with Brownian motion, the Fokker-Planck equation, and classical and quantum Langevin equations.

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