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Titolo	Nano and Quantum Optics [[electronic resource]] : An Introduction to Basic Principles and Theory / / by Ulrich Hohenester
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ISBN	3-030-30504-X
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (665 pages) : illustrations
Collana	Graduate Texts in Physics, , 1868-4513
Disciplina	535.15
Soggetti	Quantum optics Optical materials Electronic materials Lasers Photonics Surfaces (Physics) Interfaces (Physical sciences) Thin films Optics Electrodynamics Quantum Optics Optical and Electronic Materials Optics, Lasers, Photonics, Optical Devices Surface and Interface Science, Thin Films Classical Electrodynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I Nano Optics -- What is nano optics? -- Maxwell's equations in a nutshell -- Angular spectrum representation -- Symmetry and forces -- Green functions -- Diffraction limit and beyond -- Material properties -- Stratied media -- Particle plasmons -- Photonic local density of states -- Computational methods in nano optics -- Part II Quantum Aspects -- What is quantum optics? -- Light-matter interaction -- The photon -- Two-level systems -- Master equation --

Photon correlations -- Optical properties from first principles -- Thermal nearfields and the Casimir effect -- Cavities and lasers -- Appendices.

Sommario/riassunto

This classroom-tested textbook is a modern primer on the rapidly developing field of quantum nano optics which investigates the optical properties of nanosized materials. The essentials of both classical and quantum optics are presented before embarking through a stimulating selection of further topics, such as various plasmonic phenomena, thermal effects, open quantum systems, and photon noise. Didactic and thorough in style, and requiring only basic knowledge of classical electrodynamics, the text provides all further physics background and additional mathematical and computational tools in a self-contained way. Numerous end-of-chapter exercises allow students to apply and test their understanding of the chapter topics and to refine their problem-solving techniques.