1. Record Nr. UNINA9910544871103321

Autore	Stenzel O (Olaf)
Titolo	Light–Matter Interaction : A Crash Course for Students of Optics, Photonics and Materials Science / / by Olaf Stenzel
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	9783030871444 9783030871437
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (558 pages)
Collana	UNITEXT for Physics, , 2198-7890
Disciplina	621.365 535
Soggetti	Optics Optical materials Optical spectroscopy Quantum theory Condensed matter Chemical bonds Optics and Photonics Optical Materials Optical Spectroscopy Quantum Physics Condensed Matter Physics Chemical Bonding
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Simplest Model Treatment of the Classical Interaction of Light with Matter -- Waves as Particles and Particles as Waves -- The Schrödinger Equation and Model System I -- Operators in Quantum Mechanics and Model System II -- Einstein-Coefficients and Quantum Transitions -- Planck’s Formula and Einstein-Coefficients.
Sommario/riassunto	This book offers a didactic introduction to light–matter interactions at both the classical and semi-classical levels. Pursuing an approach that describes the essential physics behind the functionality of any optical

element, it acquaints students with the broad areas of optics and photonics. Its rigorous, bottom-up approach to the subject, using model systems ranging from individual atoms and simple molecules to crystalline and amorphous solids, gradually builds up the reader's familiarity and confidence with the subject matter. Throughout the book, the detailed mathematical treatment and examples of practical applications are accompanied by problems with worked-out solutions. In short, the book provides the most essential information for any graduate or advanced undergraduate student wishing to begin their course of study in the field of photonics, or to brush up on important concepts prior to an examination.