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Nota di contenuto	Basics of quantum optics and cavity quantum electrodynamics -- Basics of dipole emission from a planar cavity -- Microscopic theory of the optical semiconductor response near the fundamental absorption edge -- An introduction to photonic crystals -- Linear optical properties of semiconductor microcavities with embedded quantum wells -- Spontaneous emission control and microcavity light emitters -- Cavity QED — where's the Q? -- Quantum optics in semiconductors -- Semiconductor microcavities, quantum boxes and the Purcell effect -- Single photon sources and applications -- Photonic crystals for nonlinear optical frequency conversion -- Physics of light extraction efficiency in planar microcavity light-emitting diodes -- Measuring the optical properties of two-dimensional photonic crystals in the near infrared -- Limitations to optical communications -- Thoughts on quantum computation.

Confined photon system such as microcavities and photonic crystals are currently of great interest, both in terms of fundamental physics and as a result of potential applications. They enable the study of low-dimensional photonic systems, modified light-matter interaction, e.g. between excitons and photons in all-solid-state semiconductor microcavities, and of many phenomena of quantum optics, including single photon generation, squeezed light, quantum state entanglement, non-local quantum measurements, and, potentially, quantum computation. They are also on the verge of yielding new, high performance optical devices for large-scale industries such as telecommunications and display technology. The lectures in this book are organized in a didactic fashion, with a group of in-depth introductory lectures followed by more specialist contributions detailing particular applications of confined photon systems.
